Lecture № 5
for 3-rd year students of stomatological department

PULPIT
(First part)
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PLAN OF LECTURE

• Determination of concept.
• Structure of pulp: anatomic, hystological, functional features.
• Etiology of pulpit. Ways of penetration of an infection into a pulp.
• Pathogeny of pulpit.
• Clasification of pulpit.
• General symptomatology of acute pulpits.
• Clinic and pathomorphology of acute forms of pulpit.

1. A pulpit is inflammation of tooth pulp.
2. 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>
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</thead>
<tbody>
<tr>
<td>Odontoblasts</td>
<td>collagenic</td>
<td>glycosaminoglycans,</td>
</tr>
<tr>
<td>Fibroblasts</td>
<td>reticular</td>
<td>is abundantly pierced</td>
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<tr>
<td>Stellate cells</td>
<td>(argirofilic)</td>
<td>by blood vessels, nerves</td>
</tr>
<tr>
<td>Macrophage</td>
<td></td>
<td></td>
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3 layers: 1. Odontoblastic;
2. Subodontoblastic;
3. Central.

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.
3. By etiology distinguish:

- **Pulpit**
  - **Infectional**
    - Traumatic
    - Mikroflora: associations streptococci, lactobacteria, Gram+ bacils, fusospirohetts and their toxins
  - **Non-infectional**
    - Chemical
    - Toxic action of alcohol, ether, eugenol, orthophosphoric acids, monomers filling materials
    - Thermic
    - Overheating of pulp during preparing of carious cavities or under artificial crown

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

4. 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

2. Exsudation: 4. **Reaction of pulp MCB with violation of rheologic properties of blood.**
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 pulps by E.M. Gofung**

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

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

**Classification of pulps by E.S.Yavorskaya, L.I.Urbanovich (Kiev, 1964)**

I. Acute pulpit (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 pulpit (p.chronica).
   1. Fibrous (fibrosa).
   2. Hypertrophic (hypertrophica).

III. Exacerbation of chronic pulpit (chronica exacerbatio).

IV. Pulpit complicated with periodontits.
Works classification of pulpit

I. Acute pulpit (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 pulpit (p.chronica).
   1. Fibrous (simplex).
   2. Hypertrophic (hypertrophica).
   3. Gangrenous (gangraenosae).
   5. Root (radicis dentis).

III. Intensifying of chronic pulpit (chronica exacerbatio).

IV. Necrosis and gangrene of pulp (gangraena et necrosis pulpa).

V. Atrophy of pulp (atrophia pulpa).
ACUTE TRAUMATIC PULPIT

COMPLAINTS: acute pain, arising up during preparing of carious cavity. In the case of trauma of tooth - pain is spontaneous and from all irritants, bleeding.

ANAMNESIS: household, sporting, works trauma

OBJECTIVELY : Examination - on a bottom of caries cavities connects with pulp cavity, drop of blood; or break of part (or all) of crown, denudation or transmission of red pulp. Probing - acutely painful. Percussion - painless. In the case of trauma and injury or dislocation of tooth - painful, sensitive. Palpation - painless. Thermal diagnostic - painful, pain stays after the removal of irritant.

HYPEREMIA OF PULP

• Diminishing of number of odontoblast layers, their dystrophy.
• Stretched vessel with diapedesis of blood corpuscle

CLINIC OF PULP HYPEREMIA

COMPLAINTS: acute, spontaneous pain during 1-2 min. (fulminant), intermissions 6-12 hours, pain from all types of irritants, proceeds 1-2 min. after their removal.

ANAMNESIS: episodes of pain are disturbed about 1 day, until this pain arose up only from irritants, which was briefed.

OBJECTIVELY: Examination - a deep carious cavity or filling. Probing - the dentine of bottom and walls is softened, caries cavities is not connected with pulp chamber, on a bottom is painless. Percussion (vertical and horiz.) - painless. Palpation - painless. Thermal diagnostic - painful, pain stays during 1-2 min.

ACUTE PARTIAL PULPIT

• Dystrophy of odontoblasts;
• Hyperemia of a part of pulp;
• Swollen;
• Limited leucocytes infiltration;
• Unchanged pulp.

**CLINIC OF ACUTE PARTIAL PULPIT**

COMPLAINTS: acute, spontaneous, paroxysmal pain during 15-30 min, intermissions about 3-4 hours. Pain is localized. Attacks can arise up from all types of irritants.

ANAMNESIS: episodes of pain are disturbed about 2 days, until this pain arose up only from irritants, which was briefed.

OBJECTIVELY: **Examination** - a deep carious cavity or filling. **Probing** - on the bottom of carious cavity acute arises pain on the area of one horn of pulp. **Percussion** and palpat**ion** - painless. **Thermal diagnostic** - provokes an episode of pain, protractedly not passing. **EOD**: 10-15 mkA.

**ACUTE GENERAL PULPIT**

• Reticular dystrophy of odontoblasts layer adjacent to the replaceable dentine;
• Expansion of vessels;
• Edema of tissue;
• Leucocytes infiltration;
• Diapedesis of red corpuscles.

**CLINIC OF ACUTE GENERAL PULPIT**

COMPLAINTS: pain acute, spontaneous, irradiating on following of the proper branches of trigeminal nerve. Attacks last about 1-2 hours, intermissions about 1 hour. Pain increases at night. Any irritants can provoke pain.

ANAMNESIS: episodes of pain are disturbed about 2-3 days, duration of them arise gradually, and «light intervals» became shorter.

OBJECTIVELY: **Examination** - a deep carious cavity or filling. **Probing** - caries cavities is not connected with pulp chamber, on all bottom is acute pain. **Percussion** vertical-sensible, horizontal – painless. **Palpation** - painless. **Thermal diagnostic** – hardly pailful. **EOD**: 15-20 mkA.
ACUTE PURULENT PULPIT

- Hardly extended vessels of pulp;
- Edema of tissue;
- Diffuse leucocytes infiltration;
- Centers of the festering melting of pulp tissue.

CLINIC OF ACUTE PURULENT PULPIT

COMPLAINTS: acute, spontaneous, irradiating pain pulsating, tearing, unbearable, especially in a night-time. Pain is almost permanent, a few diminishes from cold.

ANAMNESIS: episodes of pain disturb more than 3 days, became unbearable in the last night.

OBJECTIVELY: Examination - a deep carious cavity or filling. The tooth can lose natural brilliance.

  Probing of the bottom of car/cav can be painless, the perforation of cavity of tooth can happen during probing, a drop of pus will appear.

  Percussion - painful. Palpation - painless.

  Thermal diagnostic - pain increases from hot, diminishes from cold. EOD - 40-50 мкА