Methodical Instruction  No.1
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: Therapeutic stomatology, as basic stomatological discipline. Tasks of a therapeutic stomatology, interrelation with general clinical and stomatological disciplines.


Hours: 2

1. The topic basis: the topic is very important for future doctors in their professional activity, positively influences the students in their attitude to the future profession, forms professional skills and experience as well as taking as a principle the knowledge of the subject learnt.the introduction of the student in clinic of a therapeutic odontology after a phantom course requires knowledge of ethical behaviour and features of the deontological approach to the patients, skill to use modern stomatological installations, armchairs for granting complete and safe stomatological help.

2. The aims of the training course:

A=1. 1) To familiarize with frame and mode of operations of stomatological polyclinic, specialized consulting rooms of therapeutic branch, workplace of the doctor - stomatologist.

A=2. 2) To know:

1) tasks and sections of a therapeutic stomatology;
2) frame of stomatological service of Ukraine;
3) frame and tasks of stomatological polyclinic;
4) purpose of the specialized consulting rooms of therapeutic branch;
5) the specifications and demands to organization of stomatological consulting room;
6) kinds of stomatological installations;
7) the safety precautions at job on stomatological installations, with strong medicines, with fine endodontical toolkit.

A=3. 3) To be able:

1) to use modern stomatological installations;
2) to use rules of safety at job with electrical devices, installations, medicines, fine toolkit;
3) to apply of ethical norms and deontological rules at dialogue with the patients, younger medical personnel, between itself.

3. Materials for the before – class work self – preparation work:
3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
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<tbody>
<tr>
<td>History of medicine</td>
<td>stages of a becoming of a domestic stomatology, ethical and deontological principles of job.</td>
<td>use deontological principles and ethical norms at realization of stomatological reception</td>
</tr>
<tr>
<td>Psychology</td>
<td>psychological problems, which arise at the patient during realization of stomatological manipulations</td>
<td>use the psychological approach at reception of the stomatological patient</td>
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</tbody>
</table>
3.2 The contents of the topic:

**Topic**: Therapeutic stomatology, as basic stomatological discipline. Tasks of a therapeutic stomatology, interrelation with general clinical and stomatological disciplines.

Text

**STRUCTURE OF STOMATOLOGICAL POLYCLINIC**

- Rendering of qualified stom. help;
- Realization of measures on prophyl. of stom. diseases;
- Introduction of modern methods of diagnostics and treatment;
- The analysis of a case rate of jaw-facial area, including diseases with a disability of the workers and UMSA. Propedeutic of Therapeutic Stomatology Department

<table>
<thead>
<tr>
<th>Biophysics</th>
<th>features of job of electrodevices, safety precautions</th>
<th>use the safety precautions at job with stomatological installations, electrodevices</th>
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<tbody>
<tr>
<td>Internal illnesses</td>
<td>disease of internal bodies, which have displays in oral cavity</td>
<td>define interrelation between diseases of internal bodies and their displays in oral cavity. To spend adequate treatment and prophylaxis.</td>
</tr>
<tr>
<td>Propedeutics of a therapeutic stomatology (phantom course)</td>
<td>stomatological toolkit: kinds, purpose, kinds of handpieces, burs, safety precautions regulation at job with them.</td>
<td>work by different stomatological instruments safely</td>
</tr>
</tbody>
</table>

Registry
- X-ray diagnostic study
- Tooth-Technical laboratory
- Functions
Literature recommended

Main Sources:
1. Терапевтическая стоматология под редакцией Э.В.Боровского.,- Г. :Медицина, 2002.-800с.

Additional ones:

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td>1.To teach frame of stomatological polyclinic, its therapeutic branch, function of its separate consulting rooms. List</td>
<td>See the circuit &quot; Frame of stomatological polyclinic &quot;</td>
</tr>
</tbody>
</table>
consulting rooms of therapeutic branch, their function, draw the circuit in the workers notebooks.
2. To teach the safety precautions regulations at job in stomatological therapeutic consulting room. To list rules of the reference(manipulation) with electrical devices, fine endodontical toolkit, strong medicines.
3. To teach features of granting of the first aid in stomatological consulting room at a loss of consciousness, cardiovascular failure, allergic reaction. To know features, percentage concentration of medicamental agents of a first aid. 1. Medicamental agents for granting the help at a loss of consciousness: 10 % solution of ammonia. 2. Medicamental agents at intimately vascular failure: Validolum, Corvalolum, 10 % a solution Euphillinum, 2 % solution of a papaverine hydrochloride, solution of Dibazolum, solution of Cordiaminum. 3. Medicamental agents at an anaphylactic shock and allergic condition: solutions of Dimedrolum, Diazolinum, Pipolphenum, Hidrocortizonum

3.5. Self-control material:

A. Questions to be answered:

1. Definition of a therapeutic stomatology as sciences
2. List general clinical and stomatological discipline, which have close connection with a therapeutic stomatology.

3. Frame of stomatological service of Ukraine

4. Frame of stomatological polyclinic.

5. Function of stomatological polyclinic.

6. Frame of therapeutic branch, function of separate medical consulting rooms.

7. Specifications and demands to organization of stomatological consulting room;

8. Demand to equipment of a workplace of the doctor - stomatologist;


10. Rules of ethical and deontological behaviour of the students in a clinical hall.

B. Test tasks to be done:

Test task № 1 with the correct individual answer

What should be the area of stomatological consulting room on one workplace?.

1. 12 sq.m.
2. Not smaller than 7 sq.m.
3. 9 sq.m.
4. Not smaller than 10 sq.m.
5. Not smaller than 14 sq.m.

Test task № 2 with a multiple choice

What concerns to basic equipment of stomatological consulting room?

1. Fuming board with a sterilizer.
2. Stomatological installation.
4. Desk.
5. Armchair for the doctor.
6. Case with medicines.

4. Self-preparation at class.

1. To hear instructing in the safety precautions, to fill in a log-book realization of instructing.
2. To prepare for job stomatological installation, dental surgery armchair.
3. To select a necessary tooling for inspection of the patient and realization of treatment.
4. To establish a turbine handpiece, micromotor;
5. To fix burs in handpieces;
6. To use ethical and deontological rules at job in stomatological consulting room.
7. To give a first aid to the patient (situational game), using necessary medicamental agents.

**Professional algorithms concerning mastering by habits and skills.**

<table>
<thead>
<tr>
<th>Task</th>
<th>Indicating to performance</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>1. Lead acquaintance with equipment and job of a therapist consulting room.</td>
<td>To carry out in such sequence: 1. Lead processing of arms. 2. Following rules of an aseptic and anti-Septic select the instruments for inspection tray.</td>
<td>The structure of an inspection tray: stomatological mirror, stomatological forceps, stomatological probe.</td>
</tr>
<tr>
<td>2. Prepare a workplace of the student - stomatologist.</td>
<td>1. Set the patient conveniently in stomatological armchair. 2. Lift him on necessary height. 3. Switch on and establish the fixture, record a headrest.</td>
<td>At job on the top jaw the face of the patient is on the level of a brachium of the doctor, at job on a mandible - on the level of an elbow.</td>
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<tr>
<td>3. Lead of</td>
<td>1. Medicamental agents for</td>
<td>Pay attention for the term</td>
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<tr>
<td>acquaintance with the list and purpose of medicines in a case of a first aid.</td>
<td>granting the help at a loss of consciousness: 10 % a solution of ammonia. 2. Medicamental agents at intimately vascular failure: Validolum, Corvalolum, 10 % a solution of euphilinium, 2 % a solution of a papaverine hydrochloride, solution of Dibazolum, solution of Cordiaminum. 3. Medicamental agents at an anaphylactic shock and allergic condition: solutions of Dimedrolum, Diazolinum, Pipolphenum, Hidrocortizonum.</td>
<td>of suitability, concentration, method of introduction (for example, 10 % solution of Calcium chloratum can be entered only intravenously).</td>
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<tr>
<td>4. Give the necessary help to the patient, at which has taken place the faint (situation game)</td>
<td>1. Stop realization of manipulation 2. Release the patient of compressive clothes (unbutton the top button, undo a tie); 3. Give to the patient of a horizontal position (position by Trendelenburg, when the head is posed below than level of a trunk) or incline a trunk forward and downwards and, pressing on an occipital site, ask the patient to render resistance, that is to do straighten movement;4. Lead exaltation of respiratory center by a boring of receptors of a nose by 10 % solution of ammonia</td>
<td>Adhere to the instructions for use by a solution of ammonia in connection with an opportunity of combustions, overexcitement of respiratory center</td>
</tr>
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</table>
(to present to a nose on a cotton plug, the patient now makes an inspiration).

5. Self-preparation work at home.

1) Which from the listed medicamental agents own toxiferous action?
   1. 4 % a solution of a hydroquinone;
   2. 3 % a solution of a peroxide of Hydrogenium;
   3. 2 % a solution of Chloraminum;
   4. Arsenic anhydrase;
   5. Eugenol;
   7. Resorcinum - formalin admixture.

2) What from the listed medicamental agents have allergenic action?
   1. Solutions of antibiotics;
   3. 3 % a solution of a peroxide of Hydrogenium;
   4. 2 % a solution of Chloraminum;
   5. Arsenic anhydrase;
   6. Eugenol;
   7. Solution of furacillinum 1:5000.
   8. Solution of Resorcinum;

Not typical tasks:

1. During realization by the student of 3-rd course silvering of 37 teeth the patient had complaints to a burning sensation in an oral cavity. At survey the circumscribed sites of white colour on a mucosa are revealed in the field of transitive pleat of a mandible and around of a tooth. By what safety precautions regulations did not keep on the student at realization of silvering?
2. During realization of tool processing of root canals of 27 teeth the patient had acute attack of tussis, after which ending the doctor has found out absence of a working file.

What rules of safety were broken at job by fine endodontical toolkit?

3. During realization of stomatological manipulations there was a deterioration of state of health of the patient, has arisen faint.

What actions are necessary for leading for rendering to the patient of a first aid?

6. The subject of the research work.

The methodical reference is made by the assistant Fetisova O.L.

Methodical development reconsidered and predicated on session of faculty of a propedeutics of a therapeutic stomatology, protocol № __ from __________

With additions (changes) ___________________

The Head of the Chair, professor E.V. Kovalev

Methodical Instruction No. 2,3

For the 3-d year students’ self – preparation work
(at class and at home)

in studying Propedeutic of therapeutic Stomatology

_topic:

Methods of inspection of the stomatological patient.

Clinical methods of inspection and their importance for diagnostics of diseases of an oral cavity

Subtopic:

Hours: 4

1, The topic basis: the topic is very important for future doctors in their professional activity, positively influences the students in their attitude to the future profession, forms professional skills and experience as well as taking as a principle the knowledge of the subject learnt. The study of the basic methods of
inspection of the stomatological patient forms the basis for diagnostics of stomatological diseases. They will help the future doctor to distinguish not only odontopathology, but quite often diseases of other bodies and systems.

2. The aims of the training course:

A=1. 1) To familiarize with the basic clinical methods of inspection of the stomatological patient: subjective and objective;

A=2. 2) To know:

- the circuit of inspection of the stomatological patient;
- the possible complaints of the stomatological patient, sequence of their finding - out;
- a sequence of clearing of an anamnesis of disease and anamnesis of life, their importance in diagnostics of odontopathology;
- a technique of realization of external survey of the patient, survey of the face, vestibule of oral cavity and actually oral cavity;
- a technique of realization of survey of a sick tooth, clinical variants of norm and pathology;
- parameters of estimation of probing;
- definition, kinds and technique of realization of a percussion, estimation of its results;
- a technique of realization of a palpation of a mucosa in the field of a projection of an apex of a root, estimation of its results.

A=3. 3) To be able:

- consistently to lead subjective inspection of the patient: to collect the complaints, to find out an anamnesis of disease, life;
- to lead external survey of the patient, to estimate a general condition, consciousness, expression of the face, body height, mass of a body, constitutional type;
- to inspect the face: to estimate symmetry, condition of a skin, expressiveness of pleats, condition of seen mucosas;
- to inspect a vestibule and actually oral cavity: to estimate a condition of a mucosa, attachment of bridles of labiums, tongue, occlusion, size and structure of tongue, condition of papillas etc.

- to lead inspection of a sick tooth: its survey, probing, percussion, palpation.

3. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

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<td>Propedeutics of a therapeutic stomatology</td>
<td>Equipment of a workplace of the student - stomatologist. Ethics and deontology of stomatological reception</td>
<td>Prepare a workplace of stomatological reception to use ethical and deontological principles of job, give a first aid to the patient.</td>
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3.2 The contents of the topic:

Text  

**TEXT 2-3,IIIc**

**GENERAL PRINCIPLES of INSPECTION of the STOMATOLOGICAL THERAPEUTIC PATIENT**

The inspection of the patient in therapeutic branch of stomatological polyclinic is carried out under the fixed circuit. It allows to avoid loss of the important facts, details of current of disease.

I. **subjective inspection (status presens subjectivus).**
   1. Passport part.
   2. Complaint of the patient (molestiae).
   3. Anamnesis of disease (anamnesis morbi).

II. **objective inspection (status presens objectivus).**
   1. External survey of the patient.
   2. Survey of the face of the patient.
   3. Palpation of regional lymphatic nodes and thyroid glands
   5. Survey actually oral cavities.
6. Inspection of a place of disease (locus morbi).
   - Survey of a tooth and environmental tissues (inspectio);
   - Probing;
   - Percussion (vertical, horizontal) (percussio);
   - Palpation of a mucosa in the field of a projection of an apex of a root (palpatio).

The previous diagnosis (diagnosis probabilis).

The plan and results of additional inspection of the patient (methodi explorationis succenturiati).

Differential diagnostics (diagnostica differentialis).

The clinical diagnosis (diagnosis clinica).

**SUBJECTIVE INSPECTION** (status presens subjectivus).

It is spent with the help of inquiry (question) of the patients. In time of making inquiries it is necessary to establish confiding contact with the patient, to define his psychological status, intelligence and on this basis to analyse the complaints, course of development of disease. The doctor by inducing accessible questions should help the patient to state a case history.

**Passport part.**

1) Surname, name, patronymic;
2) Age;
3) Sex,
4) Home address;
5) place of job,
6) Trade;

**The complaints of the patient (molestia)**

The complaints of the patient should be stated in the following order:

a) Basic odontological complaint (for example: a pain);

b) Additional, explaining basic (character of a pain);

c) The complaints, which accompany of odontological (smell from an oral cavity).
In a therapeutic stomatology, the complaint can be connected to a defeat:

a) hard tissues of a tooth,
b) pulp,
c) periodontium,
d) parodontium,
e) mucosa of an oral cavity.

Statement of the complaints at not carious defeats of teeth, caries and its complications we begin from the complete characteristic of a pain:

1. Character of a pain:
   a) Acute, blunt, tedious;
   b) Short-term, long;
   c) causal or spontaneous;
   
   • If a pain is causal - to specify the reason: from thermal, chemical, mechanical irritants, at bitting on a tooth, at moving a body etc.;
   • After elimination of irritant the pain: stops, lingers over, there is a new attack of a pain;
   • If spontaneous - constant or paroxysmal (duration of pain attacks and intermissions), night;
   
   d) localized (with the indicating of a jaw and party of a defeat) or irradiating (wide-spread) to specify zones irradiation.

2. Presence of a carious cavity or defect of hard tissues of a tooth.

3. Impossibility or difficulty of reception of nutrition (to specify the reason).

4. Presence of a fistula and secretion from it.

5. Asymmetry of the face.

6. Cosmetic defect:
   • The atypical form of a tooth;
   • Discoloration of a tooth;
   • Defect of a crown;
   • Defect and discoloration of a filling.
7. Unpleasant smell (faeter ex ore) from a mouth is characteristic for a chronic gangrenous pulpitis, ulcerous-necrotic gingivitis by Vensan etc.

**Anamnesis of disease** (anamnesis morbi)

The inquiry can be spent as a free statement by the patient of development of disease or as the answers to questions of the doctor. In an anamnesis of disease it is necessary to find out:

- Condition of a tooth before occurrence of the complaints (tooth earlier was treated, whether or not);
- Beginning (year, month, day) of occurrence of first attributes of disease, their reason;
  - Features of current of illness;
  - Dynamics(changes) of its separate periods (exacerbations and remissions);
  - Dynamics(changes) of pain sets of symptoms;
  - Occurrence of complications;
  - The items of information on character of treatment and its efficiency;
  - The items of information on a selftreatment.

**Anamnesis of life (anamnesis vitæ)**

The detail of the collecting of an anamnesis of life depends on the complaints of the patient, condition of an oral cavity and general condition of the patient. The anamnesis of life can be specified and be supplemented after survey of an oral cavity of the patient.

Shortly to state:

- Household anamnesis (condition of life, full value of a feed);
- a labour anamnesis (condition of job, industrial harmfulnesses, their character);
- an allergological anamnesis (presence of allergic reactions on medicamental preparations, products of a feed etc.);
- Presence of harmful habits.

The special attention to give to revealing and description:

- The transferred and accompanying diseases;
- Complications in a course of their treatment;
- Whether the patient is on the account at the profile experts.

The anamnesis of life of the patient can be investigated with the help of

Literature recommended
- Main Sources:
1. Терапевтическая стоматология под редакцией Е.В.Боровского.,- М.:Медицина, 2002.-800с.
- Additional ones:

Lectures on the topic.

3.4 How to work with the literature recommended:

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<tr>
<th>Main tasks</th>
<th>Recommendations</th>
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<tr>
<td>To teach principles of inspection of the stomatological patient, to be able to explain ethical and deontological, anaesthesiological principles, principles of technical rationality, punctuality, sequence and uniform strategy;</td>
<td>Ethical and deontological principle provides use of certain professional, moral, rules of law during performance of the duties. Anaesthesiological principle provides painless realization of inspection and therapeutic manipulations. The principle of technical rationality consists in an individualization of the circuit of inspection, techniques of treatment, and also ergonomic maintenance of job. The principle of a sequence and uniform strategy provides use of the uniform circuit of inspection and standard classifications, of modern well-known methods of treatment.</td>
</tr>
</tbody>
</table>
To teach the circuit of inspection of the stomatological patient, to write down the circuit of inspection of the patient in the worker notebook;
To be able to describe results of inspection of the patient in norm and at pathological condition, to summarize results of objective inspection of the patient in norm and change at pathological condition.

3.5. Self-control material:

A. Questions to be answered:

1. What sections of inspection of stomatological patient do you know?
2. Of what section does the subjective inspection of the patient consist? On what factors does it tightness depend?
3. List the basic complaints of the stomatological patient.
4. Name a sequence of the collecting of an anamnesis of disease.
5. Name a sequence of the collecting of an anamnesis of life.
6. List a sequence of realization of objective inspection of the patient.
7. Name parameters, on which the external survey of the patient is spent.
8. Name results of survey of the face in norm, possible changes at pathological condition.
9. Name results of inspection of regional lymphatic nodes in norm, possible changes at pathological condition.
10. Name results of survey of a vestibule and actually oral cavity in norm, possible changes at pathological condition.
11. Name results of inspection of an intact tooth (survey, probing, percussion, palpation) and possible changes at a pathology.
B. Test tasks to be done:

**Test task № 1** with the individual correct answer
To what part of inspection of the patient does finding - out of the complaints, anamnesis of disease concern?

1. Objective basic methods of inspection;
2. Objective auxiliary methods of inspection;
3. Subjective methods of inspection;
4. Laboratory methods of inspection;

**Test task №2** with a multiple choice
What sections from the listed sections of inspection does concern to the basic objective methods?

1. Palpation of lymphatic nodes;
2. Finding - out of the complaints;
3. Probing of a carious cavity;
4. Percussion of a sick tooth;
5. Collecting of an anamnesis of life;
6. Survey of actually oral cavity;
7. Survey of dentitions;
8. Palpation of a mucosa of an oral cavity.

**Test task №3** with a multiple choice
What is estimated at realization of probing of a carious cavity?

1. Depth of a carious cavity;
2. Condition of a periodontium;
3. Condition of hard tissues of a tooth;
4. Presence of communication of a carious cavity with oral cavity;
5. Presence of pain points on dentin-enamel border, at the bottom of carious cavity;

**Test task №4** on definition of a sequence of actions

Name a sequence of realization of objective inspection of a sick tooth of the patient

1. Thermodiagnostic;
2. Survey;
3. EOD;
4. Probing;
5. Percussion vertical and horizontal;
6. X-ray diagnostics;
7. Palpation of a mucosa in the field of a projection of an apex of a root of a tooth.

**Test task №5** with the single correct answer.

Reaction of what tissues does estimate at realization of a vertical percussion?

1. Enamel;
2. Apical periodontium;
3. Pulp;
4. Cloak dentine;
5. Regional periodontium;
6. Nearpulpal dentine;
7. Circular ligaments.

3. Self-preparation at class.

1) To prepare stomatological installation, dental surgery armchair for job, to select a necessary tooling for inspection of the patient.
2) To lead finding out of a passport part, complaints, anamnesis of disease, life.
3) To lead external survey of the patient, survey of the face, to estimate them by necessary parameters.
4) To lead a palpation of regional lymphatic nodes, to estimate their condition.
5) To inspect a vestibule and properly oral cavities. To estimate their condition.
6) To lead inspection of a sick tooth: survey, probing, percussion, palpation of a mucosa of an oral cavity. To estimate their condition.

5. Self-preparation work at home.

<table>
<thead>
<tr>
<th>task</th>
<th>indicatings to performance</th>
<th>note</th>
</tr>
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<tbody>
<tr>
<td>Lead subjective inspection of the patient. Lead objective inspection of the patient Lead inspection of a place of disease (Locus morbi)</td>
<td>to lead in such sequence: 1. to find out a passport part; 2. to find out the complaints of the patient: basic odontological (pain); additional, explaining basic (character of a pain); the complaints, which accompany basic (presence of a carious cavity, unpleasant smell, delay of nutrition). 3. to find out an anamnesis of disease: a condition of a tooth to occurrence of the complaints (the tooth was treated earlier, whether or not) ; a beginning of occurrence of first attributes of disease, their reason; features of current of illness (dynamics of pain sets of symptoms, occurrence of an exacerbation and complications); the items of information on character of treatment and its efficiency; the items of information on a selftreatment. 4. to find out an anamnesis of life - household anamnesis (condition of life, full value of a feed); - a labour anamnesis (condition of job, industrial harmfulnesses their character); - an allergological anamnesis (presence of allergic reactions on medical</td>
<td>The special attention give to revealing and descripti on: the transferre d and accompa nying diseases; complications in process of their treatment ; whether the patient is on the account at the profile</td>
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<td>Task</td>
<td>Description</td>
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<tr>
<td>Examine the face.</td>
<td>Examine the face for preparations, products of a feed etc., presence of harmful habits. Estimate: - colour of a skin, its integrity and cleanliness, humidity, elastance and turgor, - symmetry of the right and left half of face, - condition of seen mucosas of a nose, conjunctiva of the bottom blepharon, - condition of a skin of angles of a mouth, - condition of red edging of labiums.</td>
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<tr>
<td>Lead inspections of lymphatic nodes:</td>
<td>Calculate the size, form, consistence, morbidity, connection with environmental tissues. Estimate: - depth of a vestibule, - attachment of bridles of the top and bottom labium, - parity of dentitions, - condition of a mucosa of labiums and cheeks: colour, turgor, degree of wetness, presence of elements a defeat, - condition of fine sialadens and their ductus, - condition of glands by Fordais, - condition of papillas of ductes of glandules parotidea, - condition of a mucosa of an oral cavity (gingiviva).</td>
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<td>Examine a vestibule of an oral cavity.</td>
<td>Examine the vestibule for experts.e estimate appearance: a general condition, condition of consciousness, expression of the face, position, body height and mass of a body, constitutional type.</td>
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<td>Examine of properly oral cavity.</td>
<td>Examine the oropharynx for proper oral cavity. Estimate: - condition of a mucosa hard and soft palate, forward and back palatal</td>
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<tr>
<td>Examine the sick tooth</td>
<td>handles, palatine tonsils, uvulae, back wall of a pharynx: colour, humidity, turgor, presence of elements a defeat, - survey of tongue: the size, colour, pleats, condition of papillas, patch, condition of lymphatic nodes of tongue, presence of elements of a defeat, - survey of bottom of an oral cavity: colour, relief of a mucosa, condition of a bridle of tongue, ductes of submandibular and under lingual sialadens, - survey of teeth: estimate colour, transparence, form, size, position in a tooth arch, integrity of hard tissues of a tooth, mobility, presence of not carious defeats, tooth adjournment. estimate: - colour, shine, - presence of seals, - presence of a carious cavity or defect of hard tissues of a tooth, - parity of the sizes of an inlet opening with a carious cavity: - condition of edges of enamel: colour, fragility; - colour of walls of a carious cavity (at a wide inlet opening). Estimate: - at presence of seals - their functional and cosmetic full value, - depth of a carious cavity: - consistence of a dentine of bottom and walls of a carious cavity; - connection with a pulp cavity: in the field of horns of a pulp, wide connection; - presence of painfullity: on to pay attention to character of a pain: a) acute, blunt, tedious; b) short-term, long; c) casual or</td>
<td></td>
</tr>
<tr>
<td>Lead probing:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead a percussion (percussion on a tooth).</td>
<td>Lead a palpation of a mucosa in the field of a projection of an apex of a root of a tooth.</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>walls of a carious cavity in the field of dentine - enamel junction, on bottom; Estimate a horizontal and vertical percussion for definition of a condition of a marginal and apical periodontium accordingly. Estimate: - morbidity; - presence of an obvious hyperemia and edema; - presence of cicatrixes; - presence of fistulas, with the indicating of character of separated exudate.</td>
<td>spontane ous; - if casual - to specify the reason: from therm., chem., mechanic al irritants, at biting on a tooth, at moving a body etc.; - after eliminati on of irritant the pain: stops, lingers over, there is a new attack of</td>
<td></td>
</tr>
</tbody>
</table>
The methodical reference is made by the assistant Fetisova O.L.

- a pain;
  - if
  - spontaneou;
  - constant
  - or
  - paroxysmal

(duration of pain attacks and intervals), night;

(d) Localize irradiating to specify zones of irradiation.

The methodical reference is made by the assistant Fetisova O.L.

UMSA. Propedeutic of Therapeutic Stomatology Department
Methodical Instruction No. 4,5
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: **Auxiliary (additional) methods of inspection of the stomatological patient.**

Subtopic: 1. **Thermodiagnostic, EOD, caries-marking, X-ray, luminescent and transilluminating diagnostics.** The indication to use, feature of realization.
2. **Diagnostic tests: with an anaesthesia and on the preparation.**
3. **A technique of definition of trigger zones and inspections of places of an exit of peripheric branches of trigeminal Nerve.**
4. **Laboratory and tool methods of inspection. Interpreting of results.**

Hours: 4

1. The topic basis: the study of additional methods of inspection of the stomatological patient is necessary for specification and acknowledgement (confirmation) of the previous diagnosis of stomatological diseases. They will help the future doctor to distinguish not only odontopathology, but quite often diseases of other bodies and systems.

2. The aims of the training course:

A=1. 1) To familiarize with additional tool and laboratory methods of inspection of the stomatological patient

A=2. 2) To know:

1. the indication to use and technique of realization of a thermodiagnostic;
2. the indication to use and technique of realization of EOD
3. the indication to use and technique of realization of caries-marking;
4. the indication to use and technique of realization of luminescent and transilluminating diagnostics;
5. the indication to use and technique of realization of X-ray method of inspection;
6. the indication to use and technique of realization of diagnostic test on preparation;
7. the indication to use and technique of realization of diagnostic test with an anaesthesia;
8. a technique of definition of trigger zones and inspections of places of an exit of peripheric branches of a trigeminal nerve;
9. normal parameters of laboratory methods of inspection (general analysis of a blood, urine, analysis of a blood on Saccharum and other).

A=3. 3) To be able:
1. to nominate, to lead and to interpret results of a thermodiagnostic;
2. to nominate, to lead and to interpret results of EOD;
3. to nominate, to lead and to interpret results of a caries - marking;
4. to nominate, to lead and to interpret results of luminescent and transilluminating diagnostics;
5. to nominate, to lead and to interpret results of X-ray method of inspection;
6. to nominate and to lead and to interpret results of diagnostic test on preparation;
7. to nominate and to lead and to interpret results of diagnostic test with an anaesthesia;
8. to lead definitions of trigger zones and inspection of places of an exit of peripheric branches of a trigeminal nerve;
9. to estimate results of laboratory methods of diagnostics: the general analysis of a blood, urine, analysis of a blood and urine on Saccharum.

3. Materials for the before – class work self – preparation work:
3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of medicine</td>
<td>stages of a becoming of a domestic odontology, ethical and deontological principles of job.</td>
<td>use deontological principles and ethical norms at realization of inspection of the stomatological patient</td>
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<td>Psychology</td>
<td>psychological problems, which arise at the patient during realization of stomatological manipulations</td>
<td>use the psychological approach at reception of the stomatological patient</td>
</tr>
<tr>
<td>Biophysics</td>
<td>features of job of electrodevices, safety precautions</td>
<td>use the safety precautions at job with stomatological installations, electrodevices</td>
</tr>
<tr>
<td>Internal illnesses</td>
<td>diseases of internal bodies, which have displays in an oral cavity</td>
<td>define interrelation between diseases of internal bodies and their displays in an oral cavity. To spend adequate treatment and prophylaxis.</td>
</tr>
<tr>
<td>Propedeutics of a therapeutic stomatology (phantom course)</td>
<td>stomatological toolkit: kinds, purpose, kinds of handpieces, burs, safety precautions regulation at job with them</td>
<td>work by different stomatological instruments safely</td>
</tr>
<tr>
<td>Propedeutics of a therapeutic stomatology</td>
<td>equipment of a workplace of the student - stomatologist. Ethics and deontology of stomatological reception</td>
<td>prepare a workplace of stomatological reception to use ethical and deontological principles of job. To be able to render a first aid to the patient.</td>
</tr>
</tbody>
</table>

3.3 The contents of the topic:

**Topic:** Auxiliary (additional) methods of inspection of the stomatological patient.

**Subtopic:** 1. Thermodiagnostic, EOD, caries-marking, X-ray, luminescent and transilluminating diagnostics. The indication to use, feature of realization.

2. Diagnostic tests: with an anaesthesia and on the preparation.
3. A technique of definition of trigger zones and inspections of places of an exit of peripheric branches of trigeminal Nerve.

4. Laboratory and tool methods of inspection. Interpreting of results.

Text

**ADDITIONAL METHODS of INSPECTION**

are spent for specification of the form, stages, degree, current of disease, research of its etiology and pathogeny.

*For diagnostics of a caries, different forms of pulpites and periodontites, not carious defeats of teeth in addition spend:*

- Caries - marking, vital staining;
- Thermodiagnostic;
- Electroodontodiagnostics (EOD);
- Luminescent diagnostics;
- Transilluminating diagnostics.
- The test on preparation (diagnostic preparation);
- The test with an anaesthesia;
- X-ray diagnostics, including a fistulography (to prove the indications);
- Inspection of an exit of peripheric branches of a trigeminal nerve;
- Definition of trigger zones;
- Definition of sensitivity in zones of innervation of a trigeminal nerve.

**Luminescent diagnostics**

Based on ability of tissues and their cellular elements under action of ultra-violet beams to change the natural colour. The researches spend in the blacked out premise after acclimatization of an eye to darkness with the help of devices equipped with a quartz lamp with the filter from a dark - violet glass. In beams of Vud healthy teeth shine by a gentle - white shade, and the struck sites look more dark with precise contours.

**Transilluminating diagnostics**

With the help of the given method estimate of shade-making ability, which are observed at passage through object of research of a cold beam of light, harmless to an
organism. The method can be used for diagnostics of a caries, pulpitis, cracks of enamel, lines of shrinkage of roots, control of preparation of cavities to sealing, applying of a seal, revealing and qualities of erasion of undergoingival tooth adjournment.

The researches spend in a dark room with the help of a light guide from an organic glass attached to stomatological mirror.

At a caries - the hemisphere, circumscribed from healthy tissues, of brown colour is defined, at the acute forms of a pulpitis the crown of the struck tooth looks little bit those of crowns of healthy teeth, at chronic - the rather dim luminescence of hard tissues of a tooth (effect " of the dyd away star ") is observed, at a gangrenous pulpitis, at periodontites - blackout of all crown (effect " of a black hole ").

**X-ray diagnostics**

Most often intraoral contact roentgenography is used. A principle of a method based that the x-ray beams depending on density of a surveyed site to a greater or lesser extent linger over by tissues. In places, where on ways of beams there are hard tissues (mineralized - bone, enamel, dentine), will be a light site. In places, where absorption smaller, the beams reach a film and on a picture there will be a dark image. For achievement of the exactest image - exception of elongation or shortening of a tooth - it is desirable, that the tooth was in focus, and the central site of beams fell perpendicularly on object and film.

The enamel of a tooth gives a dense shadow, dentine and cement - less dense, than enamel. The pulp cavity is distinguished on outlines of a contour of a dentine, the periodontal cleft looks uniform more dark stria of width 0,2-0,25 mm, that formed by contours of an alveolus and cement of a root. The drawing of a bone is caused by presence in spongiform substance and in cortical layer of osteal beams or trabecules, between which there is an osteal brain. Maxilar sinus, the nasal meatus, orbit, frontal sinus are represented as the precisely outlined emptiness.

**The test on preparation**

Is used for definition of a condition of a pulp on sensitivity at diagnostic preparation. Is spent by way of preparation without a previous anaesthesia in the field of dentin-
enamel border. In teeth with an alive pulp there is a pain with more or less expressed intensity, preparation of dead teeth - painless.

The test with an anaesthesia
At impossibility to define a sick tooth, which is a source of an acute pain, it is possible to lead intraligamental anesthesia serially of any "suspicious" tooth, entering no more than 0,25 ml of a solution of Anesthetic. As the given kind of an anaesthesia provides an anesthesia only of one tooth, the termination of a pain during 2-3 minutes can testify that sick is just anaesthetized tooth.

Thermodiagnostic
The intact tooth does not react by a pain to appreciable temperature deviations. Indifferent zone (the zone of absence of a pain reaction for lateral teeth makes from +5-7°C up to +60-70 °C, for frontal teeth - from +12-17°C up to +50-52°C. At the acute forms of a caries indifferent zone is narrowed and there is in borders from +25°C up to +50°C. A thermodiagnostic by water with temperature above or below of indifferent zone causes acute or tedious, but quickly ending, pain. At pulpites the border of this zone are even more narrowed (deviation from temperature of a body on 5-7°C causes an attack of a pain). That is the indifferent zone at pulpites is in borders from 30 up to 40°C, and sometimes absolutely is absent. The thermodiagnostic thus provokes an attack of long nagging intensive or tedious pain. At periodontites (owing to destruction and disintegration of a pulp) thermal irritant does not cause the appropriate reaction of a tooth.

EOD
Approximate parameters of sensitivity of a pulp at EOD: a) an intact tooth - 2-6 мкА; b) a deep carious -10-15 мкА; c) an acute pulpitis - 20-50 мкА; d) a chronic gangrenous pulpitis - 60-90 мкА; e) apical periodontitis - it is more than 100 мкА.

The caries-marking
At a caries - marking the drawing of solutions fast and exact (during 5-10 сек) shows the struck area, painting infected frame of a tooth. It permits to speed up and to simplify process of diagnostics, of preparation of carious tissues and to define volume of a bacterial penetration in a tissue of a tooth.
Literature recommended
- Main Sources:

1. Терапевтическая стоматология под редакцией Е.В.Боровского.,- М.:Медицина, 2002.-800с.

- Additional ones:

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>To teach essence and indications to realization of additional methods of inspection of the stomatological patient;</td>
<td>to summarize essence and indication to realization of additional methods of inspection of the stomatologists patient;</td>
</tr>
<tr>
<td>To know interpreting of results of additional methods of inspection of the stomatological patient: thermodiagnostics, EOD.</td>
<td>to write out in the abstracts parameters of results EOD, thermodiagnostic.</td>
</tr>
<tr>
<td>To know interpreting results of additional methods of inspection of the stomatological patient. to write out in the abstracts parameters of results in norm and at a pathology: a caries - marking, luminescent and the transilluminating diagnostics of teeth.</td>
<td></td>
</tr>
</tbody>
</table>

3.5. Self-control material:

A. Questions to be answered:

1. What additional methods of research use at diagnostics of a caries, different forms of pulpitis, apical periodontitis?
2. How does the intact tooth react to a thermodiagnostic? A technique of its realization.
3. What results of a thermodiagnostic are at a caries, different forms of a pulpitis, apical periodontitis?
4. Technique of a vital staining (caries - marking). Interpreting of its results.
5. Principle and technique of realization of EOD.
6. What results of EOD are at a caries and its complications, diseases of a trigeminal nerve, trauma of teeth, genyantritis?
7. Principle, technique of realization and interpreting of results of luminescent diagnostics.
8. Principle, technique of realization and interpreting of results of transilluminating diagnostics.
9. What results of the test on preparation are in teeth depending on a condition of a pulp?
10. The indication, technique of realization and interpreting of results of the test with an anaesthesia.
15. The indication to purpose of the extended additional inspection of the patient with use of laboratory, morphological, bacteriological, immunological and other methods.

B. Test tasks to be done:

**Test task № 1** with the individual correct answer
To what part of inspection of the patient the thermodiagnostic does concern?
1. Objective basic methods of inspection;
2. Objective auxiliary methods of inspection;
3. Subjective methods of inspection;
4. Laboratory methods of inspection;

**Test task №2** with a multiple choice

Which of the listed methods of inspection do concern to additional objective methods?

1. EOD;
2. Finding - out of the complaints;
3. Probing of a carious cavity;
4. Percussion of a causal tooth;
5. Vital staining;
6. X-ray diagnostic;
7. Survey of dentitions;
8. Palpation of a mucosa of an oral cavity;
9. Luminescent and transilluminating diagnostics;
10. Thermodiagnostic.

**Test task №3** with the individual correct answer

What tissue of a tooth does react at realization of a thermodiagnostic?

1. Enamel;
2. Tactile fibers of a periodontium;
3. Fiber by Ebner in a dentine;
4. Pulp of a tooth;
5. Cement;
6. Osteoclasts of an osteal tissue.

**Test task №4** on definition of a sequence of actions

What parameters of EOD are in an intact tooth?

1. 12-16 мкА;
2. 40-60 мкА;
3. 2-6 мкА;
4. Greater than 100 мкА;
5. 60-80 мкА.

**Test task №5** with the single correct answer.
Reaction of what tissues estimate at realization of diagnostic test on preparation?
1. Enamel;
2. Apical periodontium;
3. Pulp;
4. Cloack dentine;
5. Regional periodontium;
6. Nearpulpal dentine;
7. Circular ligamentum

4. Self-preparation at class.

1. Lead a thermodiagnostic, estimate its results;
2. Lead definition of EOD, give an estimation to the received result;
3. Lead a caries-marking of a tooth or vital staining of a tooth, estimate its result;
4. Lead inspection of places of an exit of peripheric branches of a trigeminal nerve.
5. Lead definition of trigeminal zones.

5. Self-preparation work at home.

**Not typical tasks: A=3**

1. During inspection of the patient the student of the third course put the preliminary diagnosis: an acute partial pulpitis 12. For additional inspection the student has nominated X-ray method of research of the given tooth.
   Whether a method of additional inspection is chosen correctly? What from additional methods of inspection, known for you, it was necessary to nominate for acknowledgement of the diagnosis?

2. At the patient with an acute general pulpitis owing to irradiation of the pains cannot be defined causal tooth.
What from auxiliary methods of inspection, known for you, can be used in this case?

3. During realization of EOD by the student of the third course the patient had acute pain at applying an active electrode on an active point of a researched tooth. What gross blunder has admitted the student at realization of EOD? The methodical reference is made by the assistant Fetisova O.L.

Methodical Instruction No. 7,8
For the 3-d year students’ self—preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: Hygiene of an oral cavity, its importance in complex prophylaxis of diseases of bodies and tissues of an oral cavity and organism as a whole. Tooth debris: a kind, frame, chemical and microbiological structure. The mechanism of formation of a tooth plaque, stone (odontolith).

Subtopic: 1. Definition of a hygienic index.


Hours: 4

1. The topic basis: the hygiene of an oral cavity has the large importance in prophylaxis of diseases of bodies and tissues of an oral cavity, and quite often diseases of other bodies and systems. The formation of a tooth plaque is one of the basic etiological factors of development of a caries and its complications. The professional hygiene of an oral cavity is obligatory practical manipulation of therapeutic reception.

2. The aims of the training course:
A=1. 1) To familiarize with agents and methods of hygiene of an oral cavity, its importance for prophylaxis of diseases of bodies and tissues of an oral cavity, and also organism as a whole.

A=2. To know:
1) agents of hygiene of an oral cavity. A substantiation of their choice.
2) methods of hygiene of an oral cavity.
3) kinds of tooth debris: structure, frame.
   4) the mechanism of formation of a tooth plaque, stone. Their etiological importance in occurrence of a caries and its complications, diseases of tissues of parodontium.
5) definition of a hygienic index by Fedorov-Volodkina. The qualitative and quantitative characteristic.
6) definition of a hygienic index by Green-Vermillion (standard and simplified techniques).
7) methods of erasion of tooth debris.
8) concept of professional hygiene of an oral cavity. A technique of an estimation of its efficiency.

A=3. To be able:
1) to nominate to the patient of an agent and methods of hygiene of an oral cavity.
2) to diagnose kinds of tooth debris.
3) to lead definition of a hygienic index by Fedorov-Volodkina. To give an estimation of the qualitative and quantitative characteristic.
4) to lead definition of a hygienic index by Green-Vermillion (standard and simplified techniques).
5) to delete tooth debris by different techniques.
6) to lead professional hygiene of an oral cavity.
7) to give an estimation of efficiency of realization of professional hygiene of an oral cavity.

3. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:
<table>
<thead>
<tr>
<th>Subject</th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of medicine</td>
<td>stages of a becoming of a domestic odontology, ethical and deontological principles of job of the doctor - stomatologist.</td>
<td>use deontological principles and ethical norms at realization of professional hygiene of an oral cavity, definition of HI.</td>
</tr>
<tr>
<td>Psychology</td>
<td>psychological problems, which arise in the patient during realization of stomatological manipulations</td>
<td>use the psychological approach at reception of stomatological patient.</td>
</tr>
<tr>
<td>Microbiology</td>
<td>microbiological structure of a tooth plaque, tinctural property and virulence of cariesogenic microorganisms</td>
<td>spend identification of cariesogenic kinds of microorganisms, to estimate their influence on formation of tooth debris.</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>biochemical structure of different kinds of tooth debris, mechanism of demineralizing action of a tooth plaque</td>
<td>estimate influence of this or that factors on formation of tooth debris</td>
</tr>
<tr>
<td>Biophysics</td>
<td>features of job of electrodevices, safety precautions</td>
<td>use engineering of safety at job with stomatological installations, electrodevices</td>
</tr>
<tr>
<td>Internal illnesses</td>
<td>diseases of internal bodies, which have displays in oral cavity</td>
<td>define communication between diseases of internal bodies and their displays in an oral cavity. To spend adequate treatment and prophylaxis</td>
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<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Propedeutics of a therapeutic stomatology (phantom course)</td>
<td>stomatological toolkit: kinds, purpose. Instruments for erasion of tooth debris (set by Zax), safety precautions regulation at job with them.</td>
<td>it is safe to work by different stomatological instruments</td>
</tr>
<tr>
<td>a propedeutics of a therapeutic stomatology</td>
<td>equipment of a workplace of the student - stomatologist. Ethics and deontology of stomatological reception</td>
<td>prepare a workplace for stomatological reception, to use ethical and deontological principles of job. To be able to give a first aid to the patient.</td>
</tr>
</tbody>
</table>

3.2 The contents of the topic:

Text

Hygiene of an oral cavity - individual, professional measures directed on elimination of risk factors of development cariesgenic situation. The tooth brushes, tooth thread (floss), irrigators, interdental rubber stimulators concern to subjects of hygiene. Tooth Pastas of different groups, powders, elixirs concern to agents of hygiene.

The methods of cleaning of the teeth.

A method by Charter: the tooth brush is established under an angle of 45 degrees to a gingiva. The movements are circular, vibrating, that bristles have penetrated into
interdental intervals. The method is recommended for massage of a gingiva after a course of treatment of gingivitis, parodontitis.

A standard method by Pahomov: conditionally each jaw is divided into 6 segments - two frontal, premolars, molars, on the right and at the left. All surfaces (chewing, vestibular, oral) clear not less than 10 didymous movements of a brush. Only 400-500 didymous movements. Time of cleaning till 3.5-4 min. 2 times in a day. Movements of a brush on vestibular and oral surfaces are sweeping, on chewing - reciprocating and circular.

Tooth debris are divided on unmineralized (pellicula, debris, tooth plaque, pigmented debris (haemoglobinal plaque, plaque of the smokers) and mineralized (odontolith above- and undergingival).

**Estimation of a hygienic condition of an oral cavity**

Is spent by definition of an objective parameter (index), that characterizes quality and quantity of tooth debris.

At definition of an index of hygiene of an oral cavity by Fedorov-Volodkina (1971) spend greasing of vestibular surfaces of six bottom frontal teeth by a solution by Shiller-Pisarev (Iodum crystalline 1,0, Iodidum of a potassium 2,0, distilled water 40,0).

Quantitative estimation spend depending on the area of a staining on a five-mark scale:

- No colouring - 1 number;
- colouring of 1/4 surfaces of a crown - 2 numbers;
- colouring of 1/2 surfaces of a crown - 3 numbers;
- colouring of 3/4 surfaces of a crown - 4 numbers;
- colouring of all surface of a crown - 5 numbers.

Qualitative estimation spend on intensity of a staining of the same teeth by 3-mark systems:

- Light yellow colour - 1 number;
- Yellow - brown - 2 numbers;
- Intensive - brown - 3 numbers.
Account of average meaning of an index conduct under the formula: \( K = \frac{kn}{n} \), where \( K \) - general hygienic index, \( kn \) - degree of colouring of one tooth, \( n \) - quantity of researched teeth.

Interpreting of results:

<table>
<thead>
<tr>
<th>Size of an index</th>
<th>a level of hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 - 1.5</td>
<td>Good</td>
</tr>
<tr>
<td>1.6-2.0</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>2.1-2.5</td>
<td>Unsatisfactory</td>
</tr>
<tr>
<td>2.6-3.4</td>
<td>Bad</td>
</tr>
<tr>
<td>3.5-5.0</td>
<td>Very bad</td>
</tr>
</tbody>
</table>

G.C.Green, J.R.Vermillion have offered a standard index of hygiene of an oral cavity. For its definition spend a staining of 6 teeth:

16,11,26,31 - vestibular surface;
36,46 - lingual surfaces.

Codes and criterion of an estimation of a debris:

0 - the debris is not revealed;
1 - a soft debris, which covers no more than 1/3 surfaces of a tooth;
2 - a soft debris, which covers more than 1/3, but less than 2/3 surfaces of a tooth;
3 - a soft debris, which covers more than 2/3 surfaces of a tooth.

The account of an index of a debris is spent by summation of meanings of 6 teeth and calculations average arithmetic: \( ITD = \frac{\text{Parameters of 6 teeth}}{6} \)

Interpreting of results of \( ITD \) a level of hygiene

<table>
<thead>
<tr>
<th>0,0-0,6</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,7-1,8</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>1,9-3,0</td>
<td>Bad</td>
</tr>
</tbody>
</table>

The simplified index of hygiene of an oral cavity

( OHI- S, G.C.Green, J.R.Vermillion 1964)
It consists of two components: an index of a debris and index of an odontolith. The index of a debris is defined the same as at a standard method, index of an odontolith - on the same teeth and surfaces, using the following system of estimations:

Codes and criterion of an estimation of an odontolith:

0 - the odontolith is not revealed;
1 - overgingival odontolith, which covers 1/3 surfaces of a tooth;
2 - overgingival odontolith, which covers more than 1/3, but less than 2/3 surfaces of a tooth or presence of separate debris of undergingival odontolith in the neck area of a tooth;
3 - overgingival odontolith, which covers more than 2/3 surfaces of a tooth or appreciable debris of undergingival odontolith around of neck area of a tooth.

The account of an index is spent by the formula:

\[
OHI-S = \frac{\text{the sum of indexes of a debris}}{\text{quantity of surfaces}} + \frac{\text{sum of an index of an odontolith}}{\text{quantity of surfaces}}
\]

INTERPRETING of an INDEX

\[
\begin{align*}
OHI-S & \quad \text{a level of hygiene} \\
0.0-1.2 & \quad \text{Good} \\
1.3-3.0 & \quad \text{Satisfactory} \\
3.1-6.0 & \quad \text{Bad}
\end{align*}
\]

**Index of efficiency of hygiene of an oral cavity**

( Podshadley, Haley (1968))

For a quantitative estimation of a debris use a staining of 6 teeth:

16,26,11,31 - vestibular surface;
36, 46 - lingual surfaces.

At absence of an index tooth it is possible to survey next, but in the field of the same group of teeth. Artificial crowns and the parts of fixed designs of prostheses survey how also teeth. The surveyed surface of each tooth is conditionally divided into 5 parts.
Fig. 1. Conditional division of a surface of a tooth at definition of an index of efficiency of hygiene

1 - medial; 4 - central;
2 - distal; 5 - medial-occlusial.
3 - medial-nearneck;

Codes and criterion of an estimation of a debris:
0 - absence of a staining; 1 - the stainings are revealed.

The account is spent, defining a code for each tooth by summation of codes of each site. Then summarize codes of all surveyed teeth also divide the received sum into number of teeth.

An index expect under the following formula:

\[ \text{IHE} = \frac{\text{the sum of codes of all teeth}}{\text{Quantity of the surveyed teeth}} \]

Interpreting of results

<table>
<thead>
<tr>
<th>Size of IHE</th>
<th>efficiency of hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Excellent</td>
</tr>
<tr>
<td>0,1-0,6</td>
<td>Good</td>
</tr>
<tr>
<td>0,7-1,6</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>1,7 and large</td>
<td>Unsatisfactory</td>
</tr>
</tbody>
</table>

Literature recommended

- Main Sources:
1. Ковальов Є.В., Марченко І.Я., Шундрик М.А. Обстеження хворого та діагностика одонтопатології в клініці терапевтичної стоматології. – Полтава, 2005. -124с.
2. Терапевтична стоматологія под редакцією Е. В. Боровского,- М.:Медицина, 2002.-800с.
4. Лукиных Л.М. Лечение и профилактика кариеса зубов.- Издательство НГМА, Медицинская книга.- 1998.- С.104-153
   - Additional ones:
1. Деонтология в медицине под редакцией ак. Б.В.Петровского.(т. 2. Частная деонтология)). – Г.: Медицина, 1980.
5. Мілерян В.Е. Методические основы подготовки и проведение учебных занятий в медицинских Вузах. – К.: 2003г.

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>To teach definition, subjects and agents of hygiene of an oral cavity</td>
<td>to summarize definition, agents and methods;</td>
</tr>
<tr>
<td>To know methods of definition of a hygienic index;</td>
<td>to summarize techniques of definition of HI;</td>
</tr>
<tr>
<td>To know methods of individual cleaning of teeth, rule and technique of</td>
<td>to write out in the abstract of a rule and technique of cleaning of teeth by a standard method.;</td>
</tr>
<tr>
<td>cleaning of teeth by a standard method;</td>
<td></td>
</tr>
</tbody>
</table>
To know kinds and frame of tooth debris.

<table>
<thead>
<tr>
<th>3.5. Self-control material:</th>
</tr>
</thead>
</table>

A. Questions to be answered:

1. Name subjects and agents of hygiene of an oral cavity. Give a substantiation of their purpose.
2. What role of hygiene of an oral cavity in complex prophylaxis of a caries and its complications, diseases of tissues of parodontium do you know?
3. What methods of hygiene of an oral cavity do you know?
6. Definition of a hygienic index by Fedorov-Volodkina. The qualitative and quantitative characteristic.
7. Definition of a hygienic index by Green-Vermillion (standard and simplified techniques).
8. Methods of erasion of tooth debris.

B. Test tasks to be done:

    Test task № 1 with a multiple choice

    On what technique the hygienic index is defining?

1. Spasokukotskiy- Kochergin;
2. Fedorov- Volodkina;
3. Danilevskiy;
4. Green- Vermillion;
5. Groshikov;
Test task № 2 with a multiple choice

What from listed agents does concern to agents for hygiene?
1. Tooth brush;
2. Tooth Pasta;
3. Flosses;
4. Tooth elixir;
5. Denture powder;
6. Irrigator;
7. Interdental stimulator;

Test task №3 with a multiple choice

What from listed subjects does concern to hygiene?
1. Flosses;
2. Tooth brush;
3. Tooth Pasta;
4. Irrigator;
5. Tooth elixir;
6. Denture powder;
7. Interdental stimulator;

Test task №4 with the correct individual answer

What solution use for staining of teeth at definition of HI by Fedorov-Volodkina?
1. 3 % a solution of a peroxide of Hydrogenium;
2. Solution of methylene blue;
3. Solution by Shiller-Pisarev;
4. 10 % spirituous solution of Iodum;
5. Solution of furacillinum.

Test task №5 with the individual correct answer.
How much and what teeth are painted during definition of HI by Fedorov-Volodkina?

1. 4 frontal teeth of the top jaw;
2. 5 frontal teeth of a mandible;
3. 2 bottom frontal teeth;
4. 8 frontal teeth of the top jaw;
5. 6 frontal teeth of a mandible;
6. 2 central incisors and 4 molars;
7. All teeth of a mandible.

**Test task № 6 with the individual correct answer.**

What teeth and on what surfaces are subject to a staining during definition of HI by Green-Vermillion?

1. 16,11,26,31 - vestibular surfaces, 36,46 - lingual surfaces;
2. 31,32,33, 41,42,43 - vestibular surface;
3. 11,12, 21,22 - vestibular surface, 36,46, - lingual surfaces;
4. 31,32,33, 41,42,43 - oral surfaces;
5. 11,12,13,21,22,23 - vestibular surface;
6. 11,12, 21,22 - lingual surfaces, 36,46, - vestibular surface.

4.1 Self-preparation at class.

1. To lead inspection of the patient and to diagnose tooth debris.
2. To lead definition of a hygienic index by Fedorov-Volodkina.
3. To lead definition of a hygienic index by Green-Vermillion (standard and simplified techniques).
4. To lead erasion of tooth debris by different methods.
5. To lead an estimation of efficiency of hygiene of an oral cavity.

4.2 Not typical tasks:

1) Before realization of definition of a hygienic index on a technique by Fedorov-Volodkina student has processed vestibular surfaces of the bottom frontal teeth by
a solution of a peroxide of Hydrogenium with the help of a wadded globule and has dried up surfaces of teeth by a jet of air. Whether the real parameter of HI will be received? What a mistake is there?

2) After realization of professional hygiene of an oral cavity the student spent definition of its efficiency by Podshadley, Haley (1968), but 36, 46 teeth was absent. What in such case we must to do?

3) The patient N., at which half-year back generalized parodontitis is diagnosed, repeatedly complains on bleeding of gingiva, pain at reception of nutrition. The patient independently spends a gargle of an oral cavity by a solution "Ротокан" and cleans teeth by bleaching Pasta Colgate. Whether these measures in this case are proved? What purposes should be made to the patient?

5. Self-preparation work at home.
1) Review the material learnt at class;
2) Compose the plan of your answer;
3) Answer the questions to this topic;
4) Do the test given above;
6. The subject of the research work.
The methodical reference is made by the assistant Fetisova O.L.

Methodical Instruction No. 10
For the 3-nd year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology


Hours: 2
The topic basis: The study of a caries is by one of major problems of a stomatology. This problem has planetary character, as there is no such region, such country, where the carious defeats of teeth would not be the most wide-spread disease causing serious complications not only in jaw-facial area, but also in other bodies and systems of an organism. It is impossible to describe sufferings of the people with cosmetic, speech defects called carious destructions of a dentition.

The intensity of a defeat of teeth by carious illness constantly grows in the countries with the advanced economy, it is caused by character of a feed, deterioration of an ecological situation, various household intoxications.

1. The aims of the training course:
   
   A=1. 1) To familiarize with modern representations about various aspects and mechanisms of development of a caries;
   
   A=2. 2) To know:
             - a structure of enamel of a tooth;
             - a structure of a dentine of a tooth;
             - a structure of a pulp of a tooth;
             - a structure of cement of a tooth;
             - a structure of a periodontium of a tooth;
             - microbiological aspects of function of an oral cavity;
             - biochemical aspects of digestion;
             - hygienic aspects of physiology of an oral cavity;
             - physiological aspects of a salivation;
   
   A=3. 3) To be able:
             - to lead interrogation of the patient;
             - to lead a superficial and deep palpation of lymphonoduses;
             - to lead an internal stomatic palpation of an environment of an alveolar process;
             - to lead a vertical and horizontal percussion of a tooth;
             - to lead intubation of a carious cavity;
             - to lead a thermodiagnostic;
- to lead EOD;
- to lead a radiodiagnosis of a tooth.

2. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td></td>
</tr>
<tr>
<td>Histology</td>
<td></td>
</tr>
<tr>
<td>Pathological anatomy</td>
<td></td>
</tr>
<tr>
<td>Pharmacology</td>
<td></td>
</tr>
<tr>
<td>Endodontology, surgical</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>To know</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>anatomy of a structure: enamel, dentine, pulp, cement of a tooth, periodontium of a tooth, pulp of a tooth.</td>
<td>define presence of the pathological center and localization it in various tissues</td>
</tr>
<tr>
<td>Histology</td>
<td>features of a histological structure of enamel of a tooth, dentine of a tooth, cement of a tooth, pulp of a tooth, periodontium of a tooth</td>
<td></td>
</tr>
<tr>
<td>Pathological anatomy</td>
<td>pathological changes at an acute and chronic caries of various depth of a defeat.</td>
<td>define volume of medical intervention.</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>the mechanism of action of substances of cariesogenic action and substances having remineralizing action.</td>
<td>to take into account the factors of prophylaxis and treatment of a caries among the factors of a feed, ecological surrounding and treatment of a caries.</td>
</tr>
<tr>
<td>Endodontology, surgical</td>
<td>possible complications of</td>
<td></td>
</tr>
</tbody>
</table>
Caries (lat.-caries dentis) is the pathological process, which appears after tooth cutting, characterized with demineralisation of HTT and following formation of cavity-like defect.

**Epidemiological indexes of caries**

1. Prevalence;
2. Intensity;
3. Accretion of intensity (case rate).

1. **Prevalence of caries** – is the index, which determines the percent of persons with caries, fillings and removed teeth among general quantity of inspected persons.

   \[ P = \frac{\text{quantity of pers’s with CFR + cf}}{\text{n}} \times 100 \% \]

   where: \( n \) – general quantity of inspected pers’s,
   
   \( C \) – temporary teeth with caries, \( F \) – temporary teeth with filling,
   
   \( R \) – removed temporary teeth; \( c \) – deciduous teeth with caries;
   
   \( f \) – deciduous teeth with filling.

2. **Intensity** – average quantity of attacked teeth on one inspected patient.

   \[ I = \frac{\text{CFR + cf}}{\text{n}} \]

   **Intensity indexes by WHO:**

<table>
<thead>
<tr>
<th>Children 12y.</th>
<th>Adults 35 – 44y.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Very low</td>
<td>0 – 1,1</td>
</tr>
<tr>
<td>2. Low</td>
<td>1,2 – 2,6</td>
</tr>
<tr>
<td>3. Moderate</td>
<td>2,7 – 4,4</td>
</tr>
<tr>
<td>4. High</td>
<td>4,5 – 6,5</td>
</tr>
<tr>
<td>5. Very high</td>
<td>&gt; then 6,6</td>
</tr>
</tbody>
</table>
3. **Accretion of intensity (case rate)** – intensity indexes’ difference between first and following inspections in one group of patients. $\text{AI} = I_{\text{last insp.}} - I_{\text{first insp.}}$

**Classification of caries (worker)**

1. Clinical (topographical).
   - Initial (white, pigmented stain) (macula cariosa)
   - Superficial (c. superficialis)
   - Middle (c. media)
   - Deep (c. profunda)

2. The anatomic
   - Caries of enamel (c. enameli)
   - Caries of dentine (c. dentini)
   - Caries of cement (c. cementi)

3. On localization
   - Fissure (c. fissuralis)
   - Approximal (c. approximalis, c. contactus)
   - In area of neck (c. cervicalis)
   - Circulating (ring)

4. On a current
   - Acute (c. acuta)
   - Chronic (c. chronica)
   - Plural (blooming, system) (c. florida)
   - Secondary (c. secundaria)
   - Stationary (stopped) (c. stationaria)

5. On intensity of defeat
   - The compensated
   - The subcompensated
   - The decompensated

6. On presence of complications
   - Simple (not complicated) (c. simplex, c. incomplicata)
   - Complicated (c. complicata)

**Caries resistance**

- Permeability – ability of HTT to absorb different substances.
- Solubility (acid resistance) – ability of enamel to resist to acid etching

<table>
<thead>
<tr>
<th>Structural</th>
<th>Functional</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-grade structure of enamel and dentine, Phylum of a mineralization, State of organic and anorganic</td>
<td>Composition and locomotion of tooth liquor controlled by a pulp of tooth</td>
</tr>
</tbody>
</table>
components of an enamel.

**Tooth** liquor moves in dentine tubules and intraprism interspaces of enamel. In dentine $S_l = 4$ mm/hour, in enamel $S_l = 1$ mm/hour (prof. Okushko V.R.)

It’s movement very important – during one day tenfold exchange is.

**Action of tooth** liquor – having alkaline pH, goes upon the surface of enamel, neutralizes acids, which form **under dental** plaque.

**ERT (Enamel resistance test)** –

Determining of structure-functional acid resistance of enamel. Essence: on cleaned, dried and isolated from saliva vestibular surface of 11 on distance 2 mm from cutting edge on center a drop of HCl sol. with diameter 1-2 mm is pickted. After 5 sec the drop had to be removed.

Then a drop of 1% sol. of methylene blue, which takes of with dry tampon. This place will be colored in blue, intensity of which depends from solubility(acid resistance). The colore is compared with tenpoled typographical scale: 1-3 points – high, 4-5 moderate, 6-7 – undered, > 8 – low caries resistance.

**Pathogenesis of caries.**

Conventional mechanism of caries eruption is progressive demineralization of HTT under action of organic acids, which concentrated under dental plaque and formed with m/o as a result of carbohydrates fermentation.

Literature recommended

2. Кодола И.А., Удовицкая Е.В. Клиника, диагностика и лечение кариеса. – Киев.: Государственное медицинское издательство УССР, 1962. – 226 с.

3.4 How to work with the literature recommended:

3.5. Self-control material:

A. Questions to be answered:

1. The determining of notion «caries». 
2. Epidemiological indexes of caries.
3. Etiology of caries. The role of microorganisms.
4. The influence of factors of external environment on prevalence of caries.
7. The role of dental plaque of pathogenesis of caries.

B. Test tasks to be done:

**The test task №1 (L = 1)**
What kinds of a caries distinguish depending on depth of a defeat?

**The test task №2**
What kinds of a caries distinguish depending on current?

**The test task №3**
What kinds of a caries distinguish depending on defeat tissue?

**The test task №4**
What kinds of a caries distinguish depending on intensity?

**The test task №5**
How is named complications of cariest?

**The test task №1 (L = 2)**
What reasons of occurrence of a caries in a stage of a light spot?

1. Formation of a tooth plaque on a pellicula of a tooth from carbohydrate of the rests, microorganisms, epithelial cells.
2. Local changes of pH of surrounding under a tooth plaque up to a critical level - 4,5 - 5,0
3. Dissolution of apatites of a surface of enamel in interprizmical spaces (in the field of a line by Retzius).
4. Penetration of acids in an undersuperficial layer of enamel and its demineralization.
5. Long reception of antibiotics at therapeutic diseases.
6. Increased salivation.
7. Prevailation in a ration of albuminous and fatty products.
The test task №2

What combination of the factors is necessary for development of carious defect?

1. Presence in an oral cavity of acidophilic microorganisms.
2. Increased contents in drinking water of fluorine.
3. Ability of microorganisms to form organic acids (dairy) at a fermentation of carbohydrates.
4. Prevaliation of carbohydrates in a diet.
5. High resistance of superficial layers of enamel from blasting influences.
6. Unsatisfactory hygienic condition of teeth.
7. Amplified function of sialadens.

4. Self-preparation at class.
1) Listen to the information;
2) Work with the tables, corpse, anatomical damp preparation;
3) Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
1) Review the material learnt at class;
2) Compose the plan of your answer;
3) Answer the questions to this topic;
4) Do the test given above;

The methodical reference is made by the candidate of medical sciences, docent Marchenko Irina Jaroslavovna.

Methodical Instruction № 11

For the 2-nd year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: Modern representations about the reasons of occurrence and mechanism of development of caries. The contribution of the scientists:
The topic basis: The study of a caries is by one of major problems of stomatology. This problem has planetary character, as there is no such region, such country, where the carious defeats of teeth would not be the most wide-spread disease causing serious complications not only in jaw-facial area, but also in other bodies and systems of an organism. It is impossible to describe sufferings of the people with cosmetic, speech defects called carious destructions of a dentition.

The intensity of a defeat of teeth by carious illness constantly grows in the countries with the advanced economy, it is caused by character of a feed, deterioration of an ecological situation, various household intoxications.

1. The aims of the training course:

A=1. 1) To familiarize with modern representations about various aspects and mechanisms of development of a caries;

A=2. 2) To know:

- a structure of enamel of a tooth;
- a structure of a dentine of a tooth;
- a structure of a pulp of a tooth;
- a structure of cement of a tooth;
- a structure of a periodontium of a tooth;
- microbiological aspects of function of an oral cavity;
- biochemical aspects of digestion;
- hygienic aspects of physiology of an oral cavity;
- physiological aspects of a salivation;

A=3. 3) To be able:

- to lead interrogation of the patient;
- to lead a superficial and deep palpation of lymphonoduses;
- to lead an internal stomatic palpation of an environment of an alveolar process;
- to lead a vertical and horizontal percussion of a tooth;
- to lead intubation of a carious cavity;
- to lead a thermodiagnostic;
- to lead EOD;
- to lead a radiodiagnosis of a tooth.

2. Materials for the before-class work self-preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
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<td>anatomy of a structure: enamel, dentine, pulp, cement of a tooth,</td>
<td>define presence of the pathological center and localization it in various tissues</td>
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<td>the mechanism of action of substances of cariesogenic action and</td>
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<tr>
<td></td>
<td>substances having remineralizing action.</td>
<td>among the factors of a feed, ecological</td>
</tr>
</tbody>
</table>
3.2 The contents of the topic:

**Topic:** Modern representations about the reasons of occurrence and mechanism of development of caries. The contribution of the scientists:


Text

In a deep antiquity the attempts were undertaken to reveal the reason of destruction of teeth.

In I c. of our age doctor Skriboniy has stated the assumptions, that the reason of a caries in « bad juices ». He bound this disease to a pathological condition of a stomach, liver, lien and other bodies. In XVII c. there was a chemical theory of a caries, according to which the destruction of teeth occurs as a result of actions of acids getting in an oral cavity.

The chemic -parasitogenic theory by U.D.Miller, 1884

The proved theory of occurrence of a caries suffices to first is the chemic -parasitogenic theory by U.D.Miller (1884), received a wide circulation, as it reflected the available facts in the field of knowledge of that time on microbiology, chemistry, and also has received experimental acknowledgement.

U.D.Miller was convinced, that the destruction of teeth occurs under influence of microorganisms of an oral cavity and at presence in an oral cavity of carbohydrates.
As the beginning of development of carious process he considered formation of organic acids - grape, apple, acetic etc. - in result of acidodairy fermentation of the rests of nutrition. He supposed also influence of acids getting in an oral cavity with foodstuff.

The first stage of development of a caries the demineralization of enamel and dentine owing to appreciable decrease of pH of a stomatic liquid. Thus the enamel completely blasts, as it contains a minimum quantity of organic substance. At destruction of a dentine having appreciable percent of organic substance, there is a second stage - dissolution of an organic part. This process is made at immediate participation of microorganisms, due to influence of proteolytic enzymes.

Alongside with action of bacteria and acids U.D.Miller recognized adverse influence of series of the factors, which he considered contributing. So, he gave the large importance to a salivation, its quantity and quality, to character of a feed (is especial to the contents in water of mineral salts), emphasized meaning of the hereditary factor, conditions of formation of enamel.

The author tried to conhard the theory experimentally: the removed teeth placed in an admixture of a saliva with the well chewed bread and meat, with addition of 2 - 4 % of Saccharum and kept this in a thermostat at t 37ÈC. After some time the phenomenon of an enamel demineralization was observed which very much reminded changes on teeth in clinic at a caries.

The theory by U.D.Miller had clinical acknowledgement: it explained localization of a caries in retentional items of a tooth by a delay of the rests of nutrition and influence of the superfluous use of sweets. The specified approach defines a direction of prophylaxis of a caries, by elimination of the alimentary rests from an oral cavity and neutralization of a stomatic liquid (in opinion of U.D.Miller, the decrease of pH of a stomatic liquid) took place.

It has served as a subject of the most numerous discussions and criticism, as the reaction of a saliva more often neutral or more alkaline (pH 6,8 - 7,0) fixed, that in norm. Moreover, even at presence of the cariogenic factors (superfluous use of carbohydrates, the insufficient care of an oral cavity etc.) pH of a saliva does not
reach a critical level (pH 4,5 - 5,0), at which the demineralization of enamel of a tooth is possible.

It is necessary to note, that the chemic -parasitogenic theory was not rejected, and having received new clinical, laboratory, experimental data, has got the completed form.

On the conclusion of series of the authors, the chemic -parasitogenic theory in modern treatment most completely opens this process.

The physic-chemical theory (D.A.Entin, 1928)

A lot of attention was given roles of a saliva in development of a caries. One authors considered, that the caries of teeth depends on quantity of a selected saliva, of its structure and pH. Others saw the reason in hyper- of a hypothyroidism. Summation of all views about a role of a saliva is the theory by D.A.Entin. He has considered carious illness as a consequence of infringement of a local exchange in tooth tissues on ground of frustration of their feed. Enamel of a tooth he surveyed as a semipermeable membrane, which internal surrounding is transsudat of a blood, and outside - the saliva. With change of physical properties of a saliva the permeability of enamel and it charge varies, that defines a direction of osmotic currents. In norm these currents go from a pulp to enamel (centrifugal), providing thus normal feed of hard tissues of a tooth. Under adverse conditions osmotic currents accept a centripetal direction, i.e. come from periphery to a pulp, breaking thus feed of hard tissues and frameing conditions for development of a caries.

The first variant of the theory by D.A.Entin is mechanistic, as the author has reduced all difficult biological processes in an organism to physic-chemical processes.

Later, (1934) D.A.Entin has changed the view to a parentage of a caries. Recognizing a conducting role of the first system in development of carious process, and also series of other systems of an organism (endocrine, hereditary factor, condition of a life and feed), he treated occurrence of carious illness as result of frustration of a feed and infringement of a local exchange in tissues of teeth. Result it is the infringement of physiological mutual relation in system a pulp - tooth - saliva, that frames favorable conditions for dissolution of an inorganic part of hard tooth tissues and of
microbic destruction of organic stroma with the subsequent formation of defect (carious cavity).

Thus, occurrence and development of a caries of a tooth D.A.Entin defines by two factors: on the one hand, change of a microstructure of a tooth, and with another - bio-physic-chemical properties of a blood and saliva.

In this period of development of an odontology views of D.A.Entin were progressive, as he recognized a role of series of the general factors in an etiology and cariogenesis, the interrelation between a condition of an organism as a whole and teeth was established.

The biological theory by I.G.Lucomskiy

By the author of this theory the pulp of a tooth, in particular, odontoblasts, is surveyed as trophic center of a tooth.

The enamel is surveyed as an alive tissue having communication with an organism during all life. The various external factors: a disadvantage of vitamins of group B and D, disadvantage and wrong parity of salts of calcium, the phosphorus and fluorine, absence or disadvantage of ultra-violet beams also result in infringement of a metabolism in an organism, in particular mineral. In this connection the trophicity of odontoblasts is broken also, which, in opinion of I.G.Lucomskiy, carry out function of intratooth trophic centers in relation to noncellular formations of enamel and dentine.

I.G.Lucomskiy proceeded from the doctrine of I.P.Pavlov that each body is under the triad control of nervous system. » The Functional nerves cause or interrupt functional activity of a body: reduction of muscles, secretion of glands etc. The Vascular nerves adjust rasping delivery of a chemical material and removal of dross. The trophic nerves define in interests of an organism as the whole final size of use of this material by each body ».

Owing to infringement of a metabolism on ground of nutritional and other factors the odontoblasts become incomplete (the size them and quantity decreases, wrinkl a core) . The function them is broken, that results in infringement of a metabolism in enamel and dentine. The communication between organic and mineral substances is broken.
There are in the beginning qualitative changes (dismineralization), which result to quantitative (the quantity of salts of a calcium and phosphorus decreases and the contents of magnesium is enlarged), comes hypomineralization (hypocalcination and decalcification), enamel and dentine with formation of a site of a softening or cavity. This point of view of I.G.Lucomskiy can not explain series of the moments. For example, at a caries not weakening, but intensifying of function of odontoblasts expressing in formation of a secondary dentine is observed. At parodontose changes in odontoblasts (atrophy or disappearance of a layer) often are observed, but there is no caries.

The author considered a caries as polyetiologial disease, on the ground that the infringements of a metabolism can be called by the various factors. However, basic of them, in his opinion, is nutritional, is especial in case of the unsufficient contents in nutrition of albumines and irreplaceable aminoacids (lysine, arginine) and thus increased - carbohydrates. It causes the increased need of an organism for vitamin B1 and accumulation in tissues of a grapes acid. After achievement of the certain concentration the grapes acid accelerates process of a proteolysis in tissues of teeth and causes thus formation of a caries.

In occurrence and development of a caries of teeth A.E.Sharpenak offered to distinguish two phases.

In the first phase in tissues of teeth as a result of infringements of an exchange develop distrophycal processes, that occurs without participation of bacteria. This phase comes to an end by occurrence of a white spot. Thus he considered, that infringement of a metabolism, which are based on carious changes, begin not with a decalcification, and from a defeat of an organic component of enamel. Main among these infringements there are processes of a proteolysis, which result in destruction of an albuminous component of enamel. In the second phase of carious process in extended after a proteolysis of interprizmical space of enamel the bacteria will penetrate which continue destruction of hard tissues of teeth.
However there are a lot of positions of this theory have not found the further experimental and clinical acknowledgement. It concerns the thesis about an only centrifugal direction of penetration of nutritious substances in enamel, denying of a role of microorganisms in a demineralization of enamel, exaggeration of importance of proteolisis. By this theory it was difficult to explain favourite localization of carious cavities, frequency of defeats of teeth by a caries and other positions, at which the large influence have the local factors.

The working concept of a caries of teeth by A.I. Ribakov (1973)

It was named « as the concept of counter influences on a pulp of a tooth ». It is based on revealing of influence of the various endogenic and exogenous factors on formation, function and frame of tooth tissues. The large meaning is given to revealing of interrelation teeth - gnathic system with other bodies and systems of an organism. The author considered, that the reason of development of a caries is changes in a pulp, which under action exogenous and endogenic of pathogenic stimulus realizes the influence on hard tissues of a tooth. It is provided, that the pathological changes - infringement of formation of enamel and dentine - begin from middle and are distributed to a surface of enamel. Further sites of tissues with display of any structural infringements are those the least steady sites (locus minoris resistentis), in which under influence of the adverse factors of external surrounding, and also pathological pulses from internal surrounding of an organism the primary centers of pathological process develop.

Depending on a stage of development of an organism of the man A.I. Ribakov allocated the basic endogenic and exogenous factors, which interaction in the different periods of an ontogenesis results in occurrence of carious process.

Thus, allocate in an ontogenesis the following periods:

I - praenatal.

In this period the large importance have the genetic factors, a background for its further development can be infringements of process of an odontosis, is especial enamels and dentine. From the exogenous factors in this period matter an incomplete feed of the mother, reception of some medicines, deficiency in an organism of some
trace substances, first of all fluorine and magnesium, harmful habits of the mother, her diseases.

II - period of childhood.

First phase (6 month - 6 years)
A background for development of carious process can be the transferred diseases with simultaneous influence of the local damaging factors (bad care of an oral cavity, deformation of an occlusion, trauma).

Second phase (6 - 11 years)
The pathogenic factors are an overload by carbohydrates of the insulin device, disadvantage of fluorine in an organism, infringement of a salivation and change of pH of surrounding of an oral cavity.

Third phase (12 - 14 years)
Is characterized by the most appreciable reorganization of an organism, its systems and internal bodies. More often background is infringement of a puberty, the tooth plaques matter, by a releaser the hormonal reorganization of an organism acts.

Fourth phase (14 - 17 years)
Matter intensity of an exchange of trace substances (especially fluorine), labored eruption of teeth and hormonal infringements.

Fifth phase (17 - 20 years)
The certain nosotropic(pathogenetic) role can be played by infringements of function of a liver, of the insulin device. Among the local damaging factors the inherent and acquired diseases of teeth - gnathic system (anomaly of an occlusion, deformation of jaws and other matter.).

III. The period of optimum physiological equilibriums of functions (20 - 40 years)
Among the factors the promoting occurrence of a caries, prevail somatopathies, presence of diseases of teeth - gnathic system (labored eruption of the third molar tooths, deformation of jaws, infringement of an occlusion, trauma of teeth).

the period of a withering of functions of an organism (40 and more than years)
IV. Is characterized by decrease of functional activity of sexual glands, infringements of activity of other endocrine glands and changes, specific to the given age. The local factors are traumas of teeth, disease of an oral cavity; by a releaser - factors working locally, and also infringement of a feed.

In the given concept causes objection very much plenty of the factors, which the author allocates as etiological for occurrence of a caries. They are the factors faster, which promote its occurrence. There are no concrete indicatings on the mechanism of development of a caries, which is practically uniform. On this is not clear, how such quantity of the ethnological factors causes morphological pathological changes, which in the same way show themselves.

Modern representation about the reason of occurrence of caries in light of the concept by E.V.Borovskiy.

Now is conventional, that at an initial stage of a caries in the center of a defeat there is an expressed demineralization of enamel. Thus the most appreciable changes are marked in a undersuperficial layer. An immediate cause of occurrence of the center of a demineralization in a carious spot are organic (basically dairy) acids formed in process of fermentation of carbohydrates by microorganisms of a debris. It is necessary to note, that this demineralization of enamel differs from a demineralization at entering an acid from the outside: at a white spot the demineralization takes place undersuperficial, and at influence of acids there is a gradual loss of enamel on all of its surface.

By treating dynamics of occurrence of a caries of a tooth the variety of the various factors pays attention, which interaction and causes occurrence of the center of a demineralization. Basic of them are: a microflora, character of a feed, regimen of a feed, its quantity and quality, function of a salivation (remineralizing action of a saliva, buffer properties, secretory immunoglobulins, lysozyme), shifts in a functional condition of bodies and systems of an organism, contents of fluorine in drinking water, extreme influences on an organism (radial influence, influence of an environment).
The factors causing occurrence of a caries of teeth, are divided on local and
general. Besides in occurrence of caries the important role belongs to a condition of
hard tissues, their resistance.

The local factors include microorganisms of a debris, infringement of structure
and properties of a stomatic liquid; the carbohydrate alimentary rests.

To the general factors concern: a diet, including contents of fluorine in water,
shifts in a functional condition of bodies and systems of an organism, extreme
influences.

The action of the cariogenic factors is possible to understand, if a normal
condition of enamel to survey as dynamic equilibrium between constantly proceeding
processes of de- and remineralization.

At creation of conditions, when the processes of a demineralization prevail
above processes of a remineralization, there is a site of a demineralization as a
carious spot. Further progressing of process of a demineralization of enamel and
dentine results in formation of a carious cavity of this or that depth. At a favorable
situation in an oral cavity (careful erasion of a debris, decrease of consumption of
carbohydrates, keeping of a regimen of a feed etc.) the conditions for a
remineralization of enamel are frameed and the process is stabilized. In one cases the
white spot can completely disappear, in others it turns to a pigmented spot, which can
be characterized as stabilization of process (it for a number of years does not turn to a
carious cavity).

Occurrence of an initial caries E.V.Borovskiy represents as follows. Owing to
the often use of carbohydrates and unsufficient care of an oral cavity cariogenic
microorganisms are densely fixed on a pellicula, forming a debris. The further
entering of carbohydrates (the saccharose, fructose) results in local change of pH on a
surface of enamel of a tooth reaching critical level 4,5 - 5,0. At long maintenance of a
critical level of hydrogen ions there is a dissolution of apatites of a surface in the least
steady sites of enamel (line by Retzius, interprizmical spaces), that results in
penetration of acids in an undersuperficial layer of enamel and its demineralization.
The changes of a superficial layer of enamel are less expressed, than deep layers
caused by its structural features (presence of a plenty fluorapatites), and as by constantly occurring processes of a remineralization at the expense of continuous entering of mineral components from a stomatic liquid. The proceeding formation of organic acids on a surface of enamel results in a demineralization and gradual augmentation of microspaces between crystals of enamel prisms. As a result of it the conditions for penetration of microorganisms into the formed microdefects are framed. In a result the source of formation of acids is transferred inside of the enamel. At this stage of development of carious process the demineralization of enamel is distributed as along its surface, and inside, forming the cone-shaped center of a defeat. The long existence of the center of a demineralization results in dissolution of superficial, steadier layer of enamel.

Literature recommended


3.4 How to work with the literature recommended:

3.5. Self-control material:

A. Questions to be answered:
1. Structure of enamel.
2. Structure of a dentine.
5. Classification of a caries.
6. Cariogenesis.
10. the nutritional theory by A.E.Sharpenak.
11. the concept of counter influences by A.I.Ribakov.
12. the theory of development of a caries by E.V.Borovskiy.

B. Test tasks to be done:

**The test task №1**
What kinds of a caries distinguish depending on depth of a defeat?

**The test task №2**
What reasons of occurrence of a caries in a stage of a light spot?

1. formation of a tooth plaque on a pellicula of a tooth from carbohydrate of the rests, microorganisms, epithelial cells.
2. Local changes of pH of surrounding under a tooth plaque up to a critical level - 4.5 - 5.0
3. Dissolution of apatites of a surface of enamel in interprizmical spaces (in the field of a line by Retzius).
4. Penetration of acids in an undersuperficial layer of enamel and its demineralization.
5. Long reception of antibiotics at therapeutic diseases.
6. Increased salivation.
7. Prevailation in a ration of albuminous and fatty products.

**The test task №3 (?=2)**
What combination of the factors is necessary for development of carious defect?

1. Presence in an oral cavity of acidophilic microorganisms.
2. Increased contents in drinking water of fluorine.
3. Ability of microorganisms to form organic acids (dairy) at a fermentation of carbohydrates.
4. Prevailation of carbohydrates in a diet.
5. High resistance of superficial layers of enamel from blasting influences.
6. Unsatisfactory hygienic condition of teeth.
7. Amplified function of sialadens.

**Not typical tasks.**
1. The patient A. has addressed in stomatological polyclinic with the complaints to short-term pains from sweet, cold in a tooth on an top jaw on the right. The pains pass after elimination of irritants.

At survey is revealed: in 26 on a chewing surface a deep carious cavity with hanging edges. A dentine of bottom and walls of a cavity is light, softened, reaction to probing morbid on all bottom.

What additional method of inspection is necessary for leading for statement of the diagnosis?
The reason of pain sensations can be:
- acute deep caries;
- acute partial pulpitis;
-hyperemia of a pulp.

2. The patient B. has addressed to the stomatologist with the complaints on blooding of a gingiva, in an interdental interval on top jaw in a lateral site. Earlier in a tooth there was a seal, she has dropped out month back.

At survey in 17 on contact medial surface there is a carious cavity with the rests of a seal. The acute edge of a cavity irritates edge of a gingiva, because of it was formed a gingival polyp bleeding at a palpation. How it is rational to treat a site of a defeat?
Answer: after an anaesthesia to remove (to coagulate) a gingival polyp, prepare a cavity of 17, to make medicamental processing, to put a lining, seal.

4. Self-preparation at class.
1) Listen to the information;
2) Work with the tables, corpse, anatomical damp preparation;
3) Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
1) Review the material learnt at class; 2) Compose the plan of your answer;
3) Answer the questions to this topic; 4) Do the test given above;

The methodical reference is made by the assistant O.L.Fetisova
Methodical Instruction No.12-17
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: **Pathomorphology, clinic, diagnostics, differential diagnostics and treatment of a caries**

Subtopic:

Hours: 12

1. The topic basis: the caries of teeth is the most wide-spread disease among the population of all age groups. The complications caused by a caries, result in appreciable infringement of chewing efficiency, that is shown subsequently by various pathology of a gastrointestinal path and infringement of many kinds of a metabolism. The cosmetic defects at carious defeats often are the reason of many moral torments and psychoemotional traumas of the patients. It is logical, that the knowledge of displays of a caries at its different stages is necessary for the future doctors-stomatologists for successful diagnostics, effective treatment and reliable prophylaxis of most mass stomatological disease.

2. The aims of the training course:

3. A=1. 1) To know: 1) Pathomorphology and clinic of an acute and chronic caries in a stage of a spot;
2) Pathomorphology and clinic of an acute and chronic superficial caries;
3) Pathomorphology and clinic of an acute and chronic middle caries;
4) Pathomorphology and clinic of an acute and chronic deep caries.

A=2. 2) To understand, to remember and to use the knowledge received;

A=2. 3) To learn the classification, structure, functions of the caries;

A=3. 4) To take possession of skills:
1) spotings of a surface of a crown of a tooth at suspicion on presence of a carious spot;
2) probing of bottom of a carious cavity at a superficial, middle and deep caries.

5) To take possession of engineering:
   1) of inspections of the patient with the various forms of a caries.
   2) of additional methods of inspection:
      a) Thermodiagnostic;
      b) EOD;
      c) Estimation of roentgenograms in difficult cases of diagnostics of a caries.

A=3. 6) To be able:
   1) to diagnose the various forms of a caries on the basis of the given subjective and objective methods of inspection;
   2) to spend differential diagnostics of the various forms of a caries with other forms of a caries, not carious defeats, various forms of pulpits and periodontites.

3.Materials for the before – class work self – preparation work:
3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
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<tbody>
<tr>
<td>Anatomy</td>
<td>topography of localization of carious defect concerning different tissues of a tooth.</td>
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</tr>
<tr>
<td>Pathological physiology</td>
<td>reactive changes in a pulp in reply to development of the different forms of a caries</td>
<td>simulate functional changes in a pulp in reply to development of carious process.</td>
</tr>
<tr>
<td>Histology</td>
<td>a histological structure of hard tissues of a tooth</td>
<td>distinguish on roentgenograms structural - functional elements of enamel, dentine, pulp.</td>
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<tr>
<td>surgical stomatology</td>
<td>possible complications called by a complicated caries.</td>
<td>to spend adequate treatment and prophylaxis.</td>
</tr>
<tr>
<td>Propedeutic of a therapeutic stomatology</td>
<td>classifications of a caries. Etiological features of an acute and chronic caries</td>
<td>to formulate the diagnosis at the different forms of a caries correctly. To establish the reason of occurrence of an acute and chronic caries.</td>
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1. The contents of the topic:
2. Text

**1) Pathomorphology of an acute initial caries (stage of a light spot)**

At microscopical research of sections of teeth with an acute initial caries, as a rule, the brightly painted zone of a defeat with continuous, sharply expressed, even till segmentation, transversal stription of prisms and extended, evenly or varicously, interprismical intervals is defined.

In a stage of a light spot in enamel at a polarizing microscopy the center of a defeat as a triangle is taped, which basis is inverted to an outside surface of enamel. The character of change in a site of a defeat depends on the sizes of a spot. At a defeat, which area does not exceed 1mm², on sections of teeth are taped a transparent and dark zone. In a layer of subject enamel, enamel-dentin junction and dentine the changes are not found out. It is necessary to note, that in an outside layer of the center of a defeat there are weakly expressed changes. Thus, most expressed undersuperfitial changes on a circumscribed site at presence of the not changed subject enamel are
discovered. The character of the specified changes fixed at research in polarized light is caused by augmentation of microspaces. If the enamel contains in norm up to 1 % of microspaces, at a light carious spot percent of microspaces is considerably enlarged: in an outside layer of the center of a defeat up to 3-5, and after a defeat - up to 20.

Fixed, that at all stages of development of carious process density of the certain zones of enamel decreases, that specifies the phenomenon of a demineralization.

In various sites of white and pigmental maculae method of electron microprobing fixes decrease of the contents of calcium, phosphorus, fluorine and other mineral substances. On the data of some authors the loss of calcium in center of the carious defeat reaches 20-30 %.

There was earlier opinion, that in a carious spot the contents of a protein decreases. However, recently fixed, that its quantity is enlarged at the expense of accumulation in a spot of soluble protein penetrating into the center of a carious defeat.

The change of chemical structure of enamel is accompanied by downstroke of its mechanical resistance. The microhardness of enamel in a site of a light spot is sharply reduced. It is important to note, that the microhardness of an outside layer changes less, than of an undersuperficial layer.

The numerous electronic-microscopical researches of enamel at various stages of development of a carious spot have revealed changes in crystals: infringement of orientation of crystals in frame of hydroxiapatites, change of the form of crystals, their sizes, revealing of crystals, not typical of normal enamel. There is a direct dependence between the size of a carious spot and contents of calcium and phosphorus in it: with augmentation of the sizes of a carious spot the degree of a demineralization of enamel is enlarged.

After occurrence of the center of a demineralization, clinically described by presence of a white carious spot, in the further process can penetrate by two ways. In the first case, under condition of further progressing of a demineralization, the outside layer, which due to some factors long time remained with certain changes, is blasted and there is a defect within the limits of enamel of a tooth. It is necessary to
emphasize, that thus in layers of enamel on border from dentin the morphological changes can be absent. In the second case the process has longer current. In this case at a polarizing microscopy the changes are taped, fascinating all thickness of enamel: at the saved outside layer the zones, characteristic for the center of a carious defeat (body of a defeat, dark and transparent zones) are well visible. It is important to note, that dentin-enamel junction and dentine thus remain constant. Clinically this phase of morphological changes is characterized by presence of a pigmented light brown spot. Till now there is no precise representation about the reason of a spotting of the center of a demineralization in brown and even black colour. One authors consider, that penetrated in enamel organic substances in result of oxidizing-restoration processes turn in melanicterous, as causes a spotting. R.G. Sinitcin explained a pigmentation of the center of a demineralization by accumulation of amino acid terazin, which further turns to a pigment melanin.

From the given data follows, that the caries at a stage of a white and pigmented spot is an undersuperficial demineralization of enamel, which proceeds in the beginning at uninjured deep layers of enamel and dentin-enamel junction. Thus the outside layer of enamel above the center of a defeat is less changed, than deep layers. Consider, that the long conservation of an outside layer of enamel is caused by two reasons: by structural feature of an outside layer, and main, process of a remineralization, which is always observed in an oral cavity. The further demineralization results in change of dentin-enamel junction, dentine.

2) Pathomorphology of a chronic initial caries (stage of a pigmented spot).

At a chronic initial caries (the stage of a pigmented spot) enamel is struck within the limits of a spot or in an environment of a cavity, is intensively painted and has two zones. The external zone pigmented more strongly, in it a prisms are non-uniform, ground off, segmented, the interprismical substance especially dark and consists from globules. Sometimes it is impossible to distinguish a structure of enamel that a spotting so intensive. The central zone is more light, with precisely seen frame, in separate places transversal striping of prisms is defined, but it is shown much more weakly, than at an acute caries. On periphery it is visible a continuous
zone of transparent light enamel expressed more intensively, than more intensively pigmentation in the designated above zones. Sometimes strip interrupts and then the pigmented enamel as tongue is distributed up to dentin-enamel junction.

In a dentine the same changes are defined, as at an acute caries, but they are shown differently. The layer of a transparent dentine considerably more massive, as an appreciable layer of a dentine with dark canalicules, on the part of the pulpal chamber often is taped a secondary dentine.

3) The pathological changes, which occur at an acute superficial caries.

After occurrence of the center of a demineralization, which clinically is characterized by presence of a white carious spot, in the further process can develop by two ways. In one case (acute course of process) under condition of further progressing of process of a demineralization, superficial layer, which due to some factors long time was remained a very little changed blasts and there is a defect in the limits of enamel of a tooth. It is necessary to emphasize, that thus in deep layers of enamel the morphological changes can be absent.

In a stage of an acute superficial caries in center there is a defect, covered by the broken prisms. This zone on periphery is painted more intensively and without precise borders merges with normal enamel. Near to the given features of enamel there are changes which have received the name " of spongiform enamel ". This is the original frame of enamel, which is near dentin-enamel junction and reminds sponge. A prisms of enamel in this place look like struck with corrosion or vacuolized, often are absent. The interprismatic substance swells also looks like extended fibers.

4) The pathomorphologic changes, which occur at a chronic superficial caries.

After occurrence of defect within the limits of enamel of a tooth, the process can proceed more long time. Thus at the polarizable-microscopic diagnostic the changes, fascinating all thickness of enamel are taped: the zones, characteristic for the center of a carious defeat (body of a defeat, dark and transparent zones) are well visible.
At a superficial chronic caries there is a site of a destruction of enamel with presence of microorganisms, but the dentin-enamel junction is not broken and in a dentine the changes at first are absent.

During further progressing of a demineralization there is a destruction of dentin-enamel junction and there is a stage of an middle caries.

5. Pathomorphology of an acute middle caries.

At this stage of disease the pathological process covers not only enamel, but also blasts dentin-enamel junction, and also is distributed in limits of a cloak dentine. As the professor I.G.Lukomskiy emphasized, the caries of a dentine differs from the superficial forms of a caries by features, which depend on connection of the microbic factor, due to what it gets features of infectious process. This is promoted by anatomic features of a dentine: presence of dentinal canalicules and much greater, in comparison with enamel, contents of organic substances.

At a caries of a dentine the enamel in the center of a defeat completely is absent, on walls of a cavity is in different stages of destruction.

In a dentine there are defects circumscribed to a zone of a carious dentine. In last, as well as at a caries of enamel the same basic layers are defined: a layer of disintegration, layer of hypocalcination, the degree of which expressiveness is various depending on course of process. The carious center, that covers enamel, dentine, has the form of a triangle, top directed to a pulp. At acute current of process height of a triangle considerably prevails above the basis. At an acute caries the process is distributed along dentin-enamel junction, in this connection the undermined edges of enamel are formed then the cavity has the form of a rhombus, which short diagonal settles down on dentin-enamel junction.

Microscopically the caries of a dentine is characterized by the following: the most peripheric sites of a dentine absolutely non-structural, light colour, consist of an amorphous dentine separate fragments of a dentine, which have saved up a structure of a dentine, extraneous bodies and clump of microorganisms. In a direction of a pulp such layer of a destruction passes in a zone, where there are outlines of frame of a
dentine (zone of a demineralization), as the chemical researches fix here deficiency of calcareous salts.

Dentinal canalicules in this zone are extended compared with normal.

6). Pathomorphology of a chronic middle caries.

In this stage of a caries in a light microscope three zones are defined: a) of disintegration and demineralization; b) of a transparent and intact dentine; c) of a vicarious dentine and changes in a pulp. In the first zone the rests of destructions of enamel and dentine with a plenty of microorganisms are visible. Frame of a softened dentine more deeply differs, dentinal tubules are extended also here and there merge with microcavities (caverns) filled by bacteria. In deep layers of a dentine the quantity of microorganisms decreases. The dentinal processes of odontoblasts are exposed to a fatty dystrophia. It is necessary to note, that the softening and destruction of a dentine occurs more intensively along dentin-enamel junction, but at the chronic form of a middle caries the hanging edges of enamel already are absent: they break off at a mastication. In other zone there is a layer of a transparent dentine and intact dentine. On a measure of progressing of carious process a layer of an intact dentine above a pulp becomes more thin. The demineralization of a dentine is accompanied by destruction of dentinal processes of odontoblasts (fiber by Toms), on which place the microorganisms accumulate, there is a dissolution of organic substance (in the basic collagen) of a demineralized dentine.

On periphery of a carious cavity in a direction to a pulp dentinal canalicules extend and are deformed. The layer of the condensed transparent dentine (zone of hypermineralization) with considerably narrowed dentinal canalicules, which gradually pass in a layer of the not changed (intact) dentine, which is posed above a pulp of a tooth, is more deeply posed.

In the third zone (zone of the changed pulp) accordingly of center of a carious defeat the layer of a vicarious dentine is formed which differs by less focused locating of dentinal canalicules.

7). Pathomorphology of an acute deep caries.
At an acute deep caries the enamel in the center of a defeat completely is absent, and on walls of a cavity is in different degrees of destruction. In a dentine there is more - less wide-spread defect circumscribed by a zone of a carious dentine. In last, as well as at a caries of enamel, the same layers are defined: a layer of disintegration, layer of hypocalcination, layer of hypercalcination, the degree of which expressiveness is various, depending on course of process. Carious center, which covers enamel and dentine, has the form of a triangle, top directed to a pulp. At acute current of process height of a triangle considerably prevails above the basis.

At an acute caries the process is distributed along dentin-enamel junction, in this connection the undermined edges of enamel are formed then the cavity gets the form of a rhombus, which short diagonal settles down on dentin-enamel junction. At an acute deep caries, when the center of a defeat is localized in a nearpulpal dentine, through a light microscope three zones are taped:

a) Disintegration and demineralization;

b) The thin zone of an intact dentine (sometimes is absent);

c) Changes in a pulp.

But their parities are various, in comparison with a chronic deep caries.

In the first zone the rests of decayed enamel and dentine with a plenty of microorganisms are visible. Frame of a softened dentine more deeply differs, dentinal canalicules are extended also here there merge with microcavities (caverns) filled by bacteria. In deep layers of a dentine the quantity of microorganisms decreases. The dentinal processes of odontoblasts are subject to a fatty dystrophia.

The demineralization of a dentine is accompanied by destruction of dentinal processes of odontoblasts (fiber by Toms), on which place the microorganisms accumulate. In turn under action of enzymes allocated by microorganisms, there is a dissolution of organic substance (in the basic collagen) of a demineralized dentine. On periphery of a carious cavity in a direction to a pulp of a tooth dentinal canalicules are extend and deformed.
Layer of the condensed transparent dentine (zone of hypermineralization) with considerably changed dentinal canalicules, which gradually pass in a layer of the not changed dentine, that is above a pulp, settles down more deeply.

In the third zone (zone of changes in a pulp), according to the center of a carious defeat the layer of a vicarious dentine is formed which differs by less focused locating dentinal canalicules. On this basis, some authors name it as irregular dentin.

In a pulp of a tooth at a caries series of changes also are observed. At a light microscopy at a deep caries in vessels of a pulp the changes externally similar to the basic inflammation are defined. The degenerative changes in nervous fibers of a pulp, even before complete disintegration of their axial cylinder are enlarged also.

8). Pathomorphology of a chronic deep caries.

At chronic current of a caries in hard tissues of a tooth the same basic layers are defined: the layer of disintegration, layer of hypocalcination, layer of hypercalcination, degree of which expressiveness differs from the acute form of process. The form of a defeat also represents a triangle, which top is directed to the party of a pulp, but its height is much less, than basis.

At microscopical research the following is taped: the peripheric sites of a dentine absolutely non-structural, yellow, brown, brown colour and consist of an amorphous dentine, separate fragments of a dentine, rests of meal and etc., clump of microorganisms. In a direction to a pulp this layer of a destruction passes in a zone of a demineralization.

The chronic course of a caries has some features. For it the intensive pigmentation (brown), complete, or nearly complete, absence of the softened zone and appreciable development of a transparent and secondary dentine is inherent, and last has complete frame. Than more slowly carious process proceeds, the more appreciably feature, characteristic for a chronic caries; at a stationary caries they reach the greatest expressiveness.

In series of cases at a caries, is more often at deep, the configuration of the pulpal chamber changes at the expense of adjournment in a place of a projection of a carious cavity of so-called secondary or irregular dentine. More often secondary
dentine has an original structure - wrong locating of dentinal canalicules, sometimes their complete absence. Dentinal canalicules have no the certain orientation, are twisting, posed spontaneously, by wrong series and are considerably narrowed, compared with appropriate in a healthy dentine. The majority of them breaks on border from normal dentin, some of them penetrate into it on small depth.

Concerning chemical structure of a secondary dentine is given concerning the contents of mineral components much greater, in comparison with normal dentin.

II. Clinic of the various forms of a caries

II. 1. Clinic of a caries in a stage of a chalky spot (acute initial caries).

The patients can complain of cosmetic defect looks like a chalky spot of various shades at localization of it on surfaces accessible to survey of the patient. Besides the insignificant sensitivity, feeling of a nausea from various irritants, mainly chemical (acidic, sweet, bitter) can appear.

By objective attribute at an acute initial caries is: faded, matte, chalky-white spot, which has lost a transparence, of the small sizes, sometimes slightly morbid at probing. This spot can be revealed on surfaces, any, accessible to survey, except for a place of the most often localization of a carious defeat - at the bottom of sulcuses and proximal surfaces of a tooth.

On temperature irritants the tooth answers by usual reaction - occurrence of sensitivity, which quickly passes. The pulp of a tooth reacts to a current by force 2-6 mkA. That at a white spot there is a demineralization, it is painted by 2 %- solution of methylen dark blue, at drawing it on the beforehand cleared and dried up surface of enamel of a tooth.

II. 2. Clinic of a caries in a stage of a pigmented spot (chronic initial caries)

The complaints of the patient at this stage of disease are reduced to cosmetic defect, if the spot is localized in places, accessible to its survey. At survey the dark spot of various shades - from light brown up to black in places of carious defeats, typical of localization is defined. The complaints on unpleasant sensations from temperature, chemical irritants are absent. At survey the site of enamel of dark colour
sharply distinguished from healthy enamel is taped. At probing, the defect of a surface of enamel is usual is not felt. The pulp of a tooth reacts to a current 2-6 мкА.

II. 3. Clinic of an acute superficial caries

For an acute superficial caries the short-term pain basically from chemical irritants - sweet, acidic, salty is inherent. The pain sensations from action of temperature irritants are possible also. It more often is observed at localization of defect in area of neck of a tooth - on a site with the most thin walls. At survey on a site of a defeat the defect (cavity) is defined which is taped at probing of a surface of a tooth. Quite often defect is defined in center of a white spot. The appreciable difficulties arise at diagnostics of a superficial defeat within the limits of natural fissures. In thees cases the dynamic observation is supposed. The pulp of a tooth on a surface of a defeat reacts on a current by force 2-6 мкА.

II. 4. Clinic of a chronic superficial caries

It is a degree of a defeat of enamel arises on a place of a dark pigmented spot as result of destructive changes of enamel of a tooth. As against the acute form of a superficial caries, the patient does not have complaints, except for possible inconveniences from presence of cosmetic defect. At survey of a tooth on a site of a defeat there is a superficial defect (cavity), which is taped on presence of a roughness of a tooth. Quite often roughness is defined in center of the large pigmented spot. The appreciable difficulties arise at diagnostics of a chronic superficial caries in limits of fissures of a tooth. The pulp at a chronic superficial caries reacts to a current by force 2-6 мкА.

II. 5. Clinic of an acute middle caries

For this form of a caries the symmetry of a defeat is inherent. At an acute middle caries the cavity is defined. The defect of enamel is insignificant, does not correspond to the sizes of a cavity in a dentine. The edges of defect in enamel sometimes are transparent, fragile (easily break off by an excavator). In a cavity softened, quite often like porridge mass of dirty - grey, and sometimes of yellowish colour is defined. The dentine forming bottom and a walls of a cavity is softened. Probing of bottom of a cavity is painless. In reply to action of cold irritant there can be a pain reaction,
which quickly passes. At an acute middle caries there can be some downstroke of an electroexcitability of a pulp (on the data of R.F. Patukina, 1979) from 2 up to 9 мкА.

**II. 6. Clinic of a chronic middle caries**

At this form of a caries the patients, usually do not show the complaints, but sometimes from action of mechanical, chemical and temperature irritants there can be short-term pain sensations, which quickly pass after elimination of action of irritant. At survey of a tooth the superficial cavity with a wide inlet opening is defined. A dentine of bottom and walls of a cavity is dark, dense at probing. The reaction to probing is painless, but in some cases, especially at manipulations near its walls, is accompanied by morbidity. The reaction on thermal irritants is absent. EOD - 2-6 мкА.

**II. 7. Clinic of an acute deep caries**

The patients complain of short-term pains from mechanical, chemical and temperature irritants, which pass after elimination of irritant. At survey the deep carious cavity filled with a softened dentine is found out. The inlet opening is narrow, there are hanging edges of enamel. Probing of bottom of a carious cavity morbid. In some cases there can be attributes of pulpitis: tendinous pain in a tooth after elimination of irritant, sensation of discomfort in a tooth. The pulp reacts to a current within the limits of 10-12 мкА.

**II. 8. Clinic of a chronic deep caries.**

In most cases patients complain of an acute short-term pain as a result of hit of firm particles of nutrition, which frame pressure on bottom, chemical irritants - sweet, acidic, salty. After elimination of action of irritants, the pain quickly passes, but it is sometimes marked irradiation of a pain.

At survey the deep carious cavity with a wide inlet opening is defined. A dentine forming bottom and walls of a cavity is dense, dark colour. The reaction to probing painless, only at probing of dentin-enamel junction sometimes can arise morbidity.

The reaction on a cold irritant is sometimes morbid, quickly taking place. EOD frames sensation of a pain in a tooth at 10-12 мкА.
III. Differential diagnostics of the various forms of a caries.

III. 1. Differential diagnostics of a caries in a stage of a spot.

The carious spot should be differentiated from a spot at a hypoplasia and fluorosis. The symmetry of a defeat of the same teeth is characteristic for a hypoplasia, that is caused by a simultaneity of their creation, development and mineralization. At a fluorosis are available multiple, and white, and brown, not having of precise borders of a spot locating on surfaces of all groups of teeth. The localization of maculae does not correspond to retentional sites of a surface of a crown of a tooth, where carious defeats are localized more often. At the high contents of fluorine in drinking water the size of maculae is enlarged, and the character of changes is more expressed: the enamel of all crown of a tooth can have brown colour. The endemicity of a defeat - display at all or majority of the inhabitants any of region is characteristic for a fluorosis.

III. 2. Differential diagnostics of a superficial caries.

The superficial caries is necessary for differentiating from a hypoplasia, erosion of hard tissues and clinoid defect.

At a hypoplasia a surface of enamel is smooth, not softened, the defects are localized at different levels of symmetric teeth, instead of on characteristic for a caries surfaces of crowns of teeth.

The erosion of hard tissues of teeth has the cotyloid form, its bottom is smooth, brilliant. Necks of teeth given below in the tooth formula are amazed

\[ 5 4 3 2 1 \mid 1 2 3 4 5 \]
\[ 5 4 3 \quad 3 4 5 \]

The erosion often is accompanied by a hyperesthesia - hypersensibility to mechanical, chemical and temperature irritants. In an anamnesis the often use of juices, fruit and acidic nutrition quite often is taped.

The clinoid defect is localized extremely at the neck of teeth, has dense walls and characteristic form of defect. Usually proceeds asymptotically.

III. 3. Differential diagnostics of an acute middle caries.
This stage of a caries is necessary for differentiating with: a fluorosis (destructive form), erosion of enamel, clinoid defect, superficial acute caries, acute deep caries, middle chronic caries.

At a fluorosis on enamel is multiple and white, and brown spot which is not having of precise borders, posed on different surfaces of all groups of teeth. For a fluorosis the endemicity of a defeat is inherent - it is shown in all or at the majority of the inhabitants any of region.

The erosion of hard tissues of a tooth has the cotyloid form, its bottomis smooth, brilliant. Necks of teeth given in the formula are amazed 5 4 3 2 1 | 1 2 3 4 5

The erosion is partially accompanied by a hyperesthesia - hypersensibility to mechanical, chemical and temperature irritants. In an anamnesis the often use of juices, fruit and acidic nutrition quite often is taped.

The clinoid defect is localized extremely near the neck of a tooth, it has hard walls and characteristic form of a wedge with smooth, as though the polished walls.

The superficial acute caries is within the limits of enamel, not going deep further of dentin-enamel junction.

At a deep caries the center of a defeat is immersed not only in limits of cloak, but also nearpulpal dentine, probing of bottom of a carious cavity and dentin-enamel junction is morbid, the reaction on chemical, temperature irritants is sharply morbid, it quickly disappears at elimination of action of irritant. EOD at an acute deep caries causes a pain reaction at 10-15 мкА.


It is necessary to differentiate with clinoid defect, erosion, deep acute and deep chronic caries.

The similarity of a chronic middle caries with chronic periodontitis consists in absence of pain sensations at presence of a carious cavity. The difference of these diseases is, that at the preparation of a cavity at a caries, there is a pain, and at the periodontitis the reaction on the preparation is absent, as a pulp is dead. In this connection the reaction on external irritants is various also: at an middle chronic
caries the tooth reacts to a current 2-6 мкА, at the periodontitis - on a current by force more than 100 мкА. On a roentgenogram at a caries a tissue of a periodontium are not changed, and at chronic periodontitis there is a destruction of an osteal tissue in apical area.

III. 5. Differential diagnostics of an acute deep caries.

Differential diagnostics of an acute deep caries spend with:
- Chronic simple pulpitis;
- Chronic hypertrophic pulpitis;
- by a chronic gangrenous pulpitis;
- by a chronic middle caries;
- by a chronic deep caries.

The similarity to a chronic simple pulpitis consists available of deep carious cavity, but at an acute deep caries an inlet opening is narrow, and at a chronic simple pulpitis it is wide. At chemical, temperature, mechanical irritants in both cases there are pains, but after elimination of action of irritant at a caries a pain disappear, and at a pulpitis disturb the patient some time. At a deep acute caries EOD causes sensation of a pain at 10-18 мкА, and at a chronic simple pulpitis the pain arises in reply to a boring 40-50 мкА.

The diagnosis of chronic hypertrophic and chronic gangrenous pulpites can be excluded at once, as at these forms of a pulpitis the carious cavity is widely informed with the pulpal chamber. And at a hypertrophic pulpitis from a punched aperture it is visible pathological granulations, and at a gangrenous pulpitis only deep probing is morbid.

The acute deep caries differs from a chronic middle caries by depth of a defeat (in limits of nearpulpal dentine), and as by short-term pain sensations on chemical, temperature, mechanical irritants. At an middle caries EOD makes 2-6 мкА, and at an acute deep caries - 10-15 мкА.


Differential diagnostic spend with:
- a simple chronic pulpitis;
- a chronic hypertrophic pulpitis;
- chronic gangrenous pulpitis;
- a hyperemia of a pulp;
- an acute middle caries;
- a chronic middle caries;
- an acute deep caries.

With pulpites the chronic deep caries unites that at these diseases there is a carious cavity. At caries at action of chemical, temperature irritants in a tooth there is a localized pain, which disappears at elimination of appropriate irritants, and at a chronic simple pulpitis a pain some time is not abirritated. At a caries EOD - 12-15 мкА, and at a chronic pulpitis it is more. The diagnosis of a chronic hypertrophic and gangrenous pulpitis can be excluded at once, as at these diseases is broken bottom of the pulpal chamber, and there is a connection of a carious cavity with a pulp cavity.

At a hyperemia of a pulp occasionally there are short-term attacks of a pain, which quickly pass, pain localized. EOD at the hyperemia of a pulp - 15-20 мкА, and at a chronic deep caries - 12-15 мкА.

From a chronic middle caries it differs by depth of a carious cavity. The middle caries is in limits of a cloak dentine, and deep caries is in limits of nearpulpal dentine. At a middle caries EOD gives a pain on 2-6 мкА, and at deep - 10-12 мкА.

**IV. Treatment of the various forms of a caries.**

**IV. 1. Principles of general treatment of a caries in a stage of a chalky spot.**

The treatment consists in rising of a nonspecific resistance of an organism, stimulation of activity of sialadens and maintenance of the certain level of mineral substances and trace elements in tissues and surroundings.

The general treatment provides introduction in an organism of enough of proteins of an animal parentage (daily about 1,5 grammes on 1 kg of weight of a body of the patient). It is important to limit entering in an organism of carbohydrates, at the expense of which is admitted to cover no more than 50 % of power expenses of an
organism. It is necessary to provide by mineral substances, which best source is milk products.

At the acute forms of a caries it is necessary to enter preparations containing salts of calcium and phosphorus. After reception inside of Glycerophosphatatum calcium in a dose 0,5 g two times per day in a combination to vitamins B1 and B6 (these preparations should be entered within one month) the sharp decrease of quantity of teeth requiring sealing is marked. At a stage of decrease of a natural resistance of an organism there is a deficiency of some vitamins. The vitamins C and B6 concern first of all to their number. At treatment of the acute forms of a caries alongside with Acidum ascorbinicum (0,1 - 0,2 g per day) and pyridoxine (0,05 - 0,1 per day) pertinently to nominate Retinolum and ergocalciferol, involved in adjustment of a phosphorus-calcium exchange and Thiaminum, which deficiency can result in decrease of resistance of teeth to caries. Recently in clinical practice has appeared a lot of effective anticarious complexes with vitamins and trace elements: "Кальций - D3 Никомед ", "Кальцемин" , "Кальций-витрум" , "Идеос".

Use of immunomodulating preparations for treatment of a caries of teeth is effective only at weak nonspecific resistance of an organism. At a good natural resistance the immunomodulating therapy has no appreciable influence on efficiency of treatment of a caries of teeth.

The decision about prescription of immunomodulating treatment is based on an estimation of a condition of a nonspecific resistance of an organism and change of its parameters. The experience proves, that at inspection of the patients with a caries will enough be limited by parameters of activity of a lysozyme of a saliva (mixed and parotidial), and also bactericidal action of dermal integuments. Effectively and rationally to influence medicamentaly on regulation of a natural resistance of an organism. With this purpose the preparations of group of stimulators of CNS (preparations of ginseng, gold root, eleuteracoc), hormonal preparations (Nerobolum, Nerabolilum, Retabolilum), salt of nuclein acids, purine and perimedin derivative (Pentoxylum, Methyluracilum, and ets.) can be used. Listed and other preparations at a caries nominate as a course. Nucleinat of a sodium in a dose 0,1g till 2 times per
day. The course of treatment makes 20 days. Same on duration a course of treatment as introduction in an organism of orotat of potassium till 0.5g 3 times per day practically has no restrictions connected to contraindications. Pentacsilum in a dose 0.2g accept 3 times per day during 15 days.

The caries develops at deficiency of fluorine, which basic source is water. At the use of fluorine-scarce water the frequency of the acute forms of a caries of teeth grows. It is necessary to enter inside to adult 4-6 mg of fluorine daily. A course of treatment by fluorides not less than 12-18 months. The therapeutic action of fluorine is taped not earlier than in 12 months after beginning of treatment.

Useful component of general therapy of the acute forms of a caries can be an artificial ultra-violet irradiation, which is rational in regions with small quantity of solar days. In such cases spend 20 sessions of a body irradiation by a quartz lamp till 0.5 biodoses. An ultra-violet irradiation nominate in winter time. As the acute forms of a caries develop at weak people, it is necessary to mean an opportunity of hardening.

The quite good medical effect is rendered by a stimulation of function of sialadens. At children with the weakened natural resistance of an organism the viscosity of a saliva raises. Intensifying of a salivation promotes intensive biting of hard nutrition. The eating of acidic, spicy food also strengthens allocation of a saliva. With the purpose of intensifying a salivation the medicinal grasss (Tussilago farfara, девясил (oman), термопсис) can be used. Mucolytic agents, also can be applied: Bromhexinum in tablets on 0,004 - 0,008 g till 2-3 times during 3-4 weeks. The indications for appointment of agents stimulating a salivation define through assays describing rate of a salivation and viscosity of a saliva.

IV. 2. Principles of local treatment of a caries in a stage of a chalky spot.

The light and light brown spot is display of a progressing demineralization of enamel. As have shown experimental and clinical researches similar changes can arise at the expense of entering of mineral components in the center of a demineralization. The specified method has received the name of remineralizing therapy. Series of preparations presently are created, which structure includes ions of calcium, phosphorus, fluorine, that promotes process of a remineralization. Most wide
circulation was received 10 % a solution of a gluconate calcium, 1-3 % a solution of remodent, received from natural material. Into structure of a dry preparation of remodent enter: calcium (4,35 %), magnesium (0,15 %), potassium (0,2 %), sodium (16 %), chlorine (30 %), organic substances (44,5 %) and others. It is let out as a white powder, from which prepare 1-3 % solution.

**Technique of remineralizing therapy of a caries in a stage of a light spot.**

The surface of a tooth is carefully mechanically cleared from debris by a brush, tampons, and then processed by 0,5-1 % solution of a peroxide of Hydrogenium and dried up by a flow of air. Then for a site of the changed enamel on 15-20 of mines put the cotton humidified with a remineralizing solution (tampon is changed by everyone 4-5 mines).

After everyone third application of remineralizing solution, the surface of a tooth is dried up and becomes covered by tampon, impregnated by 2-4 % solution of sodium fluoride. Instead of a solution of a sodium fluoride it is possible to use Ftorlak, which put on the carefully dried up surface of a tooth. After end of all procedure it is not recommended to accept nutrition and to gargle a mouth during 2 hours. The course of a remineralization consists from 15-20 applications, which spend each day or in day.

The important component of treatment of the center of a demineralization is strict keeping of a correct care of an oral cavity, which purpose - to not admit of formation of tooth plaque on a place of the former center of a demineralization.

Brown and black carious spot characterize a stage of stabilization of process. Clinical and experimental research have shown, that remtherapy of them is not effective. In most cases it is shown of wiping off of the struck site and local application of agents having of remineralizing properties.

**The mechanism of action of a galvanization at treatment of a caries in a stage of a spot.**

The galvanization is use of a continuous constant current of a low strain (30-80 w) and small force (up to 50 мКА) for the medical purposes. In tissues under action of a constant current there are changes, which result in formation of new conditions for course of various biochemical and physical processes.
Under action of a constant current in tissues of a body the vessels extend, circulation of blood accelerates and there is a hyperemia, the permeability of a vascular wall raises, local temperature raises. The excitement of nervous receptors in an operative range results in change of their excitability. Arising afferent impulsion in the CNS and vegetative centers causes of reflective reaction of local, segmental and generalized type, that results in change of functions of bodies. The secondary humoral action as result of a boring of endocrine system is marked. Therefore action of a constant current basically depends from a locating of electrodes, and not just from parameters of influence and functional condition of an organism.

**Technique of electro-path and UVR - therapy at treatment of a caries in a stage of a white spot.**

By the most effective agent of a remineralization is electro-path of calcium, phosphorus and fluorine in a carious spot. To enter calcium it is recommended in variety 5 % solution of gluconate calcium. The complex introduction of trace substances with remineralizing liquid by Borovskiy-Platonov is recommended. Electro-path it is necessary to spend each day during 10-20 days. The efficiency of a remineralization can be estimated on decrease of pointing by methylenic dark blue or measuring electrical resistance of a carious spot.

At a systemic lesion by caries process simultaneously with electro-path of trace substances for improvement of metabolic processes it is rational to spend a general irradiation of UV- beams. At difficulties with a general irradiation of UV-beams it is possible to influence on a zone of collar or gingivias.

**III. 3 Techniques of treatment of a superficial caries.**

At localization of a superficial caries on smooth surfaces it is impossible unequivocally to solve the problem on character of intervention. In most cases scrape of the struck site of enamel is shown and local application of agents possessing of remineralizing action. But at localization of the carious center in natural excavations (fissures, fossas) or on contact surfaces, preparation of a site of a defeat and its subsequent sealing is necessary. If the carious defect reaches dentin-enamel junction, it is necessary to impose before applying of a seal an insulating lining.
III. 4. Treatment of an acute middle caries.

At this form of a caries it is necessary of carving of the struck site of a crown of a tooth and restoration of the anatomic form of tooth by filling material.

Preparation it is necessary to spend on high-speed stomatological installation by acute bur in an intermittent operation, the movements of bur should be intermittent. The form of a carious cavity needs to be generated accordingly of demands showed for different classes of defects on classification by Black.

After the ending of preparation the medicamental processing of a carious cavity is spent. As a result of an appreciable demineralization of hard tissues use of strong preparations (such as 70 Є ethylic alcohol, Aether aethylicus) is undesirable because of an opportunity of a boring of a pulp. It is necessary to use 3 % solution of a peroxide of Hydrogenium, 2 % solution of Chloraminum, 1: 5000 solutions of Furacilinum, 1: 2000 solutions of Rivanolum etc.

After medicamental processing drying a cavity by a flow of warm air is made, on bottom and wall of a cavity the insulating lining is imposed, since the majority of the materials, used for sealing, have irritating action on a pulp. In quality of an insulating lining Natrii phosphas cements use more often, it is possible to use glass-ionomer cements having anticarious effect. Insulating lining should repeat a configuration of a carious cavity and reach a level of dentin-enamel junction to not be the dissolved by saliva and to not become center of development of a secondary caries.

For sealing of carious defects in a frontal site of a dentition light-cure and chemical composite materials is used. The carious cavities in lateral sites of a dentition are sealed up by universal composite materials.

Literature recommended

- Main Sources:
- Additional ones:

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
</tr>
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<tbody>
<tr>
<td>to review the material</td>
<td>to use the material studied</td>
</tr>
</tbody>
</table>
3.5. Self-control material:

A. Questions to be answered:

1. Pathomorphology of a caries in a stage of a light spot.
2. Pathomorphology of a caries in a stage of a pigmented spot.
3. Clinic of a caries in a stage of a white spot.
4. Clinic of a caries in a stage of a pigmented spot.
5. What additional methods of diagnostics exists?
6. A technique of applicational remineralizing therapy of caries in a stage of a chalky spot.
7. Surgical treatment of a caries in a stage of a pigmented spot.
8. Remineralizing therapy of a caries in a stage of a chalky spot with use of electropath.
10. A dietetics at treatment of an acute initial caries.
11. A vitamin therapy at treatment of an acute initial caries.
13. Use of UVR at treatment of an acute initial caries.

B. Test tasks to be done:

1. At the patient A, at routine inspection have revealed on a contact surface of 24 and 25 a matte chalky spot, which without sharp borders pass in normal enamel. The patient has told, that from time to time he is disturbed by feeling of a nausea at reception of acidic nutrition. The probing does not tap defect of a surface of enamel. EOD of these sites of teeth is 4 мкА. At a spotting of crowns of teeth by 5% solution of methylene dark blue these sites are painted more intensively.
To establish the diagnosis.

2. Patient N. complains of presence of a dark spot on a chewing surface of a tooth on a mandible at the left. The spot does not disturb. At research the dark - brown, almost black spot on a chewing surface of 26 is revealed. At probing the defect of a surface of enamel is not defined. The reaction on thermal irritants is absent. EOD from a surface of a crown of 26 - 6 мкА.

To establish the diagnosis.

3. At the patient T the acute initial caries of 16 is diagnosed. Nominate the most rational complex treatment.

4. At the patient M. 14 tooth is absent, she was directed on a prosthetic repair. The doctor - orthopedist has revealed on a medial surface of 15 tooth a chronic initial caries. Define optimum medical tactics concerning 15.

Questions to be answered:
1. Pathomorphology of an acute superficial caries.
2. Pathomorphology of a chronic superficial caries.
3. Clinic of an acute superficial caries.
4. Clinic of a chronic superficial caries.
5. Rule of machining of a site of a defeat at superficial caries depending on localization of the center of a defeat.
6. Indication for applying insulating lining at superficial caries.
8. Materials for constant seals at sealing defects, arisen owing to a superficial caries.
9. Sealing of the defects which have arisen owing to superficial caries.
10. A grinding and polishing of seals after sealing defects, which have arisen owing to a superficial caries.

Tasks to be done:

a). The patient C. complains of from time to time arising short-term attacks of a pain from sweet, acidic, salty, and also from cold. At survey on a chewing surface of 26 is revealed light chalky spot with indistinct contours. In center of a spot at
probing the roughness is taped. The pulp of a tooth reacts to a current 5 мкA. Put the diagnosis.

b). The patient G. complains of cosmetic defect in a tooth on a mandible on the right site about gingiva. The tooth sick does not disturb. At objective inspection in the nearneck area of 36 the dark, almost black spot of a dense consistence is defined. The probing of a spot in center defines defect of enamel, painlessly. The reaction on temperature irritants is absent. The tooth reacts to force of a current 6 мкA. Put the diagnosis.

4. Self-preparation at class.
1) Listen to the information;
2) Work with the tables, corpse, anatomical damp preparation;
3) Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
1) Review the material learnt at class;
2) Compose the plan of your answer;
3) Answer the questions to this topic;
4) Do the test given above;
6. The subject of the research work.
The methodical reference is made by the assistant Fetisova O.L.

Methodical Instruction  No. 18
For the 3-d year students’ self—preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology


Hours: 2
1. The topic basis: the topic is very important for future doctors in their professional activity, positively influences the students in their attitude to the future profession, forms professional skills and experience as well as taking as a principle the knowledge of the subject learnt.

2. The aims of the training course:

A=1. 1) To have general knowledge of the topic studied;
A=2. 2) To understand, to remember and to use the knowledge received;
A=3. 3) To learn the classification, structure, functions of the
A=3. 4) To form the professional experience by reviewing, training and authorizing it;
A=3. 5) To be able to carry out laboratory and experimental work.

3. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>topography of localization of carious defect concerning different tissues of a tooth.</td>
<td></td>
</tr>
<tr>
<td>Pathological physiology</td>
<td>reactive changes in a pulp in reply to development of the different forms of a caries</td>
<td>simulate functional changes in a pulp in reply to development of carious process.</td>
</tr>
<tr>
<td>Histology</td>
<td>a histological structure of hard tissues of a tooth</td>
<td>distinguish on roentgenograms structural - functional elements of enamel, dentine, pulp.</td>
</tr>
<tr>
<td>surgical stomatology</td>
<td>possible complications called by a complicated</td>
<td>to spend adequate treatment and</td>
</tr>
</tbody>
</table>
8.2 The contents of the topic:

Topic: **Acutissimus caries: pathomorphology, clinic, diagnostic, differential diagnostics, treatment. Medical substances, prescription, ways of use.**

Text

The acutissimus (Blossoming) caries represents a variant of sharp current. However, presently the certain contingent of the population is exposed to the extreme influences reflected, in particular, on immunobiological condition of an organism. Thus caries of the teeth, described exclusive aggression of current develops. Treatment and preventive maintenance of the acutissimus (Acutissimus) form of caries make necessary its allocation as independent form of disease. It is a question of intensive development of caries of a teeth and its aggressive current not only at chronically proceeding collagenic diseases, a tuberculosis, a diabetes, but also after the transferred acute infectious diseases. It is proved, that with development of the acutissimus (Acutissimus) caries are fraught beam and intensive corticosteroid therapy, so widespread today a sensitization of an organism, antiinfectious immunization of an organism. For the acutissimus (Acutissimus) caries plural defeat (not less than 7-8 of carious cavities), presence of several cavities (4-5) in one tooth, almost asymptomatic current, the tendency to steady progressing and the subsequent occurrence of secondary caries, the leader to intensive destruction of a teeth, and also presence of complicated caries is characteristic. For very short time a teeth, including so-called steady against caries teeth - canines and the bottom incisors are amazed
almost all. The acutissimus (Acutissimus) caries is localized not only on surfaces of a teeth usually subject to thus disease, but also on so-called immune surfaces. The majority of defeats is found out on lip, buccal and contact surfaces. On occasion the palatal surfaces are amazed. On one tooth appear some carious centers. On the average on one tooth there are 2,26 of carious defects. In such cases cavities merge, therefore in dentin cavities of the significant sizes above which hang the fragile enamel bridges, deprived a subject dentin are formed. Thus conditions for breakage of enamel are created. Enough early process becomes complicated an inflammation of a pulp. The primarily-chronic pulpitis quite often develops. The painful syndrome at the acutissimus (Acutissimus) caries also is not leader. At an exposure of dentin-enamel junction the patients can complain of the painful sensations arising under action of a cold. Some patients, suffering this form of caries, do not mark painful sensations.

At inspection of patients the abundance of a dental plaque, high viscosity of a saliva attract attention. Intensive adjournment of a dental plaque is observed even at careful care of a teeth.

Caries in a stage of a spot is often combined with the developed forms of this disease in same and other teeth. Carious defect of enamel thus has no attributes of delimited process.

Laboratory research of blood and saliva of such patients, as a rule, allows to come to conclusion about the expressed change of natural resistibility of an organism. As a rule, at such patients activity of lysozyme of blood, of parotid and of the mixed saliva is lowered. The mineral structure of a saliva changes also: the maintenance of alkaline phosphotase decreases, and phosphorus - increases. The maintenance of calcium and potassium in a saliva is increased, and sodium - is reduced. Bacterial action of integuments is lowered. Infringements of functions of vegetative nervous system are found out in such patients, its lability. Pallor of integuments, downturn of its turgor, propensity of epithelium of skin to raised desquamation can be observed.
Treatment of Acutissimus caries should be spent in the form of complex influence on immunobiological condition of an organism, stimulation of activity of salivary glands, etc.

1. Influence on nonspecific resistency of an organism consists in purpose of a diet with the increased maintenance of the fiber, nonsaturated oils. Products which contain calcium (milk, cottage cheese, cheese, egg yolks, nuts, beans, meat), fluorine (tea, salad, mineral water, peaches, carrots), phosphorus (a fish, meat, a soya, an apricot, a cherry, plum).

2. Medicamentous influence consists in purpose of nucleinate of sodium, orotate of potassium, riboxine, pentoxile, etc.

3. Obligatory is purpose of vitamins: C, B6, A, E, D.

4. Purpose of mineral substances:
   - gluconate, glicerophosphate, lactate of calcium - on 0,5 g 3 times a day during 1-2 months, 2-3 rates in a year
   - Preparations which contain fluorine - fluoride, fluorate of sodium - on 1 mg 2 times a day during 2-3 months
   - Preparations of phosphorus - phytin - on 0,25 g 3 times a day 1-1,5 months, 2 rates in a year.

5. For stimulation of function of salivary glands appoint dietotherapy with the increased maintenance of firm, sour, spicy food, broths of medicinal grasses. With the same purpose appoint Bromgexinum on 0,004-0,008 g 1-2 times a day during 2 weeks.

6. The general UVR is useful.

Local treatment is spent depending on the form of caries. Especially carefully at preparation it is necessary to spend necrectomy and preventive expansion of carious cavity with the purpose of preventive maintenance of recurrent caries. It is necessary widely to apply odontotrophic pastes to preventive maintenance of development of caries even at acute middle caries. A necessary condition at Acutissimus caries is visiting the stomatologist in 2 weeks after sealing. Patients with Acutissimus caries should be taken on dispensary registration and visit the
stomatologist 3 times in a year. Visitings combine with application of remineralizing solutions.

Features of treatment of Acutissimus caries consist in the following:
- Association of local treatment with the general in view of a condition of an organism of the patient;
- The maximal volume of treatment in each reception of the patient;
- Use modern filling materials with high adhesion;
- Constant supervision over the patient;
- Preventive measures.

Literature recommended
- Main Sources:
- Additional ones:

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td>to review the material</td>
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<tr>
<td>to be ready to answer the topic</td>
<td>questions</td>
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</table>

3.5. Self-control material:

A. Questions to be answered:

1. The reasons of development of Acutissimus caries
2. Features of current
3. What changes from a saliva and blood are observed at patients with the acutissimus (Acutissimus) caries
4. With what formation of a plenty soft dental plaque such patients is connected
5. Why at the acutissimus (Acutissimus) caries secondary caries often develops, the put earlier seals drop out
6. In what the general pathogenetic treatment consists
7. Name medicinal substances which have immunostimulating action
8. What medicinal substances stimulate allocation of a saliva
9. What substances regulate the maintenance of mineral substances in an organism
10. Features of operative treatment of Acutissimus caries

B. Test tasks to be done:
4. Self-preparation at class.
   1) Listen to the information;
   2) Work with the tables, corpse, anatomical damp preparation;
   3) Ask about the problems that haven’t been found in the information given.
5. Self-preparation work at home.
   1) Review the material learnt at class;
   2) Compose the plan of your answer;
   3) Answer the questions to this topic;
   4) Do the test given above;

The methodical instruction is made by the assistant Fetisova O.L.

Methodical Instruction No. 19
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: **Secondary caries of dead and alive teeth: The reason, clinic, diagnostics, differential diagnostics. Treatment, prophylaxis.**

Hours: 2
1. The topic basis: The urgency of a theme is defined by big distribution of caries among the population. Secondary caries is one of complications after treatment of
caries process when new carious defect appears near to earlier put seal. This process can arise both in dead, and in an alive tooth. Active secondary caries is typical for blossoming caries, thus the put earlier seals can drop out.

2. The aims of the training course:

A=1. 1) - To learn features of clinic, diagnostics of secondary caries of dead and alive teeth
- To learn to spend radical preparation of carious cavities at treatment,
  antiseptic processing, correctly to impose isolating lining, qualitatively
  to restore the anatomic form of crown by a seal

A=2. 2) - Pathomorphology, clinic, diagnostics and treatment of secondary caries

A=3. 3) - In due time to reveal secondary caries of a tooth before development of complications in a pulp.

Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

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<thead>
<tr>
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<th>To know</th>
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<tbody>
<tr>
<td>Anatomy</td>
<td>topography of localization of carious defect concerning different tissues of a tooth.</td>
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</tr>
<tr>
<td>Pathological physiology</td>
<td>reactive changes in a pulp in reply to development of the different forms of a caries</td>
<td>simulate functional changes in a pulp in reply to development of carious process.</td>
</tr>
<tr>
<td>Histology</td>
<td>a histological structure of hard tissues of a tooth</td>
<td>distinguish on roentgenograms</td>
</tr>
</tbody>
</table>
3.2 The contents of the topic:

Topic: **Secondary caries of dead and alive teeth: The reason, clinic, diagnostics, differential diagnostics. Treatment, prophylaxis.**

Text

Secondary caries as complication after sealing of carious cavities some time can remain not noticed. In due course there can be a sensitivity on chemical and temperature irritants. On a frontal teeth there is appreciable a darkness around of a seal. At last, there can be an interval between a seal and a wall of a cavity or mobility of a seal. To reveal secondary caries at early stages of its development allows transilluminating research and use of caries-markers. At diagnostics of secondary caries it is necessary to consider an acuteness of carious process. Especially often secondary caries develops at acute and peracute (acutissimus) current of process. Attributes of secondary caries are usually shown in 3-12 months after treatment. If fixing of a seal is broken or its defect comes to light in earlier terms it is hardly possible to speak about secondary caries. These
phenomena can be consequences of the mistakes admitted at sealing. At objective inspection of the struck tooth the seal (or its part), not adjoining to walls of carious cavities is defined. The seal can be mobile, sometimes it lays on dentogingival papilla (2,3,4 classes). After removal of a seal it is necessary to make careful audit and to define borders of carious cavities, a consistence and color of dentin, the connection with a cavity of a tooth, to lead percussion, palpation, thermodiagnostic inspection. Development of secondary caries is connected with mistakes at stages of treatment: at preparation (insufficiently lead disclosing of carious cavities, necrectomy, final formation of carious cavities), insufficiently dried up carious cavity, errors in imposing an isolating lining, wrong technics of imposing of a constant seal, bad grinding and polishing of a seal (from the center to edge of a seal). Often secondary caries develops owing to incorrectly lead pathogenetic treatment at blossoming (acutissimus) caries. Treatment of secondary caries is spent depending on the form of caries and includes pathogenetic therapy which provides application of immunomodulating medicaments and processing of carious cavities by remineralizing solutions before and after sealing.

Literature recommended

- Main Sources:
- Additional ones:

3.4 How to work with the literature recommended:

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<tr>
<td>to be ready to answer the topic</td>
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</tbody>
</table>

3.5. Self-control material:

A. Questions to be answered:
1) Definition of concept « secondary caries »
2) Clinic of secondary caries
3) Clinical methods of diagnostics of secondary caries
4) Additional methods of diagnostics of secondary caries
5) The General reasons of occurrence of secondary caries
6) The Local reasons of occurrence of secondary caries
7) Treatment of secondary caries
8) Preventive maintenance of secondary caries

B. Test tasks to be done:
4. Self-preparation at class.
   1) Listen to the information;
   2) Work with the tables, corpse, anatomical damp preparation;
   3) Ask about the problems that haven’t been found in the information given.
5. Self-preparation work at home.
   1) Review the material learnt at class;
   2) Compose the plan of your answer;
   3) Answer the questions to this topic;
   4) Do the test given above;

The methodical instruction is made by the assistant Fetisova O.L.

Methodical Instruction  No. 21
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: Caries prevention program. Value of individual Caries prevention program, medical and public. Means of Caries prevention
program. The organization of Caries prevention program of teeth of pregnant women, recruits, workers of separate manufactures.

Subtopic:

Hours: 2

The topic basis: The Clinical practice and scientific researches testify, that prevalence of caries in some countries reaches 80 %. The statistical data published in the countries of northern Europe, testify that growth of this disease proceeds. Abundantly clear, that growth of stomatologic diseases, their prevention, treatment and Caries prevention program makes the most actual problem of modern medicine.

Caries prevention program is a system of the social medical, hygienic measures directed on prevention of diseases by elimination of the reasons and conditions of their occurrence and development, and also on increase of stability of an organism to influence of adverse factors of the surrounding natural, industrial and household environment, capable to cause pathological changes.

1. The aims of the training course:

   A=1. 1) To familiarize with ways of improvement of an organism: the organization of a high-grade feed - restriction of reception of carbohydrates, reception of tough food, the organization of a mode of work and rest;

   A=2. 2) To know:

   - methods of rational hygiene of an oral cavity;
   - ways of increase of salivation;
   - necessity and the most rational terms of elimination of tooth-jaw deformations.

   A=3. 3) To be able:

   - to spend removal of dental adjournment correctly;
   - to train patients in a correct technique of cleaning of a teeth.

   A=3. 4) To seize:

   - a technique of carrying out remineralizing therapy;
   - technics of closing of fissuras and blind fossas;
- technics of processing of a teeth fluoric preparations.

2. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
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<td>To be able to</td>
</tr>
<tr>
<td>Physiology</td>
<td>Physiology of digestion.</td>
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<tr>
<td>Hygiene</td>
<td>The Rational food allowance, containing necessary components.</td>
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<tr>
<td>Pharmacology</td>
<td>Structure and dosage of vitamins. Necessary for increase of resistency of enamel. The mechanism of action of preparations of fluorine on hard tissues of a tooth.</td>
</tr>
<tr>
<td>Prevention of stomatological deseases</td>
<td>Hygienic means for care of an oral cavity</td>
</tr>
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</table>

3.2 The contents of the topic:

Topic:  
Subtopic:
Proceeding from modern representation about the reason of occurrence of caries of a teeth, its prevention can be carried out by a complex of the measures directed, on the one hand, on elimination of a cariogenic situation in an oral cavity, and with another - on increase of resistansof tissues of a teeth.

To measures of elimination of cariogenic situations concern: improvement of an organism; restriction of reception of carbohydrates; a diet; reception of tough food; hygiene of an oral cavity; improvement of salivation; elimination of tooth-jaw deformations; closing of fissuras and blind fossas of a tooth.

There are next ways of increase of resistency of enamel of a tooth: a correct formation and development of tissues of a tooth; high-grade maturing of enamel; remineralizing therapy; application of fluoride preparations (the general and local action).

In conformity with costing problems Caries prevention program should be begun with intra-uterine development of a fetus and to continue during all human life. In connection with that development of a fetus in a huge degree depends on a condition of the pregnant woman, the first stage of Caries prevention program is the care of health of future mother (a rational mode of the life, the balanced feed, the prevention of diseases, and at their occurrence - early and active treatment. A feed of the pregnant woman should include wide assortment of proteins (first of all a phytogenesis), carbohydrates, fats. The significant part of the specified substances should be digestible (milk, cheese, a butter). Consumed products should contain also in enough mineral components and vitamins. Important optimum maintenance of a microcell of fluorine in potable water (about 1 mg/l).

After a birth of the child creation of high-grade structures of tissues depends on a condition of its health - first of all influence of general diseases. Receipt in an organism of necessary nutrients is necessary. For feeding the parent milk containing an optimum set of necessary nutrients, and also biologically active components - hormones, antibodies, vitamins, microcells always will be irreplaceable.
This complex of substances at long enough feeding provides to the child during the early period of development passive immunity. At school age there is a change of a dairy teeth with constants, and in the further replacement, maturing (an additional mineralization) enamels up to 15 - 17 years. It is necessary for considering at definition of an optimum diet of the pupils. It is necessary to include in a food allowance enough of fruits, vitamin-rich and mineral salts. Bakery products, groats, pasta should not exceed recommended norms.

Exclusively the great value has also a diet. The certain number of receptions of food within day and exception of the use of sweets in intervals between them considerably reduce an opportunity of development of caries.

The significant role in Caries prevention program of a teeth is played with the prevention and elimination developed tooth-jaw deformations. The orthodontic treatment directed on normalization of crisis, elimination of density of a teeth, reduction of occurrence of caries. From the numerous microcells acting in an organism of the person with foodstuff and food water, the greatest anticarious action fluorine differs. The most effective influence of fluorine is observed at its optimum receipt in an organism during development of a mineralization and the subsequent maturing of enamel of a teeth. The most widespread method of Caries prevention program of a teeth now is artificial fluorining potable water (up to concentration of 1 mg/l), that provides decrease in desease by caries on 30 - 50 %. The World Health Organization recommended to apply a method of fluorining in all countries. The mechanism anticarious actions of fluorine speaks first of all formation in enamel of resistant structures, steady against action of acids due to transformation hydroxiapatites in ftorapatites at replacement of hydroxile groups (OH-) on fluorine (F-). Alongside with it a number of authors is cited by data, that fluorine renders direct influence on a dental plaque, suppressing acid-formation of microorganisms of a dental plaque. In conditions when it is not obviously possible to make fluorining potable water or separate food stuffs (milk, salt, etc.), fluorine can be entered into an organism in the form of tablets at the rate of optimum daily receipt in quantity 1,2 - 1,6 mg. Anticarious effect from application of
tablets of fluoride of sodium depends on age with which reception begins, and also from duration and a regularity (not less than 250 days in a year) their uses. Tablets should be appointed from 2 years and to continue their reception till 14 years.

Daily within 2,5 years the use of the tablets containing 2,2 mg of fluoride of sodium, reduces intensity of caries on a constant teeth at 7 - 8 years children on the average on 57 %. Alongside with introduction of fluorine inside resistency of enamel of a tooth to caries can be raised by local application of fluorine. It can be applied in the form of application of solutions, rinsings, a covering of a teeth a varnish, cleanings of a teeth by fluorin-conteining pastes, gels.

Increase of resistency of dental tissues by their processing of remineralizing solutions which basic components are calcium and phosphate is perspective. Distribution was received applicational remineralizing therapy with application of 10 % of a solution of gluconate in a combination to 2 % solution of fluoride of sodium. In the beginning a surface of a tooth clear by tooth-brush and any hygienic tooth-paste, and then wash out the wadded tampon humidified by a solution of peroxide of hydrogen. After that a surface of the teeth isolated from a saliva dry up a jet of warm air and on 15-20 minutes Impose a tampon humidified of 10 % by a solution of gluconate of calcium. Then on 1 - 2 minutes put a tampon moistened by 2 % solution of fluoride of sodium. The given procedure is spent three times (per day) everyone half a year, reducing a gain of caries of a teeth on 24 % and more.

Preventive processing by remodent is spent by a following technique: we spend cleaning a teeth by hygienic paste, a teeth isolate from a saliva and dry up a current of air. After that in the dishes made of plastic, place the wadded tampons plentifully moistened by 1 - 3 % solution remodent, then put them on a teeth. Duration of procedure 15 - 20 mines, repeated processing is spent through 2 - 3 days. In a year it is carried out 3 - 4 similar rates.

Clinical supervision have shown, that three-year application of a solution remodent in the form of applications provides decrease in desease by caries approximately on 45 %. Anticarious action is rendered with a tooth-paste “remodent”. The mechanism of action of this paste consists that it reduces an index of
hygiene of an oral cavity and increases acid resistency of enamel of a teeth of the person.

At purpose of measures of Caries prevention program for elimination of cariogenic situation the big attention is given to a diet. V.K. Leontev has suggested to introduce “culture of consumption of carbohydrates” which essence is reduced to the following: 1) not eat sweets for the night; 2) to not use sweet as last dish; 3) not eat sweet between receptions of food.

In the prevention of caries plays a role also reception of the rough food, having the expressed clearing effect. Fruits, vegetables and rough food is necessary for recommending everything, especially to children because it promotes autopurification of a teeth and massage of parodontium.

The great role in Caries prevention program belongs to hygiene of an oral cavity. According to the literature, regular, controllable cleaning of a teeth 2 times a day during 2 years, reduce morbidity of teeth in 2 times.

The necessary level of hygienic skills and regular care of an oral cavity at children can be provided only at commonwealth of stomatologists, tutors of a day nursery and kindergartens, teachers and parents. The special attention is demanded by children with anomalies of a bite because density of a teeth contributes to caries-making.

For cleaning a teeth use brushes, pastes, powders, elixirs, solutions for rinsings, toothpicks, dental strings (flosses).

All tooth-pastes to destination can be divided on two groups: hygienic and medical - preventive. Pastes concern to the last "Лесная" and "Хвойная" and also paste "Бальзам". The Tooth-paste "Жемчуг" also is medical - preventive. Due to the maintenance in it of salts of calcium and phosphorus at contact to a surface of a tooth paste renders on enamel mineralizing action, causing receipt in it of ions of calcium and phosphorus. Anticarious action is rendered with pastes “Чебурашка” and “Фтородент”.
Tooth-powders basically possess clearing properties, medical - they do not render preventive action, because introduction in their structure of medical additives is complicated.

Dental elixirs - liquid means of hygiene of an oral cavity. They represent water or spirit solutions containing a various sorts of the additive: vitamins, antiseptics, deodorants.

Hermetic sealing of blind fossas and fissuras on a chewing surface of a teeth are an effective measure under the prevention of caries of a teeth. According to of some authors decrease in a gain of caries on 90 - 95 % is in such way provided. The principle of exception of contact of carbohydrates and microorganisms of an oral cavity with enamel fissuras is put in a basis of this method of Caries prevention program.

The most suitable materials for "smoothing down" fissuras are composite filling materials.

Consider, that hermetic sealing fissuras at use of Evicrol and Consise is effective within 1 years.

It is long since noticed, that at decrease in functions salivary glands, intensity of caries sharply increases in an oral cavity.

Example can be syndrome by Shagren, one of which displays is xerostomia, that is expressed in development of blossoming caries.

For stimulation of function of salivary glands use diet-therapy with the raised contents of hard, sour, spicy food. Some medical grasses possess property of strengthening of salivation. Prepare for broth (1 table spoon of dry grassy raw material on a glass of water) and after 5 minute heatings on a water bath filter. Accept by 1/4 of a glass, 3 times a day during 2 - 3 months. With the same purpose apply a preparation Bromhexin in tablets on 0,004-0,008 1-2 times a day during 2 weeks.

The important action under the prevention of destructive processes in a dental number is sanitation of an oral cavity.
The Founder of stomatologic sanitation is A.K. Limberg who in 90th years of XIX century has proposed two-single survey of children in a year and urgent sealing found out carious teeth.

Elimination of again formed cavities in a teeth warns development in them of complications of caries - pulpitis and a periodontitis which cause formation chronic odontogenic centers influencing current of many pathological processes in an organism.

Allocate three forms of carrying out of sanitation of an oral cavity:

1) Individual or sanitation of an oral cavity on appealability, provides treatment of all diseases of an oral cavity at persons independently addressed in stomatologic establishment;

2) Single or periodic, - full treatment of all diseases of an oral cavity at the limited contingents of the population;

3) Planned (medical - preventive) - regular treatment of stomatologic diseases at the organized groups of the population which are being on dispensary service.

In our country without fail it is spent planned medical-preventive stomatologic sanitation of the organized children's collectives, adult population with chronic diseases and workers of some industrial enterprises.

Distinguish centralized and decentralized methods of sanitation.

At the centralized method surveys and sanitation of an oral cavity are carried out in medical - preventive establishments (regional, city or regional polyclinics). At the decentralized method surveys and sanitation are spent in the medical cabinets created at the enterprises or at schools. In educational establishments (schools, the TECHNICAL TRAINING COLLEGE) with number 800 - 1200 pupils also are more created stationary stomatologic cabinets. Each school is fixed to the certain stomatologist.

There is also a brigade method of service at which in school or on the enterprise the brigade in structure of 2 - 3 doctors, with the sister and nurse and in more terms spends sanitation of an oral cavity.
For rendering the stomatologic help to the population of a countryside and carrying out of sanitation mobile cabinets in specially equipped buses are used. The Special attention should be turned on sanitation of an oral cavity at graduates of schools, pupils of technical training colleges and conscript.

Sanitation of an oral cavity at the persons, suffering chronic diseases, invalids of Great World war and invalids of work is carried out, as a rule, in district clinics. Sanitation of an oral cavity at the working industrial enterprises spend in stomatologic cabinets or the branches created at the enterprise or in district clinics.

Pregnant women are on regular medical check-up in regional and city polyclinics on a residence. The rule of supervision consists that before reception of an exchange card, the woman should be sanified.

Young men - conscripts are sanified by school stomatologists, they consist on regular medical check-up in medical boards of military registration and enlistment offices, it is necessary, that their sanitation has been finished to last commissions.

Literature recommended
- Main Sources:
- Additional ones:

3.4 How to work with the literature recommended:

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3.5. Self-control material:

A. Questions to be answered:

1. What is the Caries prevention program of a teeth?
2. What preventive measures are directed on elimination of cariogenic situations?

3. What there are ways of increase of resistency of enamel of a tooth?

4. The Measures raising health of mother, as means of primary Caries prevention program.

5. Value of a balanced diet of mother for formation of dental tissues?

6. Value of chest feeding the child for Caries prevention program?

7. Value of restriction of carbohydrates in a diet of teenagers?


9. Value of fluorine in Caries prevention program and an opportunity of its application.

10. Opportunities of application of preparations of calcium and phosphorus with the purpose of Caries prevention program.


13. The Technique of cleaning of a teeth.


15. Value of sanitation of an oral cavity in Caries prevention program.

B. Test tasks to be done:

**Typical task 1**

At the patient acute initial caries of 11 teeth has been diagnosed. The accompanying pathology is absent.

What medicamentous means can be used for treatment?

**Typical task 2**

At the patient at preventive inspection significant soft plaque, bleeding of gums in frontal site of denture.

What means of hygiene should be applied to Caries prevention program and diseases of parodontium?
Typical task 3
At preventive inspection of schoolboys, at the patient, 14 years, at probing of a chewing surface of 36 deep fissuras are defined.
How it is possible to make “hermetization” of fissuras?

Test task 1
Name principles of “cultures of consumption of carbohydrates” on V.K.Leontev.

Test task 2
Name all means of the hygiene applied to Caries prevention program and diseases of parodontium known to you.

Test task 3
Name methods of cleaning of a teeth known to you.

4. Self-preparation at class.
   1) Listen to the information;
   2) Work with the tables, corpse, anatomical damp preparation;
   3) Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
   1) Review the material learnt at class;
   2) Compose the plan of your answer;
   3) Answer the questions to this topic;
   4) Do the test given above;
   6. The subject of the research work.

The methodical reference is made by the assistant Fetisova O.L.
Methodical Instruction No.22, 23
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

**Topic: Not carious defeats of teeth. Classification by Patrikeev.**
Pathomorphology, clinic and diagnostics of not carious defeats, which arise after eruption of teeth: traumatic defeats, chemical defeats, anabrosis of enamel, hyperesthesia, clinoid defect.

Subtopic:

Hours: 2

The topic basis: Besides caries most widespread disease of teeth, there is also other various pathology of firm fabrics - not carious defeats.

Till now treatments of this pathology of teeth in most cases was not effective and, as a rule, consist in sealing the expressed defects and assignment of means for elimination hyperesthesia.

1. Last years, a number of researches revealing the separate party of etiology and pathogenesis of various not carious defeats is carried out, that has allowed to enter into clinic a number methods of treatment. Therefore study of them is undoubtedly urgent and represents the large interest during formation of the doctors - stomatologist.

2. The aims of the training course:

A=1. 1) Will familiarize with etiology, pathogenesis, classification and treatment of not carious diseases developing after eruption of teeth.

A=2. 2) To know:

- Structure of enamel of a tooth;
- Structure of dentin of a tooth;
- Structure and functions of periodontium;
- etiology of traumatic defeats of teeth;
- etiology of chemical defeats of teeth;
- etiology of erosion of enamel;
- etiology hyperesthesia of firm fabrics of teeth;
- etiology of clinoid defect of firm fabrics of teeth;
- etiology of pathological dental abrasion;
- pathogenesis of notcarious defeats of firm fabrics of teeth developing after eruption of teeth;
- Classification of notcarious defeats of teeth by Patrikeev V.K. (1968).
- Modern classification of notcarious defeats with the account classifications of HWO.
- Classification of a mechanical trauma of teeth by Chuprikina N.M. (1985).
- Clinic of notcarious defeats of firm fabrics of teeth;
- Diagnostics of notcarious defeats of firm fabrics of teeth;
- Differential diagnostics of notcarious defeats of firm fabrics of teeth;

- Treatment of notcarious defeats of firm fabrics of teeth.

  A=2.  3) To be able:
  - To lead questioning of the patient;
  - To inspect the patient;
  - To lead palpation of regional limphatic nodes;
  - To lead palpation of alveolar bone and causal tooth
  - To lead probing of tooth;
  - To lead percussion of a tooth;
  - To lead thermodiagnostic of a tooth;
  - To lead X-ray-diagnostic of a tooth;
  - To lead electrodiagnostics of a tooth.

  A=3.  4) To form the professional experience by reviewing, training and authorizing it;

  A=3.  5) To be able to carry out laboratory and experimental work.

3.Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:
<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>anatomic features of a structure of teeth. Anatomic features of a periodontium structure</td>
<td>on anatomic features of a structure to define a belonging of teeth to the certain group</td>
</tr>
<tr>
<td>Pathological anatomy</td>
<td>pathological changes at notcarious defeats of teeth.</td>
<td>to define volume of operation depending on a defeat.</td>
</tr>
<tr>
<td>Histology</td>
<td>features of a histological structure of teeth, periodontium.</td>
<td>to define pathological changes in fabrics of teeth, in periodontium.</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>preparations used for remineralizing therapy, fluorization of teeth</td>
<td>to use preparations for remineralizing therapy depending on a kind of notcarious defeats.</td>
</tr>
</tbody>
</table>

The methodical reference is made by the assistant Fetisova O. L.

Methodical Instruction  No. 26

For the 3-d year students’ self – preparation work
(at  class and at home)
in studying Propedeutic of therapeutic Stomatology

**Topic: Pulpit: etiology, pathogeny, classification.**

Hours: 2

1. The topic basis: significant prevalence among the population of Ukraine of caries and its complications (to which the pulpitis concerns) dictates necessity for the future doctors-stomatologists of thorough knowledge of etiology, pathogeny,
classification, clinic, diagnostics and differential diagnostics of different forms of a pulpitis which will create information base for the further mastering by modern techniques of treatment and preventive maintenance of the given pathology.

2. The aims of the training course:

A=1. 1) To have general knowledge of the topic studied;
   B Determination of notion.
   • Structure of pulp: anatomic, hystological, functional features.
   • Etiology of pulpitis.
   • Ways of penetration of an infection into a pulp.
   • Pathogenesis of pulpitis.
   • Classification of pulpitis.

A=2. 2) To seize habits:
   1) examination of stomatological patient (objective methods)
   3) To seize techniques of acting:
      1) thermodiagnostics;
      2) EOD.

A=3. 4) To be able:
   1) to classify different forms of pulpitis;
   2) to estimate differential ways of penetration of an infection into a pulp.

3. Materials for the before-class work self-preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>Topographical anatomy of pulp chambers of different groups of teeth.</td>
<td>To show topographical formation of pulp chambers of different groups of teeth.</td>
</tr>
<tr>
<td>Pathological physiology</td>
<td>Phases of inflammatory</td>
<td>To model</td>
</tr>
</tbody>
</table>
process and their characteristic. inflammations in a pulp of a tooth.

**Histology**
The Histologic structure of a pulp of a tooth. To distinguish on micropreparations structural and functional elements of a pulp.

**Surgical stomatology**
Possible complications of different forms of pulpits. To spend adequate treatment and preventive maintenance of complications of pulpitis.

8.3 The contents of the topic:

**Topic: «Pulpit: etiology, pathogeny, classification.**

A pulpit is inflammation of tooth pulp. Pulp (pulpa dentis) – connective tissue formation, filling the cavity of tooth (pulp chamber). **Morphologically consists from:**

<table>
<thead>
<tr>
<th>cells,</th>
<th>fibers,</th>
<th>intercellular substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odontoblasts</td>
<td>collagenic</td>
<td>glycosaminoglycans,</td>
</tr>
<tr>
<td>Fibroblasts</td>
<td>reticular</td>
<td>is <strong>abundantly pierced</strong></td>
</tr>
<tr>
<td>Stellate cells</td>
<td>(argirofilic)</td>
<td>by blood vessels, nerves</td>
</tr>
<tr>
<td>Macrophage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**Features: it is in the reserved space from** intractable dentine, inflammation flows therefore quick, accompanied the rapid squeezing of pulp, by violation of trophicity and its death.
Ways of penetration of an infection into a pulp

- Through a carious cavity;
- Through a dentogingival pocket;
- Retrograde:
  - a) hematogenic,
  - b) lymphogenic;
  - c) from near-by infectious center

3. By etiology distinguish:

- infectional
- Non-infectional
  - traumatic
  - chemical
  - thermic

Mikroflora: associations streptococci, lactobacterias, Gram+ bacills, fusospirohetts and their toxins

Household, sport, works trauma, accompanied with bruise, fracture

Perforation and trauma of pulp during preparatig

Toxic action of alcohol, ether, eugenol, orthophosphoric acids, monomers filling materials

Overheating of pulp during preparing of carious cavities or under artificial crown

Pathogeny – a mechanism of inflammation development

1. Alteration: 1. Damage of connecting tissue cells (pulp) by etiologic factors.
   2. Degranulation of labrocytes, leucocytes and ot

   5. Increase of vascular permeability.
   6. Emigration of blood cells, components of plasma
   7. Phagocytosis, pinocytosis .
   8. Formation of serous, after festering exsudate infiltrate

   10. Differentiation and transformation of cells.
Classification of pulp (acuta).

1. Acute pulp (acuta)
   a) partial (partialis);
   b) general (diffusa communis totalis);
   c) purulent (purulenta).

2. Chronic pulp (chronica)
   a) fibrous (simplex);
   b) hypertrophic (hypertrophica);
   c) gangrenous (gangraenosa).

Classification of pulp (acuta).

1. Hyperemia of pulp (hyperaemia).
   2. Traumatic (traumatica):
      a) by chance bare pulp;
      b) at the break of crown or root.
   3. Partial (partialis).
   4. Diffuse (totalis, communis).
   5. Purulent (purulenta).

II. Chronic pulp (chronica).

1. Fibrous (fibrosa).
   2. Hypertrophic (hypertrophica).


III. Exacerbation of chronic pulp (chronica exacerbatio).

IV. Pulp complicated with periodontitis.

Works classification of pulp

I. Acute pulp (acuta).
   1. Traumatic (traumatica):
      a) at preparing (without or with denudation of mash);
      b) at the break of crown or root.
   2. Hyperemia of pulp (hyperaemia).
   3. Partial (partialis).
   5. Purulent (purulenta).

II. Chronic pulp (chronica).

1. Fibrous (simplex).
   2. Hypertrophic (hypertrophica).
4. Concrementous (conrementosa).
5. Root (radicis dentis).

III. Exacerbation of chronic pulpitis (chronica exacerbatio).
IV. Necrosis and gangrene of pulp (gangraena et necrosis pulpa).
V. Atrophy of pulp (atrophia pulpa).

Literature recommended

- Main Sources:

- Additional ones:
  1. Кодола Н.А., Копьева Э.П., Прудникова А.П. и др. Пульпит: возрастные особенности и лечение. - К.: Здоровье, 1980 г.

II. Научная:


III. Методическая:

1. Милерян В.Е. Методические основы подготовки и проведение учебных занятий в медицинских ВУЗах. - К.: 2003г.


3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>to review the material</td>
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<tr>
<td>to read and compose the plan</td>
<td>to learn the new material and be ready</td>
</tr>
<tr>
<td>to answer the questions</td>
<td>to write a summary</td>
</tr>
</tbody>
</table>
3.5. Self-control material:

A. Questions to be answered:

1. What kind of tissues is pulp?
   a) the fatty;
   b) connective;
   c) nervous;
   d) epidermal;
   e) vessels;

Right answers: b.

2. What form of pulpit are concerned to acute:
   a) hyperemia
   b) partial
   c) fibrous
   d) gangrenous
   e) purulent
   f) hypertrophic
   g) concrementous
   h) general

Right answers: a,b, e,h.

3. What form of pulpit are concerned to chronic:
   a) hyperemia
   b) partial
   c) fibrous
   d) gangrenous
   e) purulent
   f) hypertrophic
   g) concrementous
h) general
Right answers: c, d, f, g..

4. What kind of cells is specified for pulp:
   a) fibroblasts
   b) odontoblasts
   c) stellate cells
   d) macrophage
Right answers: b.

5. What kind of fibers is more widespread in pulp:
   a) collagenic
   b) reticular
   c) argiroflic
Right answers: a

6. What stages of pathogeny is prevalent at acute forms of pulp:
   a) alteration
   b) exudation:
   c) proliferation
Right answers: a, b.

7. What stage of pathogeny is prevalent at chronic forms of pulp:
   a) alteration
   b) exudation:
   c) proliferation
Right answers: c.

8. What stages of pathogeny is prevalent at exacerbation of chronic forms of pulp:
   a) alteration
   b) exudation:
   c) proliferation
Right answers: a, b, c.

9. What is more widespread ways of penetration of an infection into a pulp
   a) through a dentogingival pocket;
   b) retrograde hematogenic,
   c) through a carious cavity;
   d) retrograde lymphogenic;
c) retrograde from near-by infectious center

Right answers: c

10. What is etiological factor of inflectional pulpitis:
   a) household trauma;
   b) action of microflora;
   c) toxic action of remedy:
   d) works trauma:
   e) casual trauma of pulp during preparation;
   f) bruise of tooth;
   g) overheating of tooth;

Right answers: b

11. What is etiological factors of noninflectional pulpitis:
   a) household trauma;
   b) action of microflora;
   c) toxic action of remedy:
   d) works trauma:
   e) casual trauma of pulp during preparation;
   f) bruise of tooth;
   g) overheating of tooth;

Right answers: a, c, d, e, f, g.

4. Self-preparation at class.
   1) Listen to the information;
   2) Work with the tables, corpse, anatomical damp preparation;
   3) Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
   1) Review the material learnt at class;
   2) Compose the plan of your answer;
   3) Answer the questions to this topic;
   4) Do the test given above;

The methodical reference is made by the docent Marchenko I.Ja.
Methodical Instruction  No. 28, 29, 30, 31, 32.
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: « **Clinic, diagnostics and differential diagnostics of acute forms of a pulpitis** »

Hours: 2

1. The topic basis: significant prevalence among the population of Ukraine of caries and its complications (to which the pulpitis concerns) dictates necessity for the future doctors-stomatologists of thorough knowledge of clinic, diagnostics and differential diagnostics of Acute forms of a pulpitis which will create information base for the further mastering by modern techniques of treatment and preventive maintenance of the given pathology..

2. The aims of the training course:

   A=1. 1) To have general knowledge of the topic studied;

   1) clinic of hyperemia of pulp;

   2) clinic of a Acute partial pulpitis;

   3) clinic of a Acute general pulpitis;

   4) clinic of a Acute purulent pulpitis;

   5) clinic of a Acute traumatic pulpitis.

   A=2. 2) To seize habits:

   1) probing of a bottom of carious cavity at Acute forms of pulpitis.

   A=2. 3) To seize technics of acting:

   1) thermodiagnostics;

   2) EOD.

   A=3. 4) To be able: 1) to diagnose different forms of Acute pulpitis;

   2) to spend differential diagnostics of Acute forms of pulpitis between itself and with other diseases.
3. Materials for the before – class work self – preparation work:
3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

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<td>To model inflammations in a pulp of a tooth.</td>
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<td>Surgical stomatology</td>
<td>Possible complications of Acute forms of pulpitis.</td>
<td>To spend adequate treatment and preventive maintenance of complications of Acute pulpitis</td>
</tr>
</tbody>
</table>

8.4 The contents of the topic:

**Topic:** « Clinic, diagnostics and differential diagnostics of acute forms of a pulpitis »

**Text**

*Acute traumatic pulpitis*

It is connected with a trauma of a healthy pulp. Depending on a degree of the rendered trauma distinguish:
1. Casually opened cavity of a tooth at preparation of carious cavity, without traumatizing of pulp, the overheat of tissues and vibration is possible also;

2. Casually injured pulp;

3. A trauma with denudation of pulp at fracture of crown of a tooth.

Casually to open a cavity of a tooth probably:
- At preparation of a bottom of deep carious cavity by a burs or an excavator;
- At weak fixing of a hand of the doctor during preparation;
- In temporary or only recently erupted constant teeth, even in 2-3 years after eruption at presence of carious cavity of big sizes and use of burs of the small size. Is more often it happens in premolars close to buccal horns or at top and bottom molars - about horns of a pulp;
- To injure a pulp probably in case because of morbidity during preparation the patient will sharply turn a head;
- At ignorance of topography of a cavity of a tooth or at turn of a tooth about the axis.

First attribute of denudation of pulp is the sharp pain which amplifies at probing. A following attribute of wound of a pulp is presence at the bottom of carious cavity of the dot aperture surrounded white predentin through which the pink pulp is visible. In no event it is impossible to probe this area to not cause a pain or even more to not injure a pulp. After a trauma the inflammation develops not at once, but only in 6 hours in connection with hit of microorganisms.

Casually to injure a pulp probably by tool (a burs, a probe, an excavator), thus the pulp is always infected in consequence of hit of an infection from carious dentin. At wound of a pulp from area of punching the drop of bloody liquids is slowly allocated. Usually pathomorphological changes do not come, only at acute current of caries attributes of jet changes which are shown by expansion and overflow by blood of vessels of that area of a pulp which adjoins to a punched aperture are observed.

Denudation of pulp at fracture of crown of a tooth mainly is consequence of a sharp trauma, a bruise, impact, falling. The line of fracture is traced at a level of a cavity of
a tooth: on equator, in the field of cervix. Thus the significant part of a pulp is bared and very quickly infected. The patient suffers from all kinds irritants, even at a breath. Such pulp demands immediate removal.

The pathological anatomy corresponds to changes, characteristic for an acute inflammation of a pulp, and depends on time of traumatizing and occurrence of an inflammation.

The analysis of references to the stomatologist of patients with an inflammation of a pulp shows, that 37 % of cases drop out on acute forms, 63 % - on chronic forms of pulpitis. At an establishment of the diagnosis of an inflammation of other tissues in most cases we have an opportunity to find out all symptoms of inflammatory process or its cardinal attributes - rubor, dolor, calor, tumor, functio laesa, and at an inflammation of a pulp of such opportunity are not present, as a pulp is hided in a cavity of a tooth, and even if it will be opened in any site, it is insufficiently visible for all-round inspection. Therefore at statement of the diagnosis the stomatologist bases on subjective data and on those symptoms which can reveal at the clinical analysis. Correctly to diagnose, it is necessary to ask to the patient following questions:

1. Whether the spontaneous pain is marked?
2. What character of pain? Whether it is shown by attacks or has constant character?
3. Whether the pain at night or from temperature, chemical and mechanical irritants amplifies?
4. How painful attacks and intermissions long proceed?
5. Whether the patient can precisely specify a sick tooth?
6. Whether a pain irradiate?

At objective inspection it is necessary to find out following symptoms:

1. The form and depth of carious cavities; at acute pulpitis a cavity not such deep and not wide, as at chronic.
2. The pulp is bared or not. If the cavity of a tooth is closed, it is necessary to find out a condition of nearpulpal dentin. For acute forms presence grey softened dentin
which is removed by layers is characteristic, and at chronic - it is dense and pigmented - brown or even black color.

3. Presence of pain at probing of a bottom of a cavity. At acute forms probing will be painful in the field of a projection of horns of a pulp or on all bottom. At chronic forms probing will be painful in a point of an exposure of a pulp.

4. At painful percussion it is possible to approve about presence of pathological changes in tissues of a periodontium.

From additional methods the most informative is EOD. In norm the pulp reacts to irritation 2-6 мкА, at an inflammation of crown - 20-50 мкА, and a root pulp - 50-95 мкА. Reaction of a tooth to force of a current is more 100 мкА testifies to destruction of all pulp.

**Hyperemia of pulp.**

It is the lightest form of an initial pulpitis which is characterized by the general poured hyperemia of pulp. Patients complain of painful displays from action of thermal and chemical irritants. After cancellation of irritants the pain proceeds 1-1,5 minutes. Some patients mark the short-term (lightning) spontaneous painful attacks continuing 1 minute.

From the anamnesis of disease of the patient it is found out, that the carious cavity has appeared several weeks ago, pains from irritants which stopped after elimination irritants were marked.

At objective inspection comes to light deep carious cavity, an entrance aperture less than the cavity, edge of enamel are white, fragile. Dentin of a bottom and walls is by grey color, softened, it is easily removed by layers by means of an excavator. At probing the pain in a projection of horns of a pulp is marked. Action thermal irritants leads to occurrence of a pain which lasts 1-2 minutes, decrease in electroexcitability of a pulp till 10-15 мкА.

**Acute partial pulpitis.**

To this form of a pulpitis, as a rule, precedes hyperemia of pulp.
Patients complain on spontaneous, colicky pain with duration of a painful attack of 10-30 minutes and long intermissions (some hours). Painful attacks often arise and amplify from action of irritants, and also at night. Some patients mark only night pains while in the afternoon the pain is absent. Patients can precisely specify a sick tooth.

In the anamnesis of disease patients mark, that earlier the pain was insignificant. Then from irritants there were spontaneous pains which 1-2 minutes 1-2 times a day last. Gradually intensity of painful attacks increased.

At objective inspection comes to light deep carious cavity, an entrance aperture less than the cavity, edge of enamel are white, fragile. Dentin of a bottom and walls is by grey color, softened, it is easily removed by layers by means of excavator. At probing the pain in a projection of horns of a pulp is marked. Action thermal irritants leads to occurrence of a pain which proceeds long, decrease in electroexcitability of a pulp till 20-25 mKА.

**Acute general pulpitis**

The Acute general pulpitis with characteristic to it symptoms proceeds 1-2 days then inflammatory process extends on crown and a root pulp. At this phase of an inflammation the clinical picture considerably changes.

Patients complain on long (some hours) painful attacks. The pain spontaneous, amplifies from action irritants and at night, especially in horizontal position, intermissions short (30-40 minutes). The pain can irradiate on branches of a trigeminal nerve. As a rule, at a pulpitis of the bottom teeth a pain irradiates in an ear, a nape, submaxillary area; a teeth of the top jaw - in a temple, eye area, an ear. At a pulpitis of a frontal teeth it is possible irradiation of pains in opposite area of a jaw.

In the anamnesis of disease it is possible to find out, that the carious cavity has appeared for a long time, disturbed short-term, insignificant pains, and several days ago pain became spontaneous and colicky, frequency of attacks and their duration has increased.
At objective inspection - in a tooth there is deep carious cavity, which entrance aperture is less than a cavity. Dentin is soft, by dirty-grey color, it is removed by layers. Probing is painful on all bottom, thermal irritants cause an attack of pain or its strengthening. Percussion is sensitive. EOD - 30-40 мкА.

**Acute purulent pulpitis.**

This form of a pulpitis, as a rule, develops from an Acute general pulpitis, and sometimes from a partial pulpitis in case of hit in a pulp pyogenic microorganisms. The patient complains on practically continuous spontaneous spreading pain which have pulsing character. Remissions short - the pain only calms down a little. Considerably strengthens a pain temperature irritant above 38°C, and below 36°C - leads to reduction of a pain. In several cases the pain amplifies at touching to a tooth. At such patients probably rise in temperature, deterioration of the general condition of an organism.

In the anamnesis of disease it is possible to reveal development of inflammatory process from deep caries, hyperemia of pulp up to an acute general pulpitis with characteristic symptoms for these diseases. At objective inspection the deep carious cavity filled by softened dentin is found out. At probing of a bottom of carious cavities there is a pain. The probe can easily fail in a cavity of a tooth, and through a punched aperture there is a drop of blood-purulent exudation. After that probably reduction of pain. In some cases the punched aperture appears spontaneously - the acute inflammation passes in the chronic form.

At an acute purulent pulpitis it is marked painful percussion, indications EOD reach 40-60 мкА.

**Literature recommended**

- **Main Sources:**
- Additional ones:
  1. Кодола Н.А., Копьева Э.П., Прудникова А.П. и др. Пульпит: возрастные особенности и лечение. - К.: Здоровье, 1980 г.

II. Научная:

III. Методическая:
  1. Милерян В.Е. Методические основы подготовки и проведение учебных занятий в медицинских ВУЗах. - К.: 2003г.

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
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<td>to write a summary</td>
</tr>
<tr>
<td>to do the test on the material</td>
<td>to be ready to give an answer to the questions</td>
</tr>
<tr>
<td>to be ready to answer the topic</td>
<td></td>
</tr>
</tbody>
</table>

3.5. Self-control material:

A. Questions to be answered:

1. Specify characteristic symptoms of an Acute purulent pulpitis.
   a) Acute spontaneous, shooting pain which amplifies from any irritants;
   b) a pain irradiate on branches of Trigeminus nerve;
   c) the pain is weakened from hot;
d) absence of the periods of intermissions;
e) probing of a bottom of carious cavity is painful on all extent;
f) EOD makes more than 100мкА;
g) vertical percussion is poorly tender;
h) carious cavity does not incorporate with pulp chamber.

Right answers: a, b, d, e, g, h.

2. Specify values ЕОD at different forms of an Acute pulpitis:
- hyperemia of pulp  15-20 mkA
- The Acute partial pulpitis  10-15 mkA
- Acute general pulpitis  50-60 mkA
- Acute purulent pulpitis  10-15 mkA
- Acute traumatic pulpitis 30-40 mkA

3. Specify correct sequence of actions during definition of a threshold of electroexcitability of pulps.
   a) To isolate a tooth from a saliva and an oral liquid;
   b) to set convenient position to the patient in an armchair;
   c) to place a passive electrode in the right palm of the patient;
   d) lead isolation of an active electrode wadded turunda and moist in the distilled water;
   e) turn on device ЕOD and smoothly increase force of a current by means of the toggle-switch to occurrence of the patient subjective sensations;
   f) put an active electrode to cutting edge (an incisors and a canine) or to tops hillocks (premolars, molars);
   g) fix the received result.

Right answer: b, c, d, a, f, e, g.
4. Specify additional methods of inspection which are used for verification of the diagnosis “Acute pulpitis”.
   a) thermodiagnostic;
   b) roentgendiagnostic;
   c) the general analysis of blood;
   d) EOD;
   e) vital painting;
   f) luminescent diagnostics;
   g) digital computer diagnostics.

Right answers: a, b, d, g.

B. Test tasks to be done:

1. The patient has addressed to the stomatologist with complaints to a pain of a tooth in a site of the top jaw; sticking food in the given tooth. After interrogation it is established, that the pain arises spontaneously or in reply to irritants and 30-40 minutes last. Painless intervals 1-2 hours last. The pain gives in infraorbital, temporal and zygomatic sites on the right.

   Objectively: on proximal surfaces 15 teeth - big carious cavity in borders of nearpulpal dentin, filled by softened dentin, not connected with pulp chamber, a bottom and walls are pigmented, softened. Probing is painful on all bottom of carious cavity. Percussion is weakly tender. Thermodiagnostic on cold is painfull. EOD = 35 mkA.

   Establish[Install] the diagnosis.
   The answer: Acute general pulpitis 15.

2. To the patient the previous diagnosis “Acute purulent pulpitis 27” is established. Appoint additional methods of inspection for final verification and statement of the final clinical diagnosis.

   The answer: 1) EOD;
   2) thermodiagnostic on cold and hot;
   3) Rtg-diagnostics or digital radio-sighting.
3. In clinic the patient with the previous diagnosis Acute purulent pulpitis 24 teeth has addressed.

Shows complaints to a constant ache in a site of the top jaw at the left, which there was a week therefore back.

Objectively: left infraorbital, zygotic and temporal sites, and also in a smaller measure buccal are characterized by reddening of integuments; temporal and chewing muscles at the left hardly noticeably twitch. On a chewing surface 24 - carious cavity in borders of nearpulpal dentin; a bottom and walls of cavity are softened; probing of bottom of carious cavity is painful.

Specify the most probable diagnosis. Appoint additional methods of inspection.

The answer: additional methods of inspection:
- thermodiagnostic 24;
- EOD 24;
- Rtg-diagnostics 24;
- Revealing on a skin of the face at the left or on mucosa, so-called trigger zones.

The diagnosis: a neuralgia of a nerve trigeminus at the left.

4. Self-preparation at class.
1)Listen to the information;
2)Work with the tables, corpse, anatomical damp preparation;
3)Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
1)Review the material learnt at class;
2)Compose the plan of your answer;
3)Answer the questions to this topic;
4)Do the test given above;

The methodical reference is made by the assistant Fetisova O.L.
Methodical Instruction   No.33,34,35,36
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology

Topic: **Clinic, diagnostics and differential diagnostics of the chronic forms of a pulpitis**

Hours: 8

1. The topic basis: the appreciable prevalence among the population of Ukraine of a caries and its complications (to which a pulpitis concerns ) dictates necessity for the future doctors - stomatologists of deep knowledge of clinic, diagnostics and differential diagnostics of the chronic forms of a pulpitis, that will frame information base for the further mastering by modern techniques of treatment and prophylaxis of the given pathology.

2. The aims of the training course:
   A=1. 1) To have general knowledge of the topic studied;
   A=2. 2) To understand, to remember and to use the knowledge received;
   A=2. 3) To know: 1) clinic of a chronic simple pulpitis;
       2) clinic of a chronic hypertrophic pulpitis;
       3) clinic of a chronic gangrenous pulpitis;
       4) clinic of a concremental pulpitis;
       5) clinic of a root pulpitis.
   A=3. 4) To take possession of probing of the bottom of a carious cavity at the chronic forms of pulpites.To take possession of engineering of performance of thermodiagnostic; EOD
   A=3. 5) To be able : 1) to diagnose the different forms of chronic pulpites;
       2) to spend differential diagnostics of the chronic forms of pulpites among themselves and with other diseases.

3. Materials for the before – class work self – preparation work:
3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>topographical anatomy of the pulpal chamber of different groups of teeth.</td>
<td>simulate an inflammation in a pulp of a tooth.</td>
</tr>
<tr>
<td>Pathological physiology</td>
<td>phases of inflammatory process and their characteristic.</td>
<td></td>
</tr>
<tr>
<td>Histology</td>
<td>a histological structure of a pulp of a tooth.</td>
<td>distinguish on micropreparations structural and functional elements of a pulp.</td>
</tr>
<tr>
<td>Surgical stomatology</td>
<td>possible complications of the chronic forms of pulpite.</td>
<td>spend adequate treatment and prophylaxis of complications of chronic pulpite.</td>
</tr>
<tr>
<td>Propedeutics of therapeutic stomatology</td>
<td>classifications of pulpite by Gofung, by Yavorskaya-Urbanovich.</td>
<td>formulate the diagnosis at the different forms of a pulpite correctly.</td>
</tr>
<tr>
<td>Propedeutics of therapeutic stomatology</td>
<td>etiopathogenical feature of chronic pulpite.</td>
<td>establish the reason of occurrence of a chronic pulpite.</td>
</tr>
</tbody>
</table>

a. The contents of the topic:

Text

TEXT 33-36,IIIc

The study of a microflora at a chronic pulpite has shown an extreme variety of it [Levine S. et al., 1985; etc.]. So, at study of structure of microbic bodies of the tooth
pulp, removed under a conduction anaesthesia, it was possible to define up to 30 combinations of the various forms of microbes. The microflora in deep layers of a pulp is more monotonous, than in superficial. However in superficial layers of a crown pulp microbial polymorphism is fixed. From the inflamed pulp of root canals the hemocatheretic and not hemocatheretic streptococcuses, Gram-positive rod are selected. There are found out microbial associations consisting from lactoacidic microbes with a white staphylococcus and streptococcuses or septic microbes with pyogenic coccuses.

At a gangrenous chronic pulpitis more than half штаммов of streptococcuses have enzyme (hyaluronidaza) activity. In a necrotic pulp are revealed Actinomyces sp. and Gram-positive coccuses.

The uniform opinion on the basic originator of a pulpitis does not exist. Find out of lactoacidic, hemocatheretic, viridans streptococcuses and staphylococcuses etc. These microorganisms take part in pathological process in a pulp.

It is possible to find the reports that at a chronic pulpitis there is found out mainly of lactoacidic or viridans streptococcus, but not golden or streptococcus faecalis. Other authors mark enlarged importance of staphylococcal flora at a chronic pulpitis. More often it is observed at the persons accepting earlier antibiotics.

The majority of the researchers mark, that at a chronic pulpitis bacterial flora from a surface of a pulp, and from depth contains also nonpathogenic microbes. At a chronic fibrous pulpitis almost in half of cases in a pulp the associations of nonpathogenic microbes are found out. At the same time fixed, that the streptococcuses, staphylococcuses and diplococcuses are found out simultaneously both in a pulp of the patients by a chronic pulpitis, and in deep layers of a dentine in a carious cavity at a uncomplicated caries. The frequency of revealing in the large degree depends on engineering of research and from a place, whence take a stroke, than from a condition of the pulp.

In the literature the question of dependence of structure of a microflora on a kind of a chronic pulpitis is unsufficiently covered. To the data of bacteriological researches do not give any meanings in diagnostics of the separate forms of a chronic pulpitis. At
development of a chronic fibrous pulpitis in the closed pulp cavity prevails nonpathogenic flora of a carious cavity.

In a basis of infringement "of peace symbiosis" of an organism with the microbic agent the infringement of biological processes in a pulp lays, owing to what suffer adaptative mechanisms of a tissue of a pulp, and its fastness to an infection is reduced. Taking into account, that more often chronic pulpitis develops as complication of a caries, it is considered, that it concerns to inflammatory processes arising under influence of an own dontogenous infection, that is to say to autoinfectional centers of an infection. Other structure of a microflora is taped at a chronic gangrenous pulpitis. It becomes virulent under influence of the adverse factors of external and internal surrounding, which, changing a reactivity of an organism, reduces it resistibility.

Taking into account, that the pulp at a chronic inflammation can be a source of nonpathogenic and pathogenic microflora, it is possible consider a chronic pulpitis as the dontogenous center of infection. Thus, on the basis of observations of other researchers it is possible to consider with a high probability that in the basic development of a chronic pulpitis is connected to the bacterial beginning. The constant autoinfecting of a pulp by microbes from carious cavities at an average and deep caries, and also at parodontitis takes place [Blomlof L. et al., 1989].

In stomatological polyclinical establishments the largest group is made by the patients with exacerbations of a chronic pulpitis. Such condition of a pulp is uneasy to explain in connection with conditions for display of allergic reactions. In a pulp there is a manufacture of antibodies. If the often entering of antigenes and "occurring" with antibodies takes place, the weakened patients can have reaction as an exacerbation of a chronic pulpitis. The hemocatheretic streptococcus which is taking place in a pulp, has active allergenic action, that proves to be true by positive allergy tests on a streptococcus at many patients. However it is marked not at all patients by a chronic pulpitis. Besides the rising of antiserum capacities to a streptococcus can be connected to other not dontogenous pathology. Quite often at a chronic pulpitis the contents of antistreptococcal antibodies remains normal.
At the development of a chronic pulpitis an autoallergy renders influence on a fabric allergy. The new fabric fibers arisen in a pulp under influence of an intoxication or infections get antigenic character. In a blood of the patients they cause manufacture of antibodies against an own tissue (autoaggression). Being fixed on cells of a tissue of a pulp these antibodies damage them: arises some kind of chain reaction. Thus, the conducting role in an etiology of a chronic pulpitis is played by a bacterial beginning. The inflammatory process proceeds on a background of the weakened reactivity of a pulp. The changes of this tissue after a previous acute pulpitis, inflammatory processes in parodontium, carious process in many respects promote by the decrease of resistibility of a pulp.

The chronic pulpitis is shown as the various forms. The same form of a pulpitis can proceed at a unequal condition of tightness of a pulp cavity. One of chronic pulpites proceed in carious teeth with punched roof of a pulp cavity (so-called chronic pulpites at an open pulp cavity). To them concerns, for example, hypertrophic, sometimes gangrenous and fibrous pulpites. Other chronic pulpites proceed in carious teeth with saved roof of a pulp cavity. It is the so-called closed forms. To them it is possible to attribute fibrous and gangrenous pulpitis.

At last, there are pain sets of symptoms, which are shown in intact teeth, for example at presence of concrements in a pulp of a tooth. The denticles can squeeze a vascular-nervous fascicle, resulting to infringement of microcirculation in a pulp, stagnant phenomena in it. There is a pain attack or tedious pain, that is symptom-complex reminding such at a pulpitis.

The mistakes and large difficulties arise at differential diagnostics of a pulpitis and denticle in a pulp cavity. Last quite often is accompanied by the same signs, as pulpites. However to specify the diagnosis, it is necessary to make roentgenogram. At a denticle more often discomfort wears circumscribed character. At a pulpitis a pain is irradiating, the patient can not specify "causal" tooth. At a pulpitis the pain amplify at the night and in a horizontal position of the patient.

Hence, in a pathogeny of a chronic pulpitis play a role many factors. More often this disease develops owing to numerous borings accompanying with proliferative
changes of structural components of a pulp. Most in details the development of a chronic pulpitis is watched with the help of histological researches.

**PATHOMORPHOLOGY**

At statement of histomorphological diagnosis of a chronic pulpitis it is necessary to take into account results of clinical inspection, and data of an anamnesis. Only set of all items of information in view of a clinical picture can ensure accuracy of diagnostics.

Besides of a characteristic histopathological picture of a chronic inflammation in a pulp, the changes observed in a periodontium are peculiar to chronic pulpitis. They are expressed as in callousness of a connecting tissue, formation of massive fibers of connecting tissues, sometimes hyalinosis of this tissue, and in the distrophic phenomena. Quite often "nest-shaped" infiltrates are defined consisting from limphoid and plasma cells, mainly around of fine vessels. In a pulp at a chronic inflammation quantitative and qualitative structure of glicosaminoglicanes change. Their redistribution is marked.

In series of observations paid on itself attention of change from the party of blood vessels. They were expressed by phlebitises and arterites of fine vessels. The lumen of such vessels quite often is closed completely for the bill of swelling and proliferation of an endothelium, and also thickening of a middle and outside environment. Some vessels are sharply extended.

The changes of different gravity undergo also nervous formations of a pulp (fiber, receptors).

Hence, at a chronic pulpitis it is possible to find out morphological changes in all layers of a pulp: in an epithelium, covering "polyp," (at a hypertrophic pulpitis), tissue of a pulp, periodontium, blood vessels, nervous fibers of a pulp. The gravity of these changes is various and is in connection with the form of a pulpitis, reactivity of an organism of the man. The changes at a chronic pulpitis are rather characteristic. They cause the form of a chronic pulpitis.

Were based mainly on morphological changes in a pulp, distinguish the same types of a chronic pulpitis, as in clinic: chronic fibrous, hypertrophic, gangrenous and
exacerbation of chronic pulpitis; the character of changes in a pulp appears from names, the attributes correspond to the certain form of a pulpitis.

**Chronic fibrous pulpitis.** Basic pathanatomical attribute of chronic fibrous pulpitis is the growth of a fibrous connecting tissue, the fibers of a pulp are thicked. The hyalinosis of collagen fibers is marked, there are traces of former hemorrhages. Cellular structure of a pulp sharply diminished. In a root pulp often there are phenomena of a fibrosis and petrification. In a field of vision the small missing cicatrixes which have arisen, probably, on a place of microabscess are defined. The cicatrical tissue can be submitted as narrow or wider fiber. In series of micropreparations the diffuse growths of sclerotic fibers are visible. Cellular reaction at chronic fibrous pulpitis are shown by a vacuolation of a layer of odontoblasts by the strengthened duplication of cells of the central layer (is especial in youthful age). In children's and teenage age there are a lot of englobing hystiocytes and plasma cells. L.I.Urbanovich (1974) at an electronic-microscopical research has found out a dystrophia and destruction of cellular organellas of fibroblasts. The nucleus are swelled, but everywhere are saved. The perinuclear space is sometimes extended. All this reminds a picture of changes of a cytoplasmic reticulum connected to perinuclear space. Nucleoplasmia is loosened. The separate mitochondrions disappear because of their complete destruction.

At pathohistological diagnostics difficulties consisting first of all are frameed that the fibrosis can be limited to one site or be distributed to all tissue of a pulp. The sites of a cicatrical tissue are especially non-uniformly posed. We are inclined to survey cicatrical changes in a tissue of a pulps so often observable at chronic fibrous pulpitis, as a consequence of sclerotic changes of vessels. Sites of a hyalinization quite often are defined. They are may be large, but more often have small size. Sites of a hyalinized tissue in a pulp we have noted in 12 % of observations. Obviously, they occur in a pulp on ground of a chronic long inflammation. They are submitted by an appreciable clump of glicosaminoglicanes. Pay on itself attention frequency of a sclerosis of fine
vessels of periapical tissues at chronic fibrous pulpitis and quite often their hyalinization. It is possible to observe the special changes of veins expressing in constant desolation of them and a hyalinosis of a reticular tissue around of vessels.

Inflows of a neuroplasm in nervous conductors are revealed. It is marked hyperimpregnation of nervous fibers of a root pulp.

On the data of L.I. Urbanovich (1979), the productive inflammation is characterized by oxidizing-restorative activity showing of an appreciable vascular-fabric permeability. To a chronic fibrous pulpitis with the calmed down inflammatory process and fibrous transformation of its tissue is peculiar low oxireductase activity.

**Chronic hypertrophic pulpitis.** At study of histopathological changes in case of a chronic hypertrophic pulpitis distinguish changes of an epithelial integument covering a pulp, acting from a pulp cavity, parenchima of pulp, and also periapical tissue. Series of the researchers consider, that the presence of an epithelium at a chronic pulpitis is explained by an implantation of epithelial cells of a mucosa of an oral cavity on a surface of a hyperplazed tissue of a pulp. There is also opinion about growing of an epithelium of a gingiva on a naked surface (prominence) of a pulp.

Covering a pulp sticked out from a pulp cavity the epithelial layer has various thickness. The most potent site is saved at top of a diverticulum. It is possible to consider growth of a layer of an epithelium as an attribute of a chronic pulpitis, and also plentiful infiltration of layers of an epithelium by plasma cells and lymphocytes. By places the infiltration reaches such degree, that the border between an epithelium and subject tissue ceases to be defined. The especially large diagnostic importance we give to detection even of individual polymorphonuclear leucocytes in epithelia. A frequent attribute of a chronic pulpitis are the centers of an ulceration of an epithelial integument with a denudation subject expanding pulp, or granulation tissue quite often acting in a lumen of an ulcerated site.

Literature recommended:
Main Sources:

Additional ones:

b. How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>To learn clinic of the chronic forms of a pulpitis.</td>
<td>to list the basic clinical displays of the different forms of a pulpitis.</td>
</tr>
<tr>
<td>To learn diagnostics of the chronic forms of a pulpitis.</td>
<td>to know the basic and additional methods of inspection at « a chronic pulpitis ».</td>
</tr>
<tr>
<td>To learn differential diagnostics of chronic pulpites between itself and with other diseases.</td>
<td>to fill in the table of differential diagnostics of the chronic forms of a pulpitis.</td>
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</tbody>
</table>

3.5. Self-control material:

A. Questions to be answered:
1. To illuminate classification of pulpites by Yavorskaya-Urbanovich.
2. To illuminate classification of pulpites by Gofung.
3. To result statistical given frequencies of revealing of chronic pulpites among the population of Ukraine.
4. To describe clinic of a chronic simple pulpitis.
5. To describe clinic of a chronic gangrenous pulpitis.
6. To describe clinic of a chronic hypertrophic pulpitis.
7. To describe clinic of a concremental pulpitis.
8. To list additional methods of inspection, which are applied at chronic pulpites.
B. Test tasks to be done:

1. Specify characteristic signs of a chronic simple pulpitis:
   a) Pain attacks in a tooth from action of different irritants, the pain after
      action of irritant is saved still some time;
   b) The pain irradiates on branches of a trigeminal nerve;
   c) Occurrence of tedious pain in a tooth at inhalation of cold air;
   d) Bottom of a carious cavity hard, brown, black or grey colour;
   e) The probing of a pulp through a punched aperture is sensitive;
   f) EOD is 20-40 мкА;
   g) The vertical percussion is morbid;
   h) In an anamnesis: a spontaneous pain, of fit-like character, pain at the
      night.

2. Specify a correct sequence of actions during realization of definition of a
   threshold of an electroexcitability of a pulp.
   a) To isolate a tooth from a saliva and stomatic liquid;
   b) To give a convenient position to the patient in an armchair;
   c) To place a passive electrode in the right palm of the patient;
   d) To lead isolation of an active electrode by a wadded turunda and to
      moisten in water;
   e) To switch on the device EOD and smoothly to enlarge force of a
      current with the help of the tumbler before occurrence in the patient of
      subjective sensations;
   f) To apply an active electrode on cutting edge (incisors and canines) or
      to tops of tubercules (premolars, molars);
   g) To fix the received result.

3. Specify additional methods of inspection, which are used for verification of
   the diagnosis « a chronic pulpitis »
   a) Thermodiagnostic;
b) X-ray diagnostic;
c) General analysis of a blood;
d) ЭОД;
e) Vital staining;
f) Luminescent diagnostics;
g) Digital computer diagnostics.

4. Self-preparation at class.
   1. To prepare for job stomatological installation, dental surgery armchair.
   2. To generate a necessary tooling for inspection of the patient.
   3. To lead the basic clinical inspection of the patient.
   4. To lead additional clinical methods of inspection.
   5. On the basis of the received data to establish the diagnosis.

A. To take possession of a technique of probing of bottom of a carious cavity at chronic pulpites: 1. Give the patient a convenient position in an armchair. 2. Lead drying of carious cavity with the help of a wadded globule or mild jet of air. 3. Take stomatological probe (direct or angle) in the right hand, and stomatological mirror - in left. 4. With the help of a mirror remove from a surgery field a cheek (tongue, labium). 5. With the help of a probe spend reciprocating movements on perimeter of a carious cavity (it bottom), later same movements from center to periphery. 6. Fix subjective sensations of the patient. Monitor force of the application of a probe to bottom of a carious cavity.

B. To lead diagnostics of a chronic pulpitis 1. Collect the complaints of the patient (pain and its characteristics, cosmetic defect, jamming of nutrition in a tooth). 2. Collect the anamnestic data (duration of illness, what is a causa; whether addressed behind the help to other expert; presence of a somatic accompanying pathology). 3. Lead the basic clinical inspection of the patient (survey, probing, percussion). 4. Lead additional clinical methods of inspection (thermodiagnostic, EOD, X-ray diagnostics). 5. On the basis of the received results establish the final diagnosis. Precisely ask questions to the patient. To pay attention to depth of a
carious cavity, presence of the connection with a pulp cavity. Pay attention to the data of EOD.

5. Self-preparation work at home.

**Typical tasks**

1. Patient A. complains on a periodic long pain in 46 tooth, which arises from action of thermal, chemical, mechanical irritants, at change of an ambient temperature, feeling of discomfort. In an anamnesis: the tooth earlier was sick, the pain wore spontaneous, paroxysmal character. After some time the pain has decreased. Objectively: the deep carious cavity, which is connected with a pulp cavity, percussion is painless, at probing the morbidity in a punched point and bleeding is marked. ЕОD - 50 мкA, the thermodiagnostic is morbid, the pain some time lingers over. Put the diagnosis:

2. On a micropreparation of a pulp of a tooth the growth of fibrous elements, hyalinosis of collagen fibers, phenomenon of a fibrosis and petrification is marked. Cellular reaction: a vacuolation of a layer of odontoblasts, amplified body height of cells of the central layer of a pulp. What diagnosis do confirm such changes?

3. The patient of 22 years old complains on a pain from hot and feeling of pressure in a tooth during 2 months. Objectively: in 24 tooth is large carious cavities connecting with a pulp cavity. A pulp dark, partially in a condition of disintegration. The superficial probing painless, deep - is morbid. A vertical percussion - sensitive. Thermal irritants cause a slowly remitting pain. ЕОD - 80 мкA. X-ray diagnostic - deformation of a periodontal rima. Put the diagnosis:

**Not typical tasks:**

1. On a micropreparation of pulp of a tooth are revealed growth of a fibrous connecting tissue. A hyalinosis of collagen fibers. In a root pulp of the phenomenon of a fibrosis and petrification. Cellular reaction: a vacuolation of odontoblasts, duplication of cells of the central layer, leukocytic infiltration of diffuse character, sites of complete disintegration of a tissue. Put the diagnosis also specify the data, which do not answer to it:
2. The patient with the previous diagnosis has addressed to clinic: a chronic gangrenous pulpitis of 26 tooth. Shows the complaints to feeling of gravity in a tooth, pressure, insignificant pain sensations at pressing a tooth. The tooth was earlier treated concerning a caries. Objectively: the colour of 26 tooth is changed, the deep carious cavity in limits of a nearpulpal dentine, bottom and wall of a cavity are hard, darkly grey colour, probing is painless, carious cavity is connected with a pulp cavity. The percussion causes unpleasant sensations. The palpation is weakly morbid. Specify the most probable diagnosis? Nominate additional methods of inspection?

The methodical reference is made by the assistant Fetisova O.L.

Methodical Instruction No.37
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of Therapeutic Stomatology

Topic: « Etiology, pathogeny, clinic, diagnostics and differential diagnostics of an exacerbation of a chronic pulpitis »

Subtopic:
Hours: 2

1. The topic basis: significant prevalence among the population of Ukraine of caries and its complications (to which the pulpitis concerns) dictates necessity for the future doctors-stomatologists of thorough knowledge of clinic, diagnostics and differential diagnostics of chronic forms of a pulpitis and an exacerbation of process. These forms the most frequent become the reason of chroniosepsis and chronic intoxication. It will create information base for the further mastering by
modern techniques of treatment and preventive maintenance of the given pathology.

2. The aims of the training course:
   A=1. 1) To have general knowledge of the topic studied;
   A=2. 2) To understand, to remember and to use the knowledge received;
   A=2. 3) To learn the classification, structure, functions of the
   A=3. 4) To form the professional experience by reviewing, training and
   authorizing it;
   A=3. 5) To be able to carry out laboratory and experimental work.

3. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in
connection with other subjects:

<table>
<thead>
<tr>
<th></th>
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<td></td>
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<tr>
<td>Pathological physiology</td>
<td>Phases of inflammatory process and their characteristic.</td>
<td>To model inflammations in a pulp of a tooth.</td>
</tr>
<tr>
<td>Histology</td>
<td>The Histologic structure of a pulp of a tooth.</td>
<td>To distinguish on micropreparations structurally functional elements of a pulp.</td>
</tr>
<tr>
<td>Surgical stomatology</td>
<td>Possible complications of chronic forms of pulpitises.</td>
<td>To spend adequate treatment and preventive maintenance of complications of chronic pulpitises.</td>
</tr>
<tr>
<td>Intrasubject integration:</td>
<td>1. Classification of a pulpitis</td>
<td>Correctly formulate the diagnosis at different forms of a pulpitis.</td>
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<tr>
<td></td>
<td>Classifications of pulpitis by E.M. Gofung, working classification of faculty of propedeutic of therapeutic stomatology of UMSA.</td>
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<tr>
<td></td>
<td>2. Etiology and pathogeny of a pulpitis Features of a chronic pulpitis.</td>
<td>To establish the reason of occurrence of a chronic pulpitis.</td>
</tr>
</tbody>
</table>

8.5 The contents of the topic:

Topic:

Subtopic:

Text

Morphological changes in a pulp of a tooth at chronic forms of a pulpitis

Studying of a pulp at chronic forms of a pulpitis shows, that productive changes in a pulp are dominating. At fibrous (the chronic simple pulpitis) a pulpitis disappears an incendiary hypostasis and the strengthened growth of fibrous elements with simultaneous reduction of quantity of cells including odontoblasts begins. The obliteration of vessels and petrification pulps is observed. At the gangrenous pulpitis unstructured weights, crystals of fat acids, a blood pigment are observed a site of disintegration where there are microorganisms.

On border with the kept pulp the demarcation shaft with attributes of a serous inflammation and growth young granulation tissues is observed.

At a hypertrophic pulpitis growth granulation tissues which has fibrous elements, capillaries, a plenty of cells is observed. Slowly granulation tissue ripens. On it deposition the epithelium, forming a polyp of a tooth. At electronic microscopic
research a plenty of microorganisms which are in a root pulp is found out. In the basic substance are observed myelinic structures freely laying organelles, condensates of amorphous substance, a plenty collagenic fibrills. Sharply reduced quantity of odontoblasts, starlike cells. In some cases these specific cells are not found out at all. In a pulp are plenty of macrophagocytes and neutraphylic granulocytes in which cytoplasm microorganisms are observed. In precapillar zone we can see thickenings collagenic clutches. In axoplasm of nervous fibres there are sites of cytolyisis. It is marked demielinization of fibres. Changes in a pulp of a teeth at ageing and pathological conditions.

The Pulp of a tooth during all life gives in to changes of functional and morphological character.

At ageing pass reduction in the sizes of a cavity of a tooth, in particular in a root part, power and functional activity of cells, first of all odontoblasts goes down.

In a pulp the quantity of cells decreases, the quantity of fibrous elements increases. With the years morphological changes in a pulp similar to what are connected with somatic diseases or it is observed at diseases of parodontium, caries, noncarious defeats.

Many authors consider, that at action on a tooth of adverse factors, in a pulp in this or that degree changes which probably to characterize as morphologically stereotypic are shown, not looking on specificity of communication with a concrete pathology. The specified changes probably to present as: 1. Vacuolization of odontoblasts; 2. Reticular dystrophy; 3. Petrification; 4. Sclerous and dystrophic changes in a vascular wall.

First attribute of vacuolization is damage of mitochondrion and formations in cytoplasm of vacuoles, later appear a site of lysis, and then instead of cells it is possible to observe only the emptiness filled by a liquid.

Sometimes process vacuolization extends on all layers of odontoblasts. Process of vacuolization of cells can be observed and in deep layers of a pulp, thus the pulp can remind a grid, which spaces filled by a liquid. Thus speak about reticular dystrophies of a pulp.
Petrification of pulp connected with adjournment in it of mineral components. As a rule, to it is assisted with dystrophic changes in the pulp.

Petrification can be and local. In the latter case speak about formation of denticles which can be both individual and plural. Denticles are dentinlike formation of different size and the form. On an arrangement of denticles in a pulp them the cavities of a tooth not connected with a wall, nearwall, which close to a wall of a cavity obliterating a cavity of a tooth, as a rule, crown, interstitial - divide on loose-lying, pulps being inside of a tissue. On a structure they share on Complex, penetrated by the tubules similar to dentinal and simplex - have no these tubules.

In a structure of complex denticles there is a kernel of an amorphous structure, which surrounded by dentinlike substance having tubules.

Complex denticles can be observed in a pulp of intact teeth, and at pathological conditions their quantity increases. In some cases as a result of squeezing of nervous fibres denticles can serve as the reason of an intensive pain, quite often neurologic character.

Thus, the pulp of a tooth due to morphological and functional features on the one hand reacts to irritation, and with another - has a lot of adaptive mechanisms and provides normalization of structure and function of a pulp at damage.

Clinical displays of a pulpitis

Clinical displays of disease of a pulp are marked by many-sided nature which is caused both the general condition of an organism, and local conditions in an oral cavity.

The analysis of references of patients to the stomatologist with an inflammation of a pulp specifies, that 37 % of cases are necessary on acute forms, and 63 % on chronic forms of pulpitis. The establishment of the correct diagnosis depends in many respects on careful and consecutive inspection of the patient. And here important both subjective, and objective inspection. At statement of the diagnosis in most cases we have an opportunity to find out all symptoms of inflammatory process, its cardinal signs - rubor, dolor, calor, tumor, functio laesa, and at an inflammation of a pulp of such opportunity we have no, because pulpa
dentis deeply hidden in cavum dentis and even if happens opened in any site nevertheless it is insufficiently visible for many-sided research. Therefore in the work the stomatologist bases at statement of the diagnosis on subjective data, and on those symptoms which can find out at the clinical analysis.

The basic symptom at a pulpitis is a pain, and it is spontaneous, without action of irritants. This basic symptom of a pulpitis depends on a condition of a tissue of a pulp, a condition of a layer of dentin above a pulp and can have different character. Rotman in 1907 has come to conclusion, that at a pulpitis, the clinic does not go in parallel with pathologic and anatomic changes. And it is valid, the clinic shows, that the more open pulp, the spontaneous pains are less often shown. Shade explains a pain at an inflammation " an osmotic hypertension which influences by osmotic pressure upon nervous fibres, and also increase in a pressure in tissues as a result of a concentration of a liquid ". And it is valid, at the closed cavities of a teeth strong painful reaction is marked, at opened it is much less. Occurrence of spontaneous pains is connected with infringement of a blood-groove, change pH in the center of an inflammation, irritation of nervous fibres products of disintegration and toxins.

It is necessary to note, that even in norm the pulp is in a condition of the constant worker hyperemia as pressure in vessels reaches 50 mm hg and consequently even at an insignificant inflammation and infringement of outflow through venous vessels pressure of blood increases and pathological process is aggravated.

The pain at pulpitis has paroxysmal character, and between attacks intervals of absence of a pain - intermissions are. Such change pain it is connected with adaptable ability of an organism to perception of a pain, compensatory opportunities of a pulp, high jet opportunities of a pulp. Sometimes in intervals between attacks it is marked hyperesthesia sites of a skin of the face and a neck which correspond to the amazed teeth. The raised sensitivity of zones of Ged at acute forms of a pulpitis meets in 65-67 % of cases for M.A.Kodola's data. Sometimes a pain irradiates on branches n.trigeminus. As a rule, it happens in that case if intermissions are very short.
For a acute pulpitis also a pain from thermal, chemical and mechanical irritants are characteristic. At caries these irritants lead to a short-term pain which is liquidated right after elimination of irritants. At a pulpitis an attack pain proceeds long after elimination of irritants. An attack pain cause even insignificant irritants.

So, if the pulp reacts to temperature higher than 50-66°C and lower than 15-20°C at an inflammation the range of temperatures is narrowed.

Strengthening pain at night, that is characteristic for a acute pulpitis and an exacerbation of chronic, probably to explain a prevalence at night of parasympathetic nervous system, and also reduction of a rhythm of intimate activity and a blood-groove that leads to accumulation in a pulp of toxic products of an exchange and irritation of nervous receptors.

Proceeding from the foregoing to put the correct diagnosis to the patient it is necessary to put following questions: 1. Whether the spontaneous pain is marked? 2. What character of pain? Whether it is shown by attacks or has continuous character? 3. Whether the pain at night and from thermal, chemical and mechanical irritants amplifies? 4. If the pain is shown by attacks as long proceeds and what intermissions like? 5. Whether can patient correctly specify a tooth, what him disturbs? 6. Whether is irradiation of pains on a path n.trigeminus? At objective inspection it is necessary to find out following symptoms: 1. The form and depth of carious cavities; at acute pulpitis the cavity not such deep also does not occupy the big space in crown of a tooth, as at chronic. 2. The pulp is bared or closed, and if closed that what condition around of nearpulpal dentin. For acute forms characteristic presence of grey, soft, pliable dentin which is removed by layers, and at chronic it is pigmented, brown or even black color, dense, tenacious. 3. Presence pain at probing of a bottom of a cavity.

At acute forms the probing will be painful in the field of horns of a pulp, or on all bottom, at chronic forms the probing will be painful only in case of baring of pulp. Probing at acute forms can lead to opening of a cavity of a tooth and then we should establish: it is allocated exudation or pure blood. In case of presence of the opened cavity of a tooth, gangrenous smell and painless probing we can assume presence of
chronic gangrenous pulpitis. 4. At painful percussion probably to approve about presence of pathological changes not only in a pulp, but and in tissues of a periodontium.

From additional methods the most informative is EOD. So in norm the pulp reacts to irritation 2-6 мкA, at an inflammation of crown part - 20-50 мкA, root - 50-95 мкA, reaction of a tooth to force of a current 100 мкA and higher speaks about destruction of all pulp.

Literature recommended

- Main Sources:

- Additional ones:

3.4 How to work with the literature recommended:

<table>
<thead>
<tr>
<th>Main tasks</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>to review the material</td>
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<td>to learn the material</td>
<td>to use the material on(at) pages</td>
</tr>
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<tr>
<td>to answer the questions</td>
<td>to write a summary</td>
</tr>
<tr>
<td>to do the test on the material</td>
<td>to be ready to give an answer to the</td>
</tr>
<tr>
<td>to be ready to answer the topic</td>
<td>questions</td>
</tr>
</tbody>
</table>

3.5. Self-control material:

A. Questions to be answered:

1. To tell about classification of pulpitis of faculty of propedeutic of therapeutic stomatology UMSA.
2. To tell about classification of pulpitis by Gofung.
3. To describe clinic of the acute partial pulpitis and an exacerbation of chronic.
4. To describe clinic of acute general pulpitis and an exacerbation of chronic.
5. To describe clinic of a acute purulent pulpitis and an exacerbation of chronic.
6. To describe clinic of an acute traumatic pulpitis and an exacerbation of chronic.
7. To tell about additional methods of inspection which are applied at an exacerbation of a chronic pulpitis.

B. Test tasks to be done:

1. Specify characteristic symptoms of an exacerbation of a chronic pulpitis.
   a) acute spontaneous, tearing, shooting pain which amplifies from any irritants;
   b) The pain decreases from hot;
   c) Absence of the periods of intermissions;
   d) Probing of a bottom of carious cavities is painful on all extent;
   e) Vertical percussion is poorly sensitive.

2. Specify correct sequence of actions during carrying out definition of a threshold electroexcitability of pulp.
   a) To isolate a tooth from a saliva and an oral liquid;
   b) to set convenient position to the patient in an armchair;
   c) to place a passive electrode in the right palm of the patient;
   d) to lead isolation of an active electrode by wadded turunda and to moisten it in the distilled water;
   e) to include device EOD and smoothly increase force of a current by means of the toggle-switch up to occurrence in the patient sensation of pricking;
   f) put an active electrode to cutting edge (an inciser and a canine) or to tops of tuberculums (premolars, molars);
   g) fix the received result.

3. Specify additional methods of inspection which are used for verification of the diagnosis “an exacerbation of a chronic pulpitis”.
   a) thermodiagnostic;
   b) roentgendiagnostic;
c) the general analysis of blood;
d) EOD;
e) vital colouring (staining);
f) luminescent diagnostics;
g) digital computer diagnostics.

Tasks

1. The patient has addressed to the stomatologist with complaints to a pain in a tooth on the top jaw; jamming peep in the given tooth. After interrogation it is established, that the pain arises spontaneously or in reply to irritants and last 30-40 minutes. Painless intervals 1-2 hours last. The pain gives to infraorbital, temporal and malar area on the right. Half a year there were similar pains, but the patient did not treat.

Objectively: on proximal surfaces of tooth 15 - big carious cavity within the limits of nearpulpal dentin, filled by necrotic dentin, does not connect with pulp chamber, a bottom and walls are pigmented, softened. Probing is painful on all bottom of carious cavities. Percussion is weakly sensitive. Thermodiagnostic on cold is acute painful. EOD = 35 mkA.

Establish the diagnosis.

2. To the patient the preliminary diagnosis an exacerbation of a chronic pulpitis of tooth 27 ” is established. Appoint additional methods of inspection for statement of the clinical diagnosis.

The answer: 1) EOD;
2) thermodiagnostic on cold and hot;
3) Rtg-diagnostics or digital radio sighting.

Atypical tasks:

1. In clinic the patient with the preliminary diagnosis an exacerbation of a chronic pulpitis of tooth 24 has addressed. Shows complaints to a constant aching pain in a site of the top jaw at the left which has appeared half a year back.
Objectively: On a chewing surface of 24 - carious cavity within the limits of nearpulpal dentin; a bottom and walls of a cavity are softened; probing of bottom of carious cavity is painful.

Specify the most probable diagnosis. Appoint additional methods of inspection.

The answer: additional methods of inspection:
- thermodiagnostic of 24;
- EOD of 24;
- Rtg-diagnostics 24;
- Revealing on a skin of the face, so-called trigger zones.

4. Self-preparation at class.

<table>
<thead>
<tr>
<th>№ п/п</th>
<th>Educational tasks</th>
<th>Instructions to the tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To learn:</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Clinic of exacerbation of chronic pulpitis</td>
<td>To list the basic clinical displays of different forms of a pulpitis.</td>
</tr>
<tr>
<td>2.</td>
<td>Diagnostic of exacerbation of chronic pulpitis</td>
<td>To know the basic and additional methods of inspection at “ an exacerbation of a chronic pulpitis ”.</td>
</tr>
<tr>
<td>3.</td>
<td>Differential diagnostic of exacerbation of chronic pulpitis with other deseases</td>
<td>To fill the table of differential diagnostics of an exacerbation of a chronic pulpitis. And also: To make algorithms of actions of practical habits. - Probing of bottom of carious cavity; - percussion; - thermodiagnostic; - EOD.</td>
</tr>
</tbody>
</table>

1) Listen to the information;
2) Work with the tables, corpse, anatomical damp preparation;
3) Ask about the problems that haven’t been found in the information given.
5. Self-preparation work at home.
   1) Review the material learnt at class;
   2) Compose the plan of your answer;
   3) Answer the questions to this topic;
   4) Do the test given above;

The methodical reference is made by the assistant Fetisova O.L.
1. The topic basis: The problem of painless treatment of teeth, despite the big achievements in anesthesiology, still remains one of the most actual. The big number of dental procedures, which were carried out without anesthesia before, now is been required. On the one hand, it is caused by arising of "delicacy" of the population, losing endurance to a pain and demanding more and more comfort. On the other hand, commercial stomatology began to "impose" anesthesia in any occasion. According to modern researches (to K.F. Bizljaev, 1989) 74% patients need various kinds of anesthesia. The preparing for forthcoming treatment is not simply desirable, but is obligatory for the majority of stomatological patients.

Psychopreparing includes an explanation, belief or rebelief, conversation for suggestion of expediency of carrying out stomatological intervention and conviction in painless forthcoming interventions.

1. The aims of the training course:
   A=1. To have general knowledge of the topic studied;
      1) The problem of painless treatment;
   2) Psychological preparing of the patients;
   3) Premedication by pharmacological remedies;
   4) Local anesthetics, applied in therapeutic stomatology;
   5) Kinds of anesthesia using for treatment of pulpitis;
      A=2. To seize of knowledge about:
      1) techniques of carry out injectional kinds of anesthesia;
      2) Indications and contra-indications for different kinds of anesthesia.
      3) Advantages of different kinds of anesthesia;
      A=3. To be able:
      1) choose local anesthetics for treatment of acute pulpitis;
      2) carry out applicational anesthesia:
      3) carry out injectional kinds of anesthesia:
         - Tuberal anesthesia;
         - Infraorbital anesthesia;
         - Mandibular anesthesia;
Torousal anaesthesia;

- Intraligamental anaesthesia
- Intraosseous anaesthesia
- Intrapulpal anaesthesia
- Infiltration anaesthesia

2. Materials for the before – class work self – preparation work:

3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

<table>
<thead>
<tr>
<th></th>
<th>To know</th>
<th>To be able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>Topographical anatomy of nervus of different groups of teeth.</td>
<td></td>
</tr>
<tr>
<td>Pathological physiology</td>
<td>Phases of inflammatory process and their characteristic.</td>
<td>To model inflammations in a pulp of a tooth.</td>
</tr>
<tr>
<td>Histology</td>
<td>The histological structure of a pulp of a tooth.</td>
<td>To distinguish on micropreparations structural and functional elements of a pulp.</td>
</tr>
<tr>
<td>Surgical stomatology</td>
<td>Possible complications of injectional kinds of anaesthesia.</td>
<td>To spend adequate treatment and preventive maintenance of complications of injectional kinds of anaesthesia</td>
</tr>
</tbody>
</table>

3.1 The contents of the topic:
To decrease or full exclusion of painful sensations during treatment had to be applied anaesthesia.

**Kinds of anaesthesia**

Distinguish two kinds of anaesthesia:

- Local
- General

**Premedication**

is an application of remedy, which can actively correct infringements of a psychoemotional condition before the stomatological intervention.

**Tranquilizers**

- meprobomatum - 0,2-0,4 g
- triocksazinum - 0,3
- mesapamum - 0,005 g
- amisilum - 0,001 g
- seducksenum - 0,005 g

**Analgetic**

- sodium salicylatis - 0,025-0,5 g
- aspirinum - 0,5 g
- salicylamidum - 0,5 g
- analginum - 0,5 g
- butadionum - 0,15-0,3 g
- fenacitinum - 0,25-0,5 g
- paracetamolum - 0,2 g

**Sedative means**

- Tincture of valerianum,
- Tinct. of peony.

**Somnolent remedies:**

- Barbitalum - 0,25 g
- Luminalum - 0,05 g
- Nembutalum - 0,05 g

The most rational following combinations:

Seducksenum 0,005g +
Closepinum,025 g (before sleeping)
Butadionum 0,15g +
Fenacitinum 0,25g

The official combined remedy “tempalginum” has appeared, one tab. contains 0,02 g tempidonum (tranquilizer) and 0,5 g analginum
Local anaesthesia

- means termination of conducting of impulses on sensitive nervous fibers or blockade of receptors.

Indications to local anaesthesia:

1. Local hyperesthesia of hard tissues of tooth with infringement or without it.
2. Functional frustration of the nervous system, the expressed fear of forthcoming medical interventions.
3. All forms complicated of caries (pulpitis, periodontitis).
4. Tooth extraction.
5. Surgical manipulations at periodontal diseases and mucous.

Contra-indications:

1. Allergic reactions to local anesthetics.
2. The expressed cardiovascular insufficiency.
3. Infringement of function of a liver and kidneys with the phenomena of decompensation (a cirrhosis, a nefrozo-nephritis).
4. Organic diseases CNS (a schizophrenia, olygophrenia).
5. Refusal of the patient of a local injection.

Kinds of local anaesthesia: injectional and applicational

The success of injection anaesthesies depends on a correct choice of anesthetics.

For choosing local anesthetics, it is necessary to consider:

- Efficiency,
- Safety,
- Specific features of the patient,
- Presence sensibilization to remedies,
- Duration of medical manipulation.
### Among injectional anaesthesias distinguish:

<table>
<thead>
<tr>
<th>Conduction anaesthesia</th>
<th>Infiltration anaesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>For teeth of the mandibular</td>
<td>ų intraligament</td>
</tr>
<tr>
<td>ų Mandibular</td>
<td>ų Intrapulpal</td>
</tr>
<tr>
<td>ų Torusal</td>
<td>ų Intraosseous</td>
</tr>
<tr>
<td>ų The mental</td>
<td>ų Subperiostal</td>
</tr>
<tr>
<td>For teeth of the maxilla</td>
<td></td>
</tr>
<tr>
<td>ų Tuberal</td>
<td></td>
</tr>
<tr>
<td>ų Infraorbital</td>
<td></td>
</tr>
<tr>
<td>ų Incisive</td>
<td></td>
</tr>
<tr>
<td>ų Palatinal</td>
<td></td>
</tr>
</tbody>
</table>

#### Anesthetics for local anaesthesia

<table>
<thead>
<tr>
<th>The name of anaesthetic</th>
<th>The main acting substance</th>
<th>Firm</th>
<th>Vasoconstrictor</th>
<th>Acting begins after:</th>
<th>Duration of anaesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphacain</td>
<td>Articaini</td>
<td>SPAD</td>
<td>Adrenalinum</td>
<td>1-2</td>
<td>60-120</td>
</tr>
<tr>
<td>Deltazin</td>
<td>A.T.O. Zizine</td>
<td>Only 4 % s-n without vazo-konstriktor</td>
<td>1-2</td>
<td>60-90-120</td>
<td></td>
</tr>
<tr>
<td>Primacaine</td>
<td>Piere Rolland</td>
<td>Adrenalinum</td>
<td>1-2</td>
<td>60-100</td>
<td></td>
</tr>
<tr>
<td>Septanest</td>
<td>Septodon</td>
<td>Adrenalinum</td>
<td>1-2</td>
<td>60-120</td>
<td></td>
</tr>
<tr>
<td>Ubestezine</td>
<td>ESPE</td>
<td>Adrenalinum</td>
<td>1-2</td>
<td>60-120</td>
<td></td>
</tr>
<tr>
<td>Ultracain</td>
<td>Hoechst</td>
<td>Adrenalinum</td>
<td>1-2</td>
<td>60-120</td>
<td></td>
</tr>
<tr>
<td>Bucanest</td>
<td>Biodica</td>
<td>Only 4 % s-n without vazo-konstriktor</td>
<td></td>
<td>60-100</td>
<td></td>
</tr>
<tr>
<td>Xylonor</td>
<td>Lidocainum</td>
<td>Septodont</td>
<td>Noradrena-linum</td>
<td>2-3</td>
<td>90</td>
</tr>
<tr>
<td>Xylorolland</td>
<td>Piere Rolland</td>
<td>Without vazo-konstriktor</td>
<td>2-3</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Xylocaine</td>
<td>Dentoria (Astra)</td>
<td>Only 4 % s-n without vazo-konstriktor</td>
<td>2-3</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Prissicaine</td>
<td>SPAD</td>
<td>A - Without vazokonstriktor</td>
<td>ср-ср р without vazo-konstriktor</td>
<td>1-3</td>
<td>60-90</td>
</tr>
<tr>
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<td>------</td>
</tr>
<tr>
<td>Citanest</td>
<td>Xylorolland</td>
<td>Dentoria(Astra)</td>
<td>adrenalinum</td>
<td>2-4</td>
<td>90</td>
</tr>
<tr>
<td>Pradicain</td>
<td>Xylocaine</td>
<td>Piere Rolland</td>
<td>Without vazo-konstriktor</td>
<td>1-2</td>
<td>60-90</td>
</tr>
<tr>
<td>Scandikane</td>
<td>Prissicaine</td>
<td>Septodont</td>
<td>3 % p-p without vazo-konstriktor</td>
<td>1-2</td>
<td>90</td>
</tr>
</tbody>
</table>

**Intraligamental anaesthesia**

- is a version of infiltration anaesthesia. It is carried out by introduction of 0,1-0,2 ml anesthetic in healthy circular ligament of a tooth.

*Advantages of anaesthesia:*

- a small dose of anesthetic - 0,1-0,2 ml
- absence of such complications, as hematomas, bleeding, allergic reactions, hit of anesthetic in the vessels
- instant approach of anaesthesia - in 10 seconds
- anaesthesia lasts during 15-20 minutes

*Contra-indications:*

- sharp inflamation processes in a periodontium
- presence parodontal pockets

**Intraosseous anaesthesia**

- is carried out by intrabone injection through cortical plate of alveolar process of anesthetic remedies with syringe. As result we can reach deep anaesthesia of a pulp and surrounding near tooth tissues.

The effect is caused by extra vascular distribution of anesthetic in spongy substance of a bone and influence on passing here nervous plexus, and also its penetration through arterioveins system in a periodontium and a tooth pulp.
The injection had to be done into basis of gingival papilla.

**Intrapulpal anaesthesia**

is applied as additional anaesthesia of a pulp at conservative-surgical or surgical treatment of a pulpitis. For this purpose we enter 0,1-0,2 ml of anaesthetizing substance through perforation aperture of a roof of a pulp cavity with thin needle.

Contra-indications: acute purulent pulpitis, chronic gangrenous pulpitis, because it is possible to push contents of the root debris through root apex.

**Infiltration anaesthesia**

It is the blocking of peripheral and small nervous fibers by infiltration surrounding tissues with solutions of anesthetic.

At pulpitis two-stages injection of anesthetic should be expedientive (V.I.Lukjanenko, 1974).

The dosage is usual, interval between injection about 15 minutes. First injection of solution of the remedy (0,8-1ml) eliminates parabiotic oppression of pulp nervous receptors, second - (0,8-1ml) - causes "true" anaesthesia.

**Applicational anaesthesia is used for:**

1. Anaesthezation of the injectional place;
2. Rubbing in hard tissues of teeth;
3. Additional anaesthesia

To this group is concerned:

- Platonov’s liquid (№ 1 and № 2)
- Shinkarevsky’s liquid (benzocainum, dicainum, menthol, ether, chloroform)
- Hartman’s liquid (timolium, ether, sp. aethilicus)
- Groshicov’s liquid (dicainum, lidocainum, menthol, chloroform, phenolum)
- 2-5 % sol. of dicainum, - 4-20 % sol. of propolis, - 10 % sol. of lidocainum,
- solution “Falicainum”, - Powder of anaesthesinum,
- Pastes: of trimecainum 70 %, acetylsalicylicum, medipalginum.

**Literature recommended**

- Main Sources:
1. ANESTHESIA USING FOR TREATMENT OF CARIES, PULPITIS, PERIODONTITIS. - Lecture for III-year students (The lecturer – the senior lecturer of chair, the candidate of medical sciences Marchenko Irina Jaroslavovna)


- Additional ones:
  1. Кодола Н.А., Копьева Э.П., Прудникова А.П. и др. Пульпит: возрастные особенности и лечение. - К.: Здоровье, 1980 г.

II. Научная:


III. Методическая:

1. Милерян В.Е. Методические основы подготовки и проведение учебных занятий в медицинских ВУЗах. - К.: 2003г.

3.4 How to work with the literature recommended:

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</tr>
<tr>
<td>to be ready to answer the topic</td>
<td></td>
</tr>
</tbody>
</table>

3.5. Self-control material:

A. Questions to be answered:
1. What does psycho preparing include?
2. What is «Platsebo – effect»?
3. Name remedies for premedication.
4. What is regimen of preparation?
5. List rules of preparing.
6. What kinds of anaesthesia do you know?
7. What are indications to local anesthesia?
8. What are kinds of local anaesthesia?
9. What does it depend correct choice of anesthetics of?
10. Name most widely applied anaesthetic and there main acting substance.
11. What do you know the equipment for anaesthesia?
12. What do conductional anesthesias for teeth of the mandible do you know?
13. What do infiltration anesthesias for teeth of the mandible do you know?
14. What are advantages, indications and contra-indications, techniques of carry out intraligamental anaesthesia?
15. What are advantages, indications and contra-indications, techniques of carry out intrapulpal anaesthesia?
16. What are advantages, indications and contra-indications, techniques of carry out intraosseous anaesthesia?
17. What are advantages, indications and contra-indications, techniques of carry out subperiosteal anaesthesia?

4. Self-preparation at class.
1) Listen to the information;
2) Work with the tables, corpse, anatomical damp preparation;
3) Ask about the problems that haven’t been found in the information given.

5. Self-preparation work at home.
1) Review the material learnt at class;
2) Compose the plan of your answer;
3) Answer the questions to this topic;
4) Do the test given above;
The methodical reference is made by the senior lecturer of chair, the candidate of medical sciences Marchenko Irina Jaroslavovna

Methodical Instruction No.41-46
For the 3-d year students’ self – preparation work
(at class and at home)
in studying Propedeutic of therapeutic Stomatology


Hours: 2

The topic basis: the Inflammation of a pulp of a tooth is disease which assist development of odontogenic inflammatory processes of high intensity which harm health of people. In structure of the stomatologic help under the reference sick of a pulpitis make about 30 % depending on the country. For L.I.Urbanovich's data the pulpitis takes the second place after caries among stomatologic diseases. Chronic forms of pulpitis are observed more often, than acute, but at children's age and teenagers prevail acute. At the same time popularization of sports which demand power struggle, has considerably increased quantity of traumas of a teeth. Thus the pulp of a tooth, first of all, suffers. According to foreign authors the quantity of such
patients makes 4-16 % of total of stomatologic patients. L.I.Urbanovich's research have shown, that number of patients with pulpitises at teenage age reaches 6,02 +/- 2,06 %, and in mature - 4,58 +/- 1,82 %.

Traditional devital methods of treatment of pulpitises in 35-75 % of cases lead to complications. Arsenous acid is protoplasmic poison and both damaging an effect has on a pulp, and on a periodontium, reduces its ability to live and stability to an infection.

Attempts to keep the inflamed pulp were carried out in the end of 19 century, but practical methods of treatment for the first time have been published only in 30 years of our century.

Use in different areas of medicine of sulfanamidé preparations became the basis of studying of their action on the inflamed pulp of a tooth. It was the new step in developments of a conservative method of treatment of a pulpitis. Sulfanamide preparations stimulate dentinogenesis, lead remineralization of dentin. But researches have shown the further, that at contact to a fabric of a pulp they reduce turning blood, can cause hematomas, necrosis of pulp.

Modern data about biology and ultrastructure of a pulp, its high reactance, ability to resist to different damaging factors, development of new pharmacological preparations have allowed to make a significant step in development of a conservative method of treatment of a pulpitis.

1. The aims of the training course:

A=1. 1) To familiarize, know about methods of treatment of an inflammation of a pulp;

A=2. 2) To know:

1 Clinic and anatomic features of a structure of a cavity of a teeth of different groups;
2 Clinical displays of different forms of a pulpitis
3 The indication to application of a method preservation of ability to live of a pulp
4. Structure, classification and application of medical pastes and temporal filling materials
5. Technics of imposing of medical linings

A=3. 3) To be able:
1. To choose a conservative (biological) method of treatment depending on a stage of pathological process.
2. Technique of definition of electroexcitability of a pulp (ЭОД)
3. Method of imposing of medical substances on the inflamed pulp;
4. To use combinations of different medicinal forms for medical linings
5. To spend medicamentous processing of carious cavity before imposing of a medical lining
6. To use as a medical lining not hardening, hardening (chemical and light-cured) materials

2. Materials for the before – class work self – preparation work:
3.1 Basic knowledge, experience, skills necessary for studying the topic in connection with other subjects:

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<td>Anatomy</td>
<td>Anatomic features of a structure of incisors, canines, premolars, molars of top and bottom jaws.</td>
<td>to define belonging of a tooth to the certain group on anatomic features of a structure of crows, quantity of root channels.</td>
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<tr>
<td>Pharmacology</td>
<td>Preparations of antimicrobial actions: antibiotics, sulfonamides, preparations of nitrofuranic action,</td>
<td>To use anti-inflammatory and stimulating preparations at</td>
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8.6 The contents of the topic:

Text

I. The inflammation of a pulp of a tooth belongs to diseases which assist development odontogenic inflammatory processes of high intensity which harm health of people. In structure of the stomatologic help under the appealability patientes with pulpitis make about 30 % depending on the country. For L.I.Urbanovich's data the pulpitis takes the second place after caries among stomatologic diseases. Chronic forms of pulpitis are observed more often, than acute, but at children's age and teenagers prevail acute. At the same time popularization of sports which demand power struggle, has considerably increased quantity of traumas of a teeth. Thus the pulp of a tooth, first of all, suffers. According to foreign authors the quantity of such patients makes 4-16 % of total of stomatologic patients. L.I.Urbanovich's research have shown, that number of patients with pulpitis at teenage age reaches 6,02 +-2,06 %, and in adult - 4,58+-1,82 %.
Traditional devitalizing methods of treatment of pulpitis in 35-75 % of cases lead to complications. The arsenic acid is protoplasmic poison and both damaging effect has on a pulp, and on a periodontium, reduces its ability to live and resistance an infection.

Attempts to keep the inflamed pulp were carried out in the end 19 century, but practical methods of treatment for the first time have been published only in 30 years of our century by D.A.Entin, and then it was offered by I.O.Novik a number of methods which proved on a phenomenon of antagonism of microorganisms. These works were of great importance, as proved a basic opportunity of preservation of a pulp of a teeth at an inflammation. But preparation of preparations and application of methods of bacteriotherapy in practical stomatology caused many difficulties in work and these methods have not received a wide circulation.

Use in different areas of medicine of sulfanamide preparations became the basis of studying of their action on the inflamed pulp of a tooth. It was the new step in developments of a conservative method of treatment of a pulpitis. Sulfanamide preparations stimulate dentinogenesis, lead to remineralization of dentin. But researches have shown the further, that at contact to a tissue of a pulp they reduce turning blood, can cause hematomas, necrosis of pulp.

Modern data about biology and ultrastructure of a pulp, its high reactance, ability to resist to different damaging factors, development of new pharmacological preparations have allowed to make a significant step in development of a conservative method of treatment of a pulpitis.

Presence of deep carious cavity with infected dentin which contains tissues and microbic toxins, causes and supports inflammatory process in a pulp. Through destroyed, demineralized dentin, microscopic dentinal canalicules the microflora gets into a pulp and infects it. In this connection the surface damaged dentin should be considered as wound.

Conservative treatment of the inflamed pulp provides a stop of the further development of carious process, restoration of structure and function of a pulp, influence on infected dentin and stimulation of formation of vicarious dentin.
Modern methods of treatment provide use of preparations of anti-inflammatory and antimicrobial action, and also stimulating of dentinogenesis and strengthening barrier function of mineralizing dentin between a cavity of a tooth and carious cavity.

The medical lining, first of all, should have anti-inflammatory action, antimicrobial, and already then stimulating of formation action.

Some authors consider actual search of means which have expressed mineralizing action and simultaneously interfere with development of inflammatory changes in a pulp of teeth. Remineralization damaged dentin and formations of vicarious provides successful treatment of deep caries and a pulpitis.

In the literature a lot of attention is given to use at treatment of pulpitis of preparations on the basis of calcium. The first data about their application for treatment of caries and a pulpitis concern to 1920 when influence of hydrate of calcium on the bared tissue of a pulp for the first time has been studied. Under action of calcium destroyed dentin become mineralized, and a pulp forms a barrier of vicarious, tertiary dentin. With a time in the bared pulp with attributes of an acute inflammation takes place condensation of the basic substance. In a week in a zone of condensation there are fibrous structures and capillaries.

Similar results have been received and Pitt Ford T.R. Studying reaction of a pulp of teeth of dogs on a lining material that contained hydrate of calcium, occurrence in a year of the dentinal bridge and absence of any attributes of an inflammation of a pulp has been established.

But some scientists mark also negative action of hydrate of calcium. It has been established, that drawing on a bottom of carious cavity of a tooth of calmecin led to infringement of structure of vessels and nerves.

Opposite data have N.Stojanchev and L.Videnov's research. Studying a pulp of a teeth of patients in which lining material were calmecin, they have established, that its use promotes increase in quantity alkaline phosphotase. It is regarded by scientists as the proof of positive action of the core component of calmecin - hydrate calcium - and a high reactive opportunity of a pulp.
Studying microflora after action of preparation Dycal that includes hydrate of calcium, during the short period of supervision loss of ability to live of 75% of cultures of microorganisms is noted. But some authors state doubts concerning bactericidal action hydrate of calcium. According to their data even the addition to calmecin of microcid does not interfere growth of microorganisms in carious cavity more than in 50 % of cases.

Research of foreign authors which has formed a basis of a theoretical substantiation of an opportunity of disinfection of dentin of carious cavity by its covering of hydrate of calcium, have shown braking action concerning activity of bacteria and abilities hydrate of calcium to get through dentin into a pulp.

Considering that the microflora plays the leading part in development of a pulpitis, there is actual a question of search of medical linings which have antimicrobial action and nontoxic for a pulp.

The analysis of bacterial flora of a pulp has shown presence in it of a plenty of staphylococcus, hemolytic and nonhemolytic streptococcus, enterococcus. The Most sensitive this microflora to monomycin, to streptomycin, and more proof to penicillin, tetraciclin. Studying of antimicrobial properties of dioxydin, ethoniy and furasolidon has shown high efficiency of dioxydin. With action on microflora it intensively resolves necrotic mass, accelerates maturing of collagen fibres and stimulates reparative processes. A.P.Fedorina's research show, that together with dioxydin antimicrobial activity zinc and cobalt sulphate possesses. The antimicrobial composition offered by him is "Diozincohim", except for above mentioned preparations, includes proteolytic enzymes. Studying of comparative efficiency of action of this preparation on microflora of an oral cavity Diozincohim in 15 minutes acts on microflora in 2,7 times more effectively, than dioxydin, and in 30 minutes - in 2,5 times.

Spending preparations of carious cavity antiseptic processing is carried out. For these purposes 3 % solution of peroxide of hydrogen more often are used. But according to some authors it leads to proof morphological changes in a pulp.
Introduction of antibiotics in a medical practice has created conditions for the further development of a conservative method of treatment of pulpitis. In carious cavity antibiotics show antimicrobial properties, and after penetration into a pulp carry out anti-inflammatory and anesthetizing effect, not causing thus of significant morphological changes. Antibiotics can keep long time properties in a pulp and hard tissues of a tooth. It is established also, that changes in a pulp depend on a doze and methods of application of preparations. So big dozes of penicillin will cause of hyperemia and vacuolization of cytoplasms of odontoblasts. In connection with wide use the above named preparations in therapy of infectious diseases has appeared antibiotic-resistant cultures of microorganisms, and also seasonal fluctuation of their sensitivity. Antibiotics can oppress immunological reactions and phagocytic activity of leukocytes. The specified factors influence quality of treatment. Complex use of antibiotics near to other chemotherapeutic preparations raises efficiency of a conservative method of treatment of pulpitis. With elimination of etiological factor of development of inflammatory process in a pulp it is necessary to stimulate also protective and reparative reactions.

For liquidation of inflammatory process have well proved hormonal preparations. They are characterized by anti-inflammatory, anesthetizing, hyposensitizing action. But after the termination of their action changes in a pulp feel return development, decrease of reparative processes, the layer of odontoblasts will be disorganized.

M.F. Danilevsky, L.O. Homenko was received with good results of application of proteolytic enzymes and antiseptics. Alongside with it, by researches of last years it is established, that in development of inflammatory processes and allergic reactions in an organism of the person plays a negative role hyperactivity of enzymes of system of proteolysis. Therefore N.I. Muzichenko suggests to use for treatment of pulpitis inhibitors of proteolytic enzymes - contrical, trasilol, hordox. But it is known, that proteolytic enzymes operate only on the damaged albuminous substances and by that the pulp is released from products of an inflammation. They do not influence constant
tissues. Therefore some authors to treatment of pulpitis apply 1 % a solution of tripsin.

For conservative treatment of a pulpitis use also medical substances which have anti-inflammatory, recycling, analgetic, hyposensitizing action. A medical dirt which contains biologically active substances, microcells, assist liquidation of an inflammation of a pulp. Effectively for treatment and pink oil. The effect is caused by action on an organism of the main components - terpenes: geraniol, citraneol. Paste is maded from a medical dirt and pink oil, near to antimicrobial action reduces an inflammation in a pulp and makes active reparative processes. The natural composition from wax of a lavender and dry fraction of a medical dirt is characterized by antiexudative, spasmodic, stimulating action. It also has antimicrobial property of the prolonged action.

At traumatic damages of a pulp positive results are received at use of paste on the basis of a sterile bone flour and heparin ointments, and also sorbents.

Some authors used biologically active fabric glue and have received good results in the nearest and remote terms.

So, large number of the offered ways of preservation of ability to live of a pulp at an inflammation testifies to absence of the uniform approach in tactics of treatment of a pulpitis by a conservative method.

Operative processing a bottom and walls of carious cavity or traumatic defect should be spent with the minimal trauma of hard tissues. For a pulp of a tooth high sensitivity operative processing enamel, dentin is characteristic. If manipulation significant on volume and time also reaction of a pulp will be corresponding and it is the bases to worry for its condition. Therefore, at formation of a cavity it is necessary to leave above a pulp thick enough and uniform layer of dentin. In experiment on a teeth of dogs have found out changes in thin structures of system "pulp-dentin" after preparation of carious cavity and imposings phosphate-cement.

During too time a number of authors consider, that necrectomy probably to finish only after full removal of struck dentin. The unique place where can be exception - a bottom of carious cavity.
Necessarily during preparation of hard tissues of a tooth it is necessary to consider presence of safety zones where removal dentin and formation parapulpal channels minimally injure a pulp.

G.Bermenn's research have shown, that at preparation by bur № 3 with a speed 3000 rev/min the temperature on the second minute on a vestibular surface of enamel made 59°C. The low heat conductivity of enamel assists sharp rise in temperature of a pulp. The current of air directed on dentin during 1 second, leads to displacement of nucleus of odontolasts. Therefore drying should be spent by sterile wadded balls.

Actually there is a question of preparation of firm tissues of a teeth at traumatic pulpitis if at an inflammation of a pulp there is a defect of crown which after treatment of a pulp is necessary for eliminating. Such patients for A.M.Griban's data make up to 80 % from among people with damage of incisors of the top jaw.

For elimination of an inflammation in a pulp and liquidation of defect it is recommended during the first time after a trauma to use different biologically active substances. To fix it on the part of the crown of tooth by polyethylene caps or temporary artificial crowns, which then combined. But studying of mineral structure of tissues of the tooth has shown, that at people who use fixed dental artificial limbs ion-exchange between dental tissues and a saliva is broken which can affect a pulp which is leading to critical condition. At present in connection with introduction in a stomatological practice composite filling materials which have high clinic and physical properties, them began to introduce widely for liquidation of traumatic defects of a teeth. Difficult, not always effective treatment of such patients became more safe, accessible. But for creation of a qualitative, strong microartificial limb from composites it is import ant good to fix filling material. Application of the reinforced designs considerably reduces a trauma of a pulp at preparation and to increase reliability of seals.

The wide circulation among means which raise stability of seals, has staple by Buasson which is applied to replacement of breaked corners of a frontal teeth.

The basic advantage of application of parapulpal pins is an opportunity of smaller removal of hard tissues of a tooth, reduction of time for treatment and
increase of its quality. It was emphasized by Buasson, with marked such fact as an opportunity of economical removal of dentin and enamel, and parapulpal pins designs appreciably will cause of deep and traumatic preparation.

Research of sections of teeth in which have been fixed parapulpal pins, have shown, that in dentinal tubules collagenic fibres, which quantity in process of a distance from wound surfaces are found out decreased. Eventually they turned to a fibrous fabric which changes adjournment of crystals.

Medical tactics at such defects depends on many factors: a kind of defect, an age of the patient, time of a trauma, presence of the special tool and a material.

Cited data testify about necessities of development and improvement of special tactics preparation of firm tissues of a teeth which have the damaged or inflamed pulp with the purpose of preservation of its ability to live. Absence of the uniform approach in this question at presence of major defects of crown of teeth is caused with search of new techniques of treatment of a pulpitis, creation of new tools, application of new medicamentous preparations.

II. Vital amputation of a pulp (pulpotomy) is a method of treatment of a pulpitis at which the root pulp after amputation of crown part is kept. The founder of this method is M.M. Chemodanov. Works of domestic scientists have proved necessity of use of medicinal substances and materials which should be biologically compatible to a pulp, that is: - the material or medicinal substance does not cause irritation of a pulp; - has low heat conductivity, and also has antiseptic and anti-inflammatory qualities, and in case of need easily leaves.

Thus, struggle against an infection is one of the important problems at vital amputation of a pulp, and preservation of a root pulp allows to restore function of a tooth.

Vital amputation of a pulp (pulpotomy) is a method of treatment of a pulpitis which allows to keep a root pulp after amputation of crown. Inflammatory reaction in crown pulp differs from root. In crown pulp more expressed process of exudation, and in root - proliferation of a connecting fabric which lead to formation of a fibrous capsule near an alien body. In 15-30 day on periphery of an alien body near to
connective tissue capsule predentin is formed, and in 3 months secondary dentin is postponed, penetrated dentinal tubules. In case of penetration of an infection inflammatory reaction with leucocytic infiltration of pulp, a congestion of a plenty macrophages, formation of abscesses, diffusive or purulent inflammation develops. Thus, struggle against an infection one of the important problems at vital amputations of a pulp. The theoretical substantiation of this method is based on morphological researches of a pulp. Presence of anastomosis between blood vessels of a pulp, significant plastic and protective function of a pulp has been established.

But the majority of foreign authors consider this method not effective, and long chronic inflammations regard as the center of chronic sepsis and chronic infection.

Indications to carrying out vital amputations of a pulp

This method is the most effective in a multiroot teeth where there is a precise border between root and crown pulp. It is shown at following forms of pulpitis: traumatic, acute partial and the general, chronic simple, but at preservation electroexcetability of pulp up to 40мкА and absence of the general diseases which influence decrease in reactance of an organism.

Technique of carrying out vital amputations (pulpotomy)

In connection with significant painful sensitivity of a pulp anesthesia is necessarily spent. For this method use conduction, intraligamental or other anesthesia. From anesthetics the most effective: 2 % a solution of lidocaine, 3 % a solution of mepivacaine, 2 % a solution of prilocaine, 4 % solution of ubisthesine or ultracaine. Use of the general narcosis is possible at presence in stomatologic branch of the doctor-anaesthesiologist.

Following stage of treatment - carrying out of antiseptic processing of an oral cavity by a solution of antiseptics. Further start preparation of carious cavity. Gradual removal of a layer of dentin thickness up to 1 mm is accompanied by an irrigation of carious cavity solutions of antiseptics.

After disclosing cavity of a tooth by sharp excavator we approach to a mouth of channels and cut off crown pulp. This stage can be carried out by burs, but in this
case the big trauma is put to a pulp, therefore wound surface gets a condition not cut, but a laceration that slows down process of regeneration.

For a stop of a bleeding which arises after pulpotomy use 1 % a solution peroxide hydrogen, aminocaproic acid, caprofen, hemostatic sponge. At an intensive bleeding use diathermo-coagulation by a spherical electrode with force of a current 40-50 мкA during 2-3 seconds.

Cavity of a tooth are again irrigated with solutions of antiseptics, dried by a dry sterile wadded ball, and on a bottom of a cavity and a mouth of channels put medical paste. At pulpotomy can be used calcidont, oxyzd zinc with eugenol, Dycal, Life, Biocalex and other.

L.I.Urbanovich and O.I.Zhurochko (1987) used liquid fraction of a medical dirt in which structure except for microcells substances of type of hormones enter and have received positive results.

A.A.Prohonchukov and co-authors (1983) recommend to influence a pulp radiation helium-neon laser. V.P.Bereznoj (1985) for amputation of a pulp used the ultrasonic cutting tool, and as medical paste - a composition of autogenic dentinal conglomerate.

After imposing a medical lining a tooth close by temporary seal from water dentin which replace with a constant in 7-10 day at absence of complaints. In case of continuation of inflammatory process temporary seal delete and spend extirpation of pulp.

Some authors recommend in the first visiting after imposing medical paste and water dentin, to put a constant seal. But in case of renewal of a pain there are difficulties at a removing of a constant seal for carrying out extirpational method.

III. Methods of removal of a pulp at its inflammation with use of devitalizing pastes not always probably to apply to fast removal of a pain. They also can lead to complications in the form of a toxic periodontitis. Vital extirpational method has no such lacks and therefore is widely applied in therapeutic stomatology.

Vital extirpation of pulp (pulpectomy)
Essence of this method is in full removal, as crown and a root pulp without use of devitalizing substances.

For this method use conduction, intraligamental or other anesthesia. From anesthetics the most effective: 2 % a solution of lidocaine, 3 % a solution of mepivacaine, 2 % a solution of prilocaine, 4 % solution of ubistesine or ultracaine. Use of the general narcosis is possible at presence in stomatologic branch of the doctor-anaesthesiologist.

The indication to use of this method is: 1. An acute purulent pulpitis; 2. A traumatic pulpitis at breakage of crown of tooth; 3. Pulpitis which were treated by a conservative (biological) method, but there has come complication; Intact teeth in case of need removals of a pulp at prosthetics; 5. Pulpitis of different forms in case of presence at the patient of somatic diseases on which condition the inflammation of a pulp can influence.

Contra-indication to carrying out of this method is: temporary and constant teeth at children with not completed formation of a root, anatomic features of roots of some groups of a teeth which do not allow to use this method, and also at the people of old age, weakened, with diseases of cardiovascular system.

Technique of carrying out of vital extirpation

Reliable anesthesia which is provided by conducting or other anesthesia allows to lead treatment for one visiting of the doctor.

After disclosing of carious cavity or trepanations of crown of intact tooth remove a bottom of a carious cavity and form so that walls of carious cavities without ledges pass in a cavity of a tooth. It allows to have an easy approach to root channels. Amputation of crown pulp spend by a bur or an excavator, and then pulp extractor slowly enter on a wall of the root channel to a top, rotate on 2 turns and take out with the pulp reeled up on it. Use of diathermo-coagulator is possible. For this purpose a root needle fixed in an active electrode of coagulator enter into the root channel, give a voltage 60 V during 3 sec. and take out. At times together with a needle the pulp is taken out. In case if the pulp has remained in the channel we get it by pulp extractor. Diathermo-coagulation provides a hemostasis of an operational
wound whereas in case of use only pulp extractor it is necessary to apply hemostatic substances to a stop of a bleeding.

If from the root channel the bleeding has stopped, we spend machining root channels using drillburs, H-files, rasp files and then dried up root channel we seal up and put a constant seal.

Lack of this method are complications in the form of a root pulpitis as the pulp only from the macrochannel leaves, and in deltoid branches the pulp remains alive and the root seal irritating it leads to occurrence of a pain.

Literature recommended
- Main Sources:
- Additional ones:

3.4 How to work with the literature recommended:

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<td>to answer the questions</td>
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<td>to do the test on the material</td>
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<td>to be ready to answer the topic</td>
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3.5. Self-control material:
A. Questions to be answered:
1. To systematize methods of treatment of a pulp inflammation
2. To define indications to treatment of a pulpitis by devital amputation
3. To define contra-indications for application of devital combined method
4. Pharmacological preparations which are applied at treatment by a method of devital amputation
5. Techniques of carrying out of amputation of a pulp
6. Methods of mummification at carrying out of devital amputations
7. Preparations for a stop of a bleeding after amputation
8. Preparations on the basis of resorcine-formalin for treatment of a pulpitis.
9. Treatment of a pulpitis by devital amputation and the combined method in one and several visitings

B. Test tasks to be done:

**Typical task №1**

To patient B.Byl diagnosed the Chronic simple pulpitis 26. EOD=30mkA.
The accompanying pathology is absent. Treatment is spent by method of vital amputation.

What medicamentous means are necessary for using for treatment?

**Typical task №2**

At treatment of a pulpitis by vital amputation with a time have arisen pains in a tooth at biting. What reason of such phenomenon?

The answer: the pulp of a tooth was lost and the periodontitis as a result of wrong diagnostics or treatment has developed.

**Typical task №3**

After imposing a medical lining spontaneous, colicky pains have amplified.

What possible reasons of such complication?

**Test task №1**

Why it is necessary to delete a medical lining with steroid preparations?

**Test task №2**

Name sequence of stages of preparation carious cavity at vital amputation.
1. Disclosing, expansion
2. Necrectomy
3. Formation
4. Preventive expansion
5. Processing of dentin
6. Formation of fissura
7. Removal of enamel prisms
8. Amputation of a pulp
9. Disclosing of cavity of a tooth

**Test task №3**
That from materials probably to apply at vital amputation as a medical lining:

1. Phosphate cement
2. Dycal
3. Life
4. Herculite
5. Stomaflex
6. Кальцидонт

**Test task №4**
At inspection of the patient has been diagnosed: hyperemia of pulp 44 tooth. Treatment have decided to spend by method of vital amputation. What from preparations it is necessary to use for medicamentous processing of carious cavity.

1. Chlorhexidine
2. Hypochlorite of natrium
3. 3 % solution of peroxide of hydrogen
4. 1 % solution dioxydine
5. 3 % solution of iodine

**Typical task №1**
To patient B. was established diagnos Chronic simple pulpitis 26. Treatment is spent by devital method.

What sealers necessary for obturation of root channels?

The answer: Апексдент, Канасон, Endomethasone, AH-plus, Тиодент.

**Typical task №2**
At treatment of a pulpitis by devital extirpation after a while have arisen pain in a tooth at biting. What reason of such phenomenon?

The answer: Possible oversealing by sealer for a top of a root, or has developed a periodontitis from action of arsenic paste on a periodontium.
Typical task №3
After sealing of root channels there was pain from thermal irritants.
What possible reasons of such complication?
The answer: in deltoid branches of the pulp has remained alive and inflammatory process proceeds

Test task №1
Whether it is necessary to close root seals which contain eugenol by an isolating lining?
The answer: it is necessary. Eugenol inhibites polymerization of composites.

Test task №2
Name sequence of stages of preparation carious cavities at devital extirpation.
1. Disclosing, expansion
2. Necrectomy
3. Formation
4. Preventive expansion
5. Processing of dentin
6. Formation of fissura
7. Removal of enamel prisms
8. Amputation of a pulp
9. Disclosing of a cavity of a tooth
10. Extirpation of pulp
The answer: 1,2,3,8,9,10.

Test task №3
What from materials probably to apply at devital extirpation as a root seal?
1. Phosphate cement
2. Dycal
3. Life
4. Herculite
5. Stomaflex
6. Кальцидонт
7. Endomethasone
The answer: 7.

Test task №4

At inspection of the patient has been diagnosed: a chronic hypertrophic pulpitis 44 tooth. Treatment have decided to spend by devital extirpation. What quantity of arsenic paste is necessary for devitalization?
1. 0,1
2. 0,2
3. 0,5
4. 0,0006
5. 0,000008
6. 0,0000006
7. 0,06

The answer:

Test task №5

During treatment of a pulpitis by devital amputation after imposing medical paste on the basis of hydroxid calcium have arisen spontaneous pains which proceeded some time. At survey the temporal seal is kept, percussion is painful, thermodiagnosticis painless, color of a tooth became grayish.

In what the reason of such phenomenon? What further tactics of the doctor?

Task № 1

In a year after treatment of a pulpitis by vital amputation a constant seal in 36 tooth became with shrinkage. On edges were formed pigmented zones of dentin, there were pains from irritants. Name complication which has arisen during treatment, its reasons.

Task № 2

To the patient for treatment of a pulpitis by vital amputation was the imposed medical lining with steroid anti-inflammatory preparations.
What tactics of the doctor at repeated visiting?
4. Self-preparation at class. 
1) Listen to the information; 
2) Work with the tables, corpse, anatomical damp preparation; 
3) Ask about the problems that haven’t been found in the information given. 
5. Self-preparation work at home. 
1) Review the material learnt at class; 
2) Compose the plan of your answer; 
3) Answer the questions to this topic; 
4) Do the test given above; 

The methodical instruction is made by the assistant Fetisova O.L.