The subject under the study is Propedeutic of Therapeutic Stomatology

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>
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<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 odontology, ethical and deontological principles of job.</td>
<td>use deontological principles and ethical norms at realization of inspection of the stomatological patient</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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<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>
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<tr>
<td>Internal illnesses</td>
<td>diseases of internal bodies,</td>
<td>define interrelation between</td>
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</table>
which have displays in an oral cavity and their displays in an oral cavity. To spend adequate treatment and prophylaxis.

<table>
<thead>
<tr>
<th>Propedeutics of a therapeutic stomatology (phantom course)</th>
<th>stomatological toolkit: kinds, purpose, kinds of handpieces, burs, safety precautions regulation at job with them</th>
<th>work by different stomatological instruments safely</th>
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</thead>
<tbody>
<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>
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</table>

3.2 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(room) 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 erosion of undergingival 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>
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<tbody>
<tr>
<td>To teach essence and indications to realization of additional methods of</td>
<td>to summarize essence and indication to realization of additional methods of</td>
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<tr>
<td>inspection of the stomatological patient;</td>
<td>inspection of the stomatologists patient;</td>
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<tr>
<td>To know interpreting of results of additional methods of inspection of the</td>
<td>to write out in the abstracts parameters of results EOD, thermodiagnostic.</td>
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<tr>
<td>stomatological patient: thermodiagnositics, EOD.</td>
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<td>stomatological patient. to write out in the abstracts parameters of results</td>
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<tr>
<td>and at a pathology: a caries - marking, luminescent and the transilluminating diagnostics of teeth.</td>
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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 мК\(\text{А}\);
2. 40-60 мК\(\text{А}\);
3. 2-6 мК\(\text{А}\);
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 triger 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 development reconsidered and predicated on session of faculty of a propedeutics of a therapeutic odontology, protocol № __ from __________

With additions (changes) __________________

The head of the chair, professor Kovalev E.V.