

# CLINICAL MANIFESTATIONS AND DIAGNOSIS OF ACUTE PULPITIS FORMS. DIFFERENTIAL DIAGNOSIS



**Lecture 3**



# 1. Clinical manifestations and diagnosis of acute focal pulpitis. (Pulpitis acute locales)

Clinical manifestations of acute focal pulpitis is very diverse.

## Complaints of the patient:

- The pain of all kinds of irritant. Most of the cold.
- Pain persists after removal of the stimulus.
- Pain can be spontaneous.
- Pain increase at night.
- The duration of a painful period is 10-20 minutes.
- Painless periods 2-4 hours.
- The patient indicates exactly which tooth ache.
- Irradiation of pain is absent.



## Objective examination:

- A deep cavity.
- The bottom of the cavity with soft dentine (acute process) or pigmented dentine (with chronic process).
- Probing: sharp pain at one point (in the inflamed pulp horns).
- Carious cavity does not communicate with the cavity of a tooth.
- Temperature test on cold is painful. The pain not stopped after remove the excitant.
- Vertical percussion - painless.
- EDI: 18-20  $\mu\text{A}$  (in projection of the inflamed pulp horns).
- X-ray: a deep cavity, the pulp of a thin layer of dentin. Cavities are not communicated with the cavity of the tooth. No changes in the apical part of the tooth.





## **2. Differential diagnosis of acute focal pulpitis with deep caries.**

### **General:**

- The pain of all types of irritant (especially from cold).
- The patient indicates exactly the tooth (no irradiation of pain).
- A deep carious cavity (The cavity of the tooth is not opened).

### **The differences:**

- In acute focal pulpitis pain from irritants persists after removal.
- Spontaneous pain.
- Long periods painless.
- Probing sharply painful at one point, and in deep caries - around the bottom of the cavity.



### **3. Differential diagnosis of acute focal pulpitis with acute diffuse pulpitis.**

#### General:

- The pain of all kinds of irritant.
- Spontaneous pain.
- Night pain.
- A deep cavity.
- The cavity of the tooth is not opened.

#### The differences:

- In acute focal pulpitis - pain from the cold, and in acute diffuse (especially in the transition to a purulent pulpitis) - more pain from the hot. The cold calms the pain.
- Acute focal pulpitis: painless periods longer than pain. In acute diffuse pulpitis - pain up to several hours, and lucid intervals - short.
- Acute focal pulpitis continue 1-2 days, and acute diffuse pulpitis - up to 14 days.
- In acute focal pulpitis pain not irradiates (the patient indicates the tooth), and acute diffuse pulpitis pain - irradiate (the patient can't specify an aching tooth).
- Probing for acute focal pulpitis - pain at one point, and in acute diffuse pulpitis - around the bottom.
- Percussion: Acute focal pulpitis - is painless, and acute diffuse pulpitis - is painful.
- EDI: acute focal pulpitis - 20uA, and acute diffuse pulpitis - 30-45uA.





## 4. Differential diagnosis of acute focal pulpitis with chronic fibrosis pulpitis.

### General:

- Pain from irritant factor (cold).
- Probing painful at one point.

### The differences:

- In acute focal pulpitis - spontaneous pain, chronic fibrous pulpitis - the pain begins only at the time of exacerbation.
- In acute focal pulpitis - no communication with the cavity of the tooth, and the chronic fibrous pulpitis - tooth cavity is open at one point (pain and bleeding upon probing).
- EDI: In acute focal pulpitis – 20 uA, and the chronic fibrous pulpitis - 35-40 uA.
- Anamnesis: In acute focal pulpitis - in the past there was no sharp pain, in contrast to chronic fibrous pulp.
- Acute focal pulpitis continues 1-2 days, and chronic fibrous pulpitis - up to some years.



## 5. Clinical manifestations and diagnosis of acute diffuse pulpitis.

### (Pulpitis acute diffuza)

Acute focal pulpitis after 2 days passes in acute diffuse pulpitis. In this case involves the inflammation in coronal and root pulp.

Serous inflammation quickly becomes sero-purulent, and then - in purulent.

#### Complaints of the patient:

- Long-time spontaneous pain - 2-3 hours.
- Painless lucid intervals - short (30-40 minutes).
- Because of the suffering that causes acute diffuse pulpitis, a French author named it as "crazy teeth".
- The pain irradiates along the path branches of the trigeminal nerve.

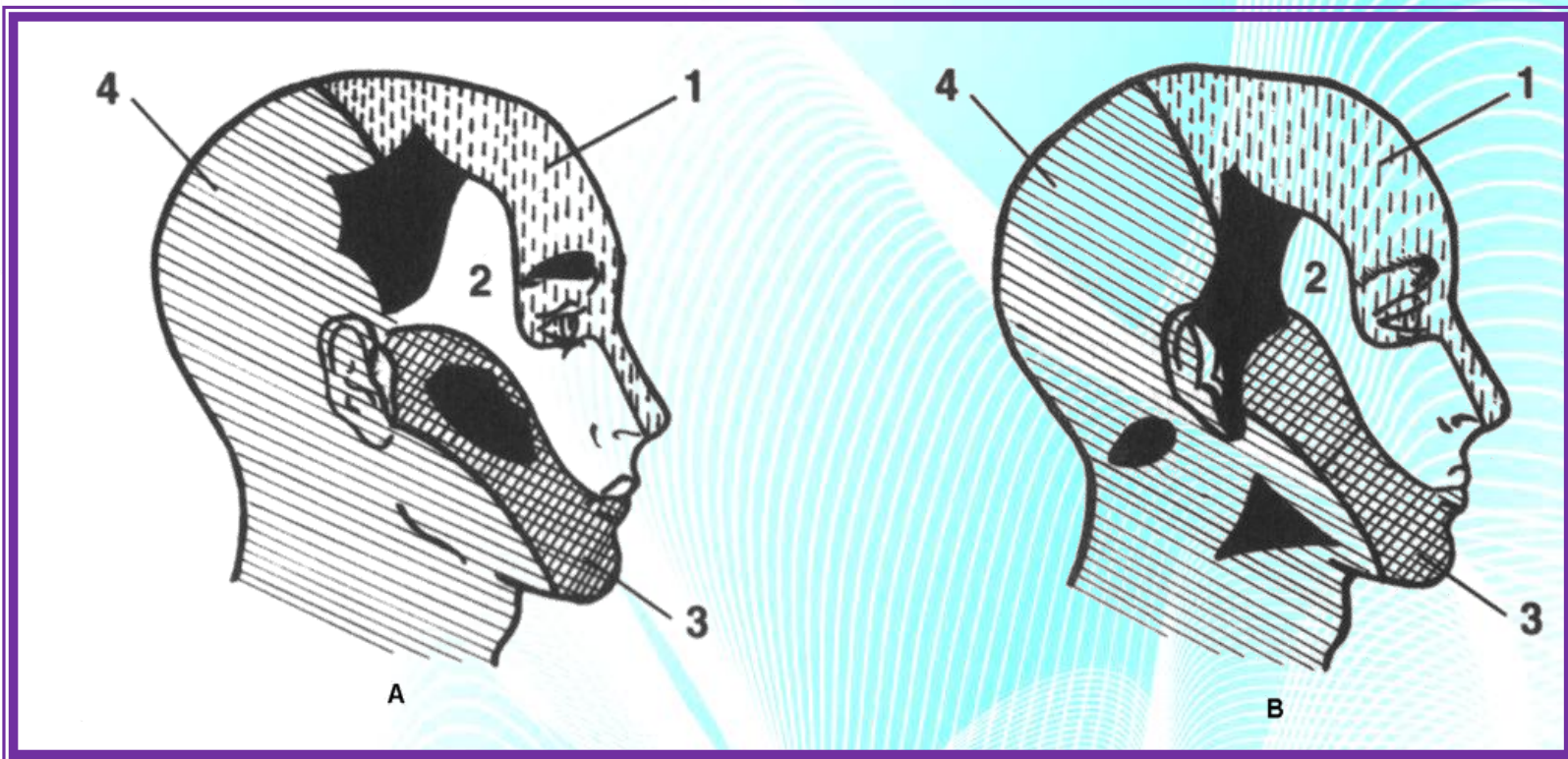




## Zone irradiation pains:

- ❖ When pulpitis in canines and in incisors in the upper jaw irradiation of pain in the nose, in the suborbital and supraorbital region. Irradiation may be and in the temporal area.
- ❖ From the molars of the upper jaw irradiation of pain is in the temporal region, supra orbital, zygomatic, in healthy teeth, and sometimes, in the lower jaw.
- ❖ When the pulpitis is in teeth on the mandible, irradiation of pain - in the occipital region, ear, submandibular region and in the teeth of the upper jaw.
- ❖ In the incisors on the lower jaw, the pain may radiate to the opposite part.
- ❖ When pain irradiate, patient can't specify an aching tooth, and the possible error of diagnostics.
- ❖ Analgesics help small, short-time, and not completely eliminate the pain





**Fig. Zone irradiation pains with pulpitis  
(by I.G. Lukomsky).**

**A - upper teeth, B - lower teeth.**

**1-n.infraorbitalis (from n.ophtalmicus);  
2 – n.maxillaris; 3-n.mandibularis; 4-n.occipitalis.  
Irradiations areas painted black.**



## Objective examination:

- Deep cavity with rests of food and softened dentin or pigmented.
- Probing painfully over the bottom of the cavity. When make probing - possible opening of the tooth cavity, and as a consequence, extreme pain. A probe examination should be carried out very carefully, without the pressure!
- Temperature test: The pain of the cold, and at last - from the hot.
- Vertical percussion painful, because inflamed, coronal and root pulp. Pain is periodontal reaction.
- EDI: 30-45  $\mu\text{A}$ .
- X-ray: changes in the apex of the root is not detected.





## **6. Differential diagnosis of acute diffuse pulpitis and chronic aggravated forms of pulpitis.**


### **General:**

- Spontaneous pain with a "light" intervals, increasing from the temperature irritant.
- Irradiation of pain.
- Comparative percussion is painful.

### **The differences:**

- In anamnesis - spontaneous pain.
- At examination: carious cavity is connected with the cavity of the tooth.  
Probing - painful.
- 30% of the x-ray revealed the expansion of periodontal ligament.

All these features are absent in acute diffuse pulpitis. Acute pulpitis may be at patients with good reactivity of the organism and the compensated form of tooth decay. In practice of dentists often occur chronic and acute pulpitis.



## 7. Differential diagnosis of acute diffuse pulpitis, acute apical periodontitis and chronic apical periodontitis in the acute stage.

### General:

- *prolonged pain.*

### The differences:

- In acute diffuse pulpitis: pain periodically, and in acute forms of apical periodontitis is a constant, increasing with time.
- In acute diffuse pulpitis: the tooth cavity is usually not open, but it is open at periodontitis. Probing painless.
- In acute diffuse pulpitis: palpation of the crease in the transition area of the projection sick tooth is painless, and in acute forms of periodontitis - is painful.
- In acute diffuse pulpitis: percussion can be a little painful, and in acute forms of periodontitis, pain when you touch a tooth by tongue.
- In acute diffuse pulpitis: patient can't appreciate a painful tooth, in contrast to the acute forms of periodontitis.





- In acute diffuse pulpitis: thermal irritant provoke pain, and acute forms of periodontitis – have not pain.
- X-Ray: in acute diffuse pulpitis changes in the periodontium is not detected, and in acute forms of periodontitis (except for acute periodontitis in the stage of intoxication) revealed the expansion of periodontal ligament and bone destruction in the apex of the tooth root.
- EDI: in acute diffuse pulpitis is always less than 100  $\mu\text{A}$ , and with periodontitis - more than 100  $\mu\text{A}$ .



## 8. Differential diagnosis of acute diffuse pulpitis and trigeminal neurology

### General:

- paroxysmal pain with a "bright" intervals.

### The differences:

- In trigeminal neurology: chemical and cold irritant, do not provoke an attack of pain. The pain beginning from the different movements of facial muscles, and when you touch the "Kurkov" areas (places of exit branches of the trigeminal nerve).
- In trigeminal neurology: pain often occurs at night, in contrast to the pulpitis.
- In examination: not detected the teeth, which can produce paroxysmal pain.





## **9. Differential diagnosis of acute diffuse pulpitis and sinusitis.**

### General:

- aching pain in the jaw.

### The differences at sinus:

- Suffer from a common condition, headache, fatigue, fever.
- Pain gets worse when tilting the head and the sharp change of position.
- There is discharge from the nose.
- Typical radiographic picture of the maxillary sinuses.
- Thermal irritant: don't provoke the pain in the teeth, says a constant, diffuse, aching, moderate pain.



## **10. Differential diagnosis of acute diffuse pulpitis and alveolitis with alveolar pain**

### General:

- pain irradiating along the branches of the trigeminal nerve.

### The differences at alveolitis:

- There is always a Alveolus tooth extraction with a broken blood clot.
- Permanent pain is not associated with the action of thermal irritant.
- Palpation of the gingiva in the area of the Alveolus - sharply painful.
- After curettage of the Alveolus and anti inflammatory treatment - the pain stopped.





# 11. Clinical manifestations and diagnosis of acute purulent pulpitis.

## (Pulpitis acuta purulenta)

### Complaints of the patient:

- Severe pain irradiating along the branches of the trigeminal nerve.
- Pain pulsed, continuous, weakened for a few minutes and then beginning.
- At night, the pain intense.
- Pain worse from hot. Cold irritant reduces the pain. Patients often come with a bottle of cold water, a bag of ice (it is applied, rinse the mouth Patients say that they stopped the pain at home.

### Objective examination:

- Deep cavity with rest of food and softened dentin.
- Carious cavity does not connect with the cavity of the tooth(the tooth cavity is closed).
- Surface Probe painless. When pressure, is easy to open the cavity of the tooth by tooth- explorer or an excavator. This releases a drop of pus with the blood.
- A deep probe - painful.
- After opening the cavity of the tooth the patient's condition improves. The pain subsides and stops.
- Temperature probe for hot provoke pain. The pain subsides from the cold irritant.
- Vertical percussion painful (in the inflammatory process involved the all pulp).
- EDI: 50 uA or more.



## **12. Clinical manifestations and diagnosis of acute traumatic pulpitis.** **(Pulpitis acuta traumatica)**

Depending on the traumatic factor there are three forms of traumatic symptoms:

### **1) Random penetrated the pulp horn (at preparing the cavity, excavated at work):**

- It can be seen pin hole.
- Rayed pink pulp.
- Probing sharply painful (is not recommended doing).

### **2) Accidental injury of the pulp:**

- The tool penetrates into the tissue of the pulp and hurt her.
- The pulp cavity is infected with microflora.
- There is a sharp pain at the time of injury.
- Visible a bleeding pulp.

### **3) Exposure of the pulp in the crown fracture (acute injury):**

- The clinic depends on the fracture line.
- Can be stripped pulp.
- Infection of the pulp.
- The aspiration air and eating provoke pain.





# Table: Differential diagnosis of acute pulpitis

Diagnostic tests	Diagnosis: Acute diffuse pulpitis	Diagnosis: Acute suppurative pulpitis	Diagnosis: Traumatic pulpitis
Anamnesis: the patient survey, the elucidation of complaints, the characteristics of disease.	Acute, spontaneous, paroxysmal pain, lasting from 2 hour and more, lucid intervals - 10-30 min. Irradiation of the pain along the branches of the trigeminal nerve, worse at night, in a horizontal position. Pain arises from all kinds of irritant, long shelf life after their removal.	Spontaneous, tearing, throbbing, constant, and decreases for a few minutes. Irradiation in the course of the branches of the trigeminal nerve. The pain is worse at night. Pain is also aggravated by the hot stimulus, calm down from the cold, and any other irritant cause a sharp pain.	When injury of the pulp - a short-term acute pain. At the turn of the crown - a sharp pain radiating along the branches of the trigeminal nerve. The pain of all irritant, even on air movement.
The nature and depth of the cavity, the characteristic of its contents.	Deep cavity with a large number of pulpal dentin softened about.	Deep carious cavity is filled with plenty of light softened dentine caries in acute and pigmented dentin - the chronic.	When injury of the pulp dotted gaping pink pulp, leaves a drop of fluid. At the turn of the crown of the tooth - the pulp stripped for a considerable distance, the red.
Probing the cavity	Painful over the bottom of the cavity, the pain persists after the termination of its sensing.	Sharply painful over the bottom, easily perforated arch tooth cavity with the release of a drop of pus.	Sharply painful, even when the surface probing (to touch)
The vertical percussion	painful	painful	is painful with an open pulp
The temperature probe	Painful reaction to cold or hot water is stored for a long time with irradiation along the trigeminal nerve	Painful reaction of the tooth settles down on the cold water for 3-5minutes	Sharply painful reaction to cold or hot water
Electroexcitability (from the bottom of the cavity)	20-35 uA	40-50 uA	



# Table: Differential diagnosis of acute pulpitis

Diagnostic Tests	Diagnosis: Hyperemia of the pulp	Diagnosis: Acute pulpitis limited
Anamnesis: the patient survey, the elucidation of complaints, the characteristics of disease	Acute, spontaneous pain lasting 1-2 minutes in the affected tooth, lucid intervals - 6-24 hours. Attacks are worse at night. Pain arises from all the irritant, lasts 1-2 minutes after removing them. Irradiation of the pain is not.	Acute, spontaneous pain lasting 3-10 min, lucid intervals - from 2 hours or more. Attacks are worse at night. Pain arises from all kinds of irritant, slowly settling down after their elimination. Occasionally radiating to the adjacent teeth.
The nature and depth of the cavity, the characteristic of its contents	The cavity within hard and soft dentin. Number of softened dentin due to the nature of the development of caries and its localization.	Deep cavity with a large number of softened dentin near the pulp.
Probing the cavity	Painful in a limited area the bottom of the cavity, the pain persists after probing (short)	Painful at one point, the pain persists after stopped of probe
Vertical percussion of the tooth	painless	painless
The temperature probe	The pain from the cold water, which persists for 1-2 minutes, after removal of the irritant	Painful reaction to cold or hot water, which persists after removal of irritant
Electro excitability (from the bottom of the cavity)	8-12 uA	15-25 uA



## Table: Differential diagnosis of acute pulpitis and other diseases

Clinical signs	Diagnosis: Acute pulpitis	Diagnosis: Acute or aggravated periodontal	Diagnosis: Acute sinusitis	Diagnosis: Neuralgia
The nature of pain	Pain acute, spontaneous, paroxysmal, worse at night and radiates along the branches of the trigeminal nerve	Constant aching pain, aggravated by mechanical action on the tooth(biting)	The constant aching and throbbing pain in the upper jaw, radiating along the branches of the trigeminal nerve	Paroxysmal pain, debilitating, begins spontaneously and abruptly terminated
Factors that provoke pain	Thermal irritant when released into the cavities. After the elimination of their actions and the pain decreases gradually disappears	Touching the teeth, biting causes pain	Can pain when biting teeth that are adjacent to the inflamed sinus, tilt their heads	Mechanical and thermal irritant in the trigger points
Objective clinical symptoms	Probing the bottom of the cavity sharply painful. In acute purulent pulpitis can pain on percussion	Cavity, sensing the bottom safely, sharp pain on percussion, swelling and redness of the mucous membrane of the causative tooth	The feeling of nasal congestion, difficulty breathing through the nose corresponding half of the nose, mucous or purulent nasal discharge	Autonomic manifestations in the form of facial flushing, lacrimation, excessive salivation. Reflex contraction of masticatory muscles
The general condition of the patient	Possible headache fatigue, impaired performance, especially with purulent	Possible headache, fatigue, sleep disturbance and appetite, increased	Fever, weakness, headache which increased by coughing, sneezing, head tilted.	Does not change. During the attack the patient suffering from freezes in a pose, afraid to move, hold his breath or on the contrary, rapid breathing, compresses or stretches the painful area



**The END**