Methodological Recommendations for Pediatric Therapeutic Dentistry for the 4th year students the 8th term

Lviv 2014
Considered and approved by the Methodical Commission (Head - Ogonovsky R.Z., Professor) of the Dentistry Department (protocol № 5, from 14.10.2014)
### PRACTICAL LESSONS
#### Pediatric Therapeutic Dentistry
##### 4th Year, 8th Semester

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### INDEPENDENT WORK
#### Pediatric Therapeutic Dentistry
##### 4th Year, 8th Semester

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PRACTICAL CLASS № 1


Objective: To teach the students to diagnose the different forms of the periapical inflammation of the primary teeth in children.

Specific objective: to learn with students the peculiarities of structure of the periodontium in children, its change in the process of root formation and resorption of the primary teeth; classification of the periapical inflammation, diagnosis, differential diagnostics of an acute and chronic periapical inflammation of the primary teeth.

Pre-study test questions
1. Peculiarities of the structure of the periodontium in children.
2. Function of the periodontium.
3. Anatomical and physiological changes in the periodontium during the root formation and resorption of the primary teeth in children.
4. Types of physiologic root resorption in primary teeth.
5. Types of pathologic root resorption in primary teeth.

Contents of the class
Definition: periapical inflammation (apical periodontitis) is usually due to spread of infection following death of the pulp.

Etiology. The nature and behavior of lesions that form at the apex of the tooth are a reflection of the conditions that lead to the destruction of the pulp of the associated tooth.

Causes of apical periodontitis:
- infection
- trauma
- chemical irritation
- immune factor/ immunifaction.

I. Infection
1. Dental caries: Dental plaque → Dental caries → Pulpitis → Apical periodontitis
2. Periodontal pocket: the necrotic pulp probably becomes infected by bacteria from the gingival margins, leading to apical periodontitis.
3. Systemic infection (rare).

II. Trauma
1. The pulp sometimes dies from a blow which damage the apical vessels.
2. during endodontic treatment, instruments may be pushed through the apex or side of the root, damaging the periodontal membrane and carryng infected debris from the pulp chamber into the wound.
3. A high filling or biting suddenly on a hard object, sometimes caused an acute but usually transient periodontitis.
4. Oclusal trauma and orthodontic lead to trauma.

III. Chemical irritation:
1. Irritant antiseptics used to sterilize a root canal can escape through the apex and damage the surrounding tissue.

2. A root-canal filling may also extend beyond the apex with similar effect.

3. Devital materials.

**Clinic of the periapical inflammation of the primary teeth.** The most often the chronic granulating periapical inflammation and the exacerbation of the chronic periapical inflammation are observed in the primary teeth in children.

Clinics. In most cases the pathological process is characterized by the absence of pain symptoms. The child primarily complains for the presence of a fistula (possibly with pus allocation), a carious cavity and the tooth's color change. In case of chronic granulating periapical inflammation the carious cavity is located within the parapulpar dentine. Though, it can also be located in the mantle dentine. These clinical features are caused by an acute course of caries in deciduous teeth and imperfect protective function of pulp (during the root growth and resorption periods in particular). That leads to rapid infection spread in periodontium.

Probing of the carious cavity bottom is painless in case of chronic granulating periapical inflammation. Reaction to thermal irritation is absent; tooth percussion is painless or slightly painful. Absence of pain during preparation of the enamel-dentine junction indicates on pulp destruction and development of the inflammation process in periodontium. Probing of the carious cavity bottom, its connection with the pulp chamber and orifices of root canals is painless in case of periapical inflammation in deciduous teeth. Sometimes, probing may be accompanied by insignificant pain and bleeding as a result of granulating tissue ingrowth into root canals and pulp chamber, especially during the root growth and resorption periods.

In most cases a fistula with growing granulations and purulent excretion is defined on the gingival mucosa in the projection of root apexes or bifurcation of the affected tooth. If there is no fistula, the gingival mucosa is pastose and it has a cyanotic coloring in the sick tooth area.

A destructed alveolar cortical plate and an enlightenment of bone tissue with indistinct contours are defined radiologically in the area of molars' bifurcation and roots apices. Pathological tooth resorption and perforation of the pulp chamber bottom in the bifurcation area are often observed. Destruction of a cortical plate in a permanent tooth follicle occurs in case of the pathological process extension to the permanent tooth germ.

Chronic granulating periodontitis in deciduous teeth should be differentiated with the following diseases:

— chronic moderate caries; it is characterized by pain during preparation of the enamel-dentine junction;

— chronic fibrous and gangrenous pulpitis; in this case probing of an exposed pulp horn and root canal orifices is accompanied with an acute pain reaction; there are no radiological changes;

— pulpitis, complicated with a focal periodontitis; probing of a disclosed pulp horn provokes acute pain and bleeding.

In case of chronic periapical inflammation segments of bone tissue destruction in the periapical and in the bifurcation area are defined radiologically.

There are next differential-diagnostic features of chronic granulating periapical inflammation: presence of a fistula with purulent excretion and grown granulations on the swell, hyperemic gingival mucosa in the area of a pathological process; destructive changes in the periapical and bifurcation area of the affected tooth (radiologically defined), and the absence of pain during preparation of the enamel-dentine junction.
Chronic fibrous periapical inflammation is practically not diagnosed in deciduous teeth. Chronic granulomatous periapical inflammation is very rare in deciduous teeth. It may develop in the root stabilization period of deciduous tooth development.

Aggravation of chronic periapical inflammation in deciduous teeth is the second frequent disease.

Clinics. Patients complain on a constant pain which increases gradually, especially during biting on the causative tooth. Children refuse food. In case of purulent inflammation and acute periosteal reaction the patients' general condition worsens rapidly due to fever and general intoxication. Parents notice the following features: facial skin paleness; weakness; headache; disturbed sleep and appetite. An objective examination defines a carious cavity of varying sizes or a filling in the causative tooth. Pulp chamber can be closed or exposed. A purulent exudate can appear during the cavity exposure. The tooth is mobile due to the exudate accumulation in periodontium.

The gingival mucosa in the affected tooth area is hyperemic, swell and painful during palpation. In case of periosteal reaction development, smoothness of a mucobuccal fold is defined near the causative tooth and the adjacent teeth; the fold is painful during palpation. Sometimes a scar from fistula can be noticed on the modified mucosa. Regional lymph nodes are enlarged, dense, and painful during palpation.

Radiologically bone tissue destruction area with indistinct contours can be detected in periapical and bifurcation areas in case of aggravation of chronic periodontitis.

Aggravation of chronic periodontitis in deciduous teeth should be differentiated with an acute diffuse pulpitis complicated with a perifocal periodontitis. In case of the second one the tooth reacts on thermal irritation; pulp chamber is exposed and accompanied with an acute pain and bleeding; the radiogram shows destructive changes in periodontium.

Acute toxic periapical inflammation in deciduous teeth can develop as a result of an arsenic paste application for pulp devitalization, or the use of strong antisepsics of phenol group (phenol, camphorated phenol, tricresol, pheresol, resorcin and aldehydes (formalin) for the root canals obturation, especially during the root growth/resorption periods.

Acute traumatic periapical inflammation in deciduous teeth may result from an acute injury (bruise, blow), as well from the errors made by a dentist during endodontic manipulations.

Acute infectious periapical inflammation develops as a perifocal process in periodontium in case of serous or purulent diffuse pulpitis in deciduous teeth.

Clinical manifestation of acute periodontitis and aggravated chronic periapical inflammation in deciduous teeth are very similar. Patients complain of a continuous pain in a causative tooth; the pain reinforces at biting or touching it with a tongue. The tooth may be intact in case of an acute trauma or it may have a carious cavity. In case of acute toxic periodontitis pulp chamber is partially or completely disclosed. Acute pain from vertical percussion is the main clinical feature.

The gingival mucosa in the causative tooth area is swell and hyperemic. Features of regional lymphadenitis are not defined in most patients; however, there is insignificant hyperadenosis and soreness at palpation in some children.

There are no radiological changes in periodontium. Acute periodontitis should be differentiated with the aggravation of a chronic periodontitis, basing on the history data, as well as the radiological examination results (presence of destructive changes in periodontium and bone tissues).
Chronic periapical periapical inflammation can lead to the following complications:

- expansion of the pathological process on the permanent tooth follicle which can cause its death;
- infication of the permanent tooth follicle on the early stages of its mineralization can cause the local enamel hypoplasia formation;
- spreading of the inflammatory process on the follicle can cause its death, and as the result the sequestration of follicle can occur;
- the long lasting chronic periapical inflammation can lead to the changes of the permanent tooth follicle location which clinically is observed as oral or vestibular tooth location after the tooth eruption or torsivertion;
- destroying of the bone between primary tooth and permanent follicle due to expansion of the granulated tissue can cause the prematurely tooth eruption with low level of the enamel mineralization and risk of caries development;
- premature primary tooth extraction caused by chronic periapical inflammation, especially during the period of the root formation and at the beginning of their stabilization can lead to the permanent tooth retention, delaying of its eruption and formation of the orthodontic anomalies;
- expansion of the chronic inflammatory processes on the adjacent follicle in some causes follicular cyst formation.

**Comprehension control**

1. Peculiarities of the clinical course of the acute infectious periapical inflammation of the primary teeth.
2. Peculiarities of the clinical course of the acute toxic periapical inflammation of the primary teeth.
3. Peculiarities of the clinical course of the acute traumatic periapical inflammation of primary teeth.
4. Ways of spreading of the exudate at the acute periapical inflammation.
5. Peculiarities of the clinical course of chronic fibrous periapical inflammation of the primary teeth.
6. Peculiarities of the clinical course of chronic granulating periapical inflammation of the primary teeth.
7. Peculiarities of the clinical course of the chronic granulomatous periapical inflammation of the primary teeth.
8. Symptoms of the chronic periapical inflammation at stage of exacerbation at period of root formation, stabilization and resorption.
9. Differential diagnostics of the acute, chronic periapical inflammation and exacerbation of periapical inflammation.
10. Influence of the periapical inflammation on the general state of the child organism.

**Test control**

1. An 11-year-old boy does not have any complaints. During an examination a large carious cavity connected with the tooth cavity was found in the 46 tooth. Percussion of the tooth is painless. The mucous membrane in the projection of the root apexes of the 46 tooth without the change. probing of the root canal opening is painless. What is the provisional diagnosis?
   A. Chronic periapical inflammation
B. Acute periapical inflammation
C. Chronic pulpitis
D. Chronic deep caries
E. Chronic medium caries

2. A patient complains of continuous, gnawing pain in the 26 tooth which increases during chewing. On the X-ray of the 26 tooth the focus of the bone destruction in the apexes of mesiobuccal root is observed looking as the "tongues of flame". What is the most probable diagnosis?
   A. Exacerbation of chronic granulating periapical inflammation
   B. Exacerbation of chronic gangrenous pulpitis
   C. Chronic fibrous periapical inflammation
   D. Chronic granulomatous periapical inflammation
   E. Chronic granulating periapical inflammation

3. A 7-year-old boy, complaints of the presence of a ruined tooth in the lower jaw. Objectively; 2/3 of the crown of the 75 tooth is destroyed; the decayed cavity is connected with the cavity of the tooth, reaction to cold and probing is painless, percussion is painless too. On a mucous membrane in the area of projection of the root is cicatrix from fistula. On X-ray; the destruction area is near bifurcation with unclear contours. Make a diagnosis.
   A. Chronic granulating periapical inflammation
   B. Chronic fibrous periapical inflammation
   C. Chronic gangrenous pulpitis
   D. Chronic granulomatous periapical inflammation
   E. Chronic fibrous pulpitis

4. A 9-year-old child complains of toothache during eating in a lower left molar. On mesial contact and masticatory surfaces of the 85 tooth there is a deep carious cavity that is connected with the cavity of the tooth. During probing of the connection there is a sharp pain and moderate bleeding. Percussion of the tooth is slightly painful. On the X-ray of the 85 tooth in the bifurcation area and near the root apexes there are areas of bone tissue rarefaction with unclear contours, their uneven resorption is observed. What is the most probable diagnosis?
   A. Pulpitis complicated by periapical inflammation
   B. Chronic granulating periapical inflammation
   C. Chronic fibrous pulpitis
   Aggravation of chronic periapical inflammation
   E. Chronic gangrenous pulpitis

5. An 11-year-old boy, does not have any complaints. Objectively in the 46 tooth there is a large carious cavity connected with the cavity of the tooth. Percussion of the tooth is painless. Mucous membrane in the area of projection of the root apexes of the 46 tooth is without any changes. Probing of the root canal opening is painless. What is the provisional diagnosis?
   A. Chronic periapical inflammation
   B. Chronic deep caries
   C. Acute periapical inflammation
   D. Chronic medium caries
   E. Chronic pulpitis

6. A 14-year-old boy complaints of toothache that increases during eating. Objectively; in the 36 tooth there is a deep carious cavity which is not connected with the cavity of the tooth. Reaction to a thermal irritant and probing are painless. Percussion causes a sharp pain. On the X-ray; no changes. Make a diagnosis.
A. Acute serous periapical inflammation
B. Acute purulent pulpitis
C. Acute diffus pulpitis
D. Acute purulent periapical inflammation
E. Exacerbation of chronic periapical inflammation

7. An 11-year-old boy does not have any complaints. During the examination a large carious cavity connected with the tooth cavity was found in the 46 tooth. Percussion of the tooth is painless. The mucous membrane in the projection of area the root canal opening is pinless. What is the provisional diagnosis?
   A. Chronic periapical inflammation
   B. Chronic deep caries
   C. Acute periapical inflammation
   D. Chronic pulpitis
   E. Chronic medium caries

8. An 11-year-old boy does not have any complaints. During the examination a large carious cavity connected with the tooth cavity was found in the 46 tooth. Percussion of the tooth is painless. The mucous membrane in the projection the root apexes area of the 46 tooth without changing. Probig of the root canal opening is painless. What is the provisional diagnosis?
   A. Chronic periapical inflammation
   B. Acute periapical inflammation
   C. Chronic medium caries
   D. Chronic pulpitis
   E. Chronic deep caries

9. An 11-year-old boy does not have any complaints. During the examination a large carious cavity connected with the tooth cavity was found in the 46 tooth. Percussion of the tooth is painless. The mucous membrane in the projection the root apexes area of the 46 tooth without changing. Probig of the root canal opening is painless. What is the provisional diagnosis?
   A. Chronic periapical inflammation
   B. Acute periapical inflammation
   C. Chronic medium caries
   D. Chronic pulpitis
   E. Chronic deep caries

10. A patient complains of acute permanent pain that increases at the touch to the tooth on the lower jaw in the left, feeling of growth tooth. Before that there was a causeless acute pain that increased from cold. On the X-ray: without changes. What is the most probable diagnosis?
    A. Acute purulent periapical inflammation
    B. Acute serous periapical inflammation
    C. Exacerbation of chronic pulpitis
    D. Exacerbation of chronic pulpitis
    E. Acute purulent pulpitis

**Recommended literature**
PRACTICAL CLASS № 2


Objective: To teach the students to diagnose the different forms of the periapical inflammation of the primary teeth in children

Specific objective: to learn with students the peculiarities of structure of the periodontium in children, its change in the process of root formation of the permanent teeth; classification of the periapical inflammation, diagnosis, differential diagnostics of an acute and chronic periapical inflammation of the permanent teeth.

Pre-study test questions

7. Function of the periodontium.
8. Anatomical and physiological changes in the periodontium during the root formation of the permanent teeth in children.
9. Classification of the periapical inflammation.

Contents of the class

Acute periapical inflammation in permanent teeth in children usually develops as a result of acute dental trauma (blow, falling) or is a consequence of errors in endodontic treatment of pulpitis. Development of acute toxic periodontitis, especially in teeth with immature roots, is caused by the use of pastes containing arsenic for pulp devitalization. It can also be caused by the use of the fenol group of medications (phenol, camphorated phenol, tricresol, pheresol, resor-cin) and aldehydes (formalin) for antiseptic processing and filling of root canals. Acute periodontitis of infectious genesis in permanent teeth in children often begins as a perifocal process in case of acute diffuse and purulent pulpitis.

Clinics of acute serous periodontitis. Patients complain of constant increasing pain in the causative tooth and a feeling of «an evolved tooth». The pain increases at biting, therefore children practically do not use the affected side during meal. The patients' general condition does not change much.

Clinics of acute purulent periodontitis is characterized by a constant intensive throbbing
pain. Even a slight touch with tongue or a tooth-antagonist provokes an acute pain; therefore patients keep their mouths half-opened. Hypersalivation is possible. Pus expansion under periostenum may relief pain.

The patients' general condition worsens owing to fervescence and intoxication development. Other symptoms include general asthenia, headache, and sleep and appetite disturbance.

Objectively, the tooth may be intact, treated before or it may have a caries cavity which is not connected with the pulp chamber. An intensive constant pain, increasing at vertical and horizontal percussion, is the main clinical feature. Diffuse expansion of the process causes pain at the adjacent teeth's percussion.

The gingival mucosa in the inflammation segment is brightly hyperemic, swell and painful at palpation. As a result of purulent exudate expansion under periostenum, an abscess is formed; it is characterized by a flattened mucosa fold in the causative tooth area, painful palpation, and, sometimes, a fluctuation symptom.

In a number of cases the acute purulent periodontitis causes facial asymmetry due to collateral edema of soft tissues. Submandibular lymph nodes are enlarged, dense, and painful at palpation.

Chronic infectious periodontitis in permanent teeth is the most frequent periodontium disease in children. Chronic inflammation in periodontium can start as a result of acute inflammation; however, in teeth with immature roots it is more frequent as a primarily chronical process. Granulating form is the most common form of chronic periodontitis in permanent teeth in children, especially at the root formation stage.

**Chronic granulating periodontitis** is the most widespread form of chronic periodontitis in children.

**Clinics.** As a rule, chronic granulating periodontitis develops without pain symptoms. Children visit a dentist with complaints on a tooth color change, or presence of a fistula with purulent excretion. The doctor defines a filling or a carious cavity in the causative tooth during the objective examination. Probing of the carious cavity bottom is painless. The probing can often detect a painless connection with the pulp chamber.

In case of chronic granulating periodontitis in permanent teeth with underdeveloped teeth an ingrowth of granulating tissues into the root canals from the periapical destruction segment is often observed. In this case deep probing is slightly painful and is accompanied by bleeding. Fistula is the main clinical feature of this form of chronic periodontitis in permanent teeth in children. Gingival mucosa is slightly swell and congestively hyperemic; it has cyanochroic coloring. The granulating form of chronic periodontitis in permanent teeth in children may be accompanied with regional lymphadenitis.

Development of chronic granulating periodontitis in immature permanent teeth is complicated with destruction of the growth zones and termination of further root formation.

**Radiologically** chronic granulating periodontitis is characterized by destruction of an alveolar cortical plate and presence of a resorption (enlightening) area with indistinct contours in a spongiose bone tissue in the periapical root area. Bone tissue destruction can also be observed in the bifurcation area of permanent molars owing to: penetration of infection and the pulp destruction products via additional canaliculi of the pulp chamber bottom (especially in immature teeth); or the pathological process diffusion from the periapical area.

The radiological picture of chronic granulating periodontitis in immature permanent teeth should be differentiated with and intact growth zone. Integrity of the cortical plate around the growth zone (enlightenment segment of the bone tissue), indicates on the absence of pathological process in this area. Chronic granulating periodontitis in permanent teeth in children should be differentiated with chronic deep caries, chronic fibrous and gangrenous pulpitis, and pulpitis complicated by a focal periodontitis.

The final diagnosis of chronic granulating periodontitis should be based on the following data: clinical examination (fistula with granulations and purulent excretion; fistula scar; swell
and hyperemic gingival mucosa; tooth color change), and the radiological results (alveolar cortical plate destruction; bone tissue resorption area with indistinct contours).

**Chronic granulomatous periodontitis** in permanent teeth in children occurs predominantly in the period of completely developed roots.

The granuloma is tightly connected with the tooth root. The granuloma center contains fibroblasts, lymphocytes, plasmocytes and tissue basophils located randomly. Most granulomas contain single epithelial cells or their cords. The bone tissue around the capsule is dense, thus the lesion center has distinct contours on the radiogram.

**Clinics.** Chronic granulomatous periodontitis in permanent teeth in children is predominantly has symptomless clinics. However, some patients may complain of unpleasant sensations at applying pressure on the causative tooth, and its color change. The tooth may be intact (in case of traumatic periodontitis), filled or it may have a carious cavity communicated with the pulp chamber. Probing of a cavity bottom, its communication with the pulp chamber and the root canal orifices is painless. The tooth percussion is painless; there is no reaction to thermal irritants.

The diagnosis of chronic granulomatous periodontitis is based on radiological examination results. Destruction the alveolar cortical plate and a dissolved bone tissue area of a round or oval shape with distinct contours (5 mm in diameter) is observed in the root apex area.

Chronic granulomatous periodontitis in children should be differentiated from the growth zone of intact immature teeth. Radiological features of the growth zone: integrity of the alveolar cortical plate around the growth zone; regular width of the periodontal fissure near the developed root part.

**Chronic fibrous periodontitis** in permanent teeth in children is rarely diagnosed as compared to other forms of chronic periodontitis. It is characterized by formation of a coarse-fibered connective tissue in the apical root part. This tissue replaces periodontium. Some authors interpret these periodontium changes as fibrosis and do not consider the process as inflammation.

Fibrous periodontitis can develop in permanent teeth with formed roots as a result of an acute periodontium inflammation, more often — of traumatic origin. Sometimes fibrous periodontitis is observed in teeth treated for pulpitis before, or as a favorable outcome of an effective treatment of other chronic periodontitis forms (granulating, granulomatous).

**Clinics**, fibrous periodontitis is characterized by a symptomless course, complaints of pain are absent. Objectively: the tooth is intact (in case of traumatic origin), or filled; more rarely — a carious cavity is detected. Percusion is painless. The radiogram shows a deformation of the periodontal fissure as an uneven expansion or narrowing in the hypercementosis zones.

The radiological semiology of fibrous periodontitis is similar to features of teeth with immature roots.

At the stage of open apical foramen and immature periodontium, the periodontal fissure is dilated, especially in the root apical part. For the final diagnosis it is necessary to consider the child's age and the duration of root growth in various groups of teeth.

**Aggravation of chronic periodontitis** in permanent teeth with immature roots in children is much more often diagnosed than its acute course.

**Clinics** of the chronic inflammation process’ aggravation is similar to that of acute periodontitis. The following clinical features are used for differential diagnosis of the aggravation: changed color of the tooth; presence of a functioning fistula or its scar; carious cavity connection with the pulp chamber, mainly in teeth with mature roots.

The history may include previous aggravations of the pathological process.

The aggravated course is characterized by the following radiological features: destruction of the alveolar cortical plate; presence of the bone resorption area with indistinct contours and deformation of the adjacent periodontal fissure.

**Comprehension control**
11. Peculiarities of the clinical course of the acute infectious periapical inflammation of the permanent teeth.
12. Peculiarities of the clinical course of the acute toxic periapical inflammation of the permanent teeth.
13. Peculiarities of the clinical course of the acute traumatic periapical inflammation of the permanent teeth.
14. Ways of spreading of the exudate at acute periapical inflammation.
15. Peculiarities of the clinical course of the chronic fibrous periapical inflammation of the permanent teeth.
16. Peculiarities of the clinical course of the chronic granulating periapical inflammation of the permanent teeth.
17. Peculiarities of the clinical course of the chronic granulomatous periapical inflammation of the permanent teeth.
18. Symptoms of the chronic periapical inflammation at stage of exacerbation at stage of root formation and stabilization of the permanent teeth.
19. Differential diagnostics of the acute, chronic periapical inflammation and exacerbation of periapical inflammation of the permanent teeth.
20. Influence of the periapical inflammation on the general state of the child organism.

**Test control**

1. The chronic granulating periapical inflammation was diagnosed in a 14-year-old child. Which probable complaints did the child have at this disease?
   - A. Discomfort and aching pain in the tooth
   - B. Permanent throbbing pain
   - C. Pain caused by chemical stimuli
   - D. Pain caused by thermal stimuli
   - E. Short-lasting throbbing pain

2. In a 12-year-old child, the roentgenologic examination should be conducted for an accurate diagnosis. Which roentgenologic picture is specific for chronic granulomatous periapical inflammation of the 41 tooth?
   - A. Dissolving of bone tissue of a round shape with distinct contours
   - B. Presence of a resorption area with indistinct contours
   - C. No changes
   - D. Expansion of periodontal gap
   - E. Bone sequestration

3. A 14-year-old girl complains of the presence of the carious cavity. Objectively: there is a big cavity in the 26 tooth, which is connected with pulp chamber, the response to thermal and chemical stimuli is negative, percussion is painless. In the X-ray, expansion of periodontal gap in the area of the palatal root apex. Define the diagnosis.
   - A. Chronic fibrous periodontitis
   - B. Chronic granulomatous periodontitis
   - C. Chronic granulating periodontitis
   - D. Aggravation of chronic periodontitis
   - E. Acute serous periodontitis

4. A 7-year-old child had a trauma of upper central incisors 6 months ago. The parents didn't take him to a dentist. A week ago the mother saw a fistula in the area of these injured teeth. What is the most probable diagnosis?
   - A. Chronic granulating periapical inflammation
   - B. Chronic granulomatous periapical inflammation
C. Chronic fibrous periapical inflammation  
D. Aggravation of chronic periapical inflammation  
E. Chronic marginal periapical inflammation  

5. An 11-year-old boy does not have any complaints. During the examination a large carious cavity connected with the tooth cavity was found in the 46 tooth. Percussion of the tooth is painless. The mucose membrane in the projection of the area the root apexes of the 46 tooth without the change. Probing of the root canal opening is painless. What is the provisional diagnosis?  
A. Chronic periapical inflammation  
B. Acute periapical inflammation  
C. Chronic pulpitis  
D. Chronic deep caries  
E. Chronic medium caries  

6. A patient complains of permanent, aching pain in the 26 tooth which increase during chewing. In the X-ray of the 26 tooth - the bone destruction in the apexes of the mesiobuccal root is observed ("tongues of flame"). What is the most probable diagnosis?  
A. Aggravation of chronic granulating periapical inflammation  
B. Aggravation of chronic gangrenous pulpitis  
C. Chronic fibrous periapical inflammation  
D. Chronic granulating periapical inflammation  
E. Chronic granulomatous periapical inflammation  

7. A dentist used X-ray as a additional method of accurate differential diagnosis of pulputis and periapical inflammation of the 26 tooth. It revealed that the tooth is at the stage of formed root and periodontium. How many stages of root development do you know?  
A. 5  
B. 6  
C. 4  
D. 3  
E. 7  

8. After subjective, objective and additional examination, the dentist mistakenly wrote "acute fibrous periodontitis" in the graph of diagnosis. Which of these forms is referred to an acute form of periodontitis?  
A. Purulent  
B. Granulating  
C. Granulomatous  
D. Fibrous  
E. Gangrenous  

9. An 11-year-old girl appealed to a dentist with complaints of constant aching pain in the 22 tooth and feeling of "growth tooth". These symptoms appeared yesterday. Which of these forms of periapical inflammation is characterized by such complaints?  
A. Chronic fibrous periapical inflammation  
B. Chronic granulating periapical inflammation  
C. Chronic granulomatous periapical inflammation  
D. Chronic fibrous periapical inflammation  
E. Acute purulent periapical inflammation
10. The patient complains of acute pain of the 16 tooth, feeling of "growth tooth". The pain appeared 3 days ago. The tooth did not disturb before. Objectively: submaxillary lymph nodes are enlarged, painless during palpation. The vestibular fold in the area of the projection of roots apexes of the 16 tooth is hyperemic, painful. The vertical and horizontal percussion of the tooth is severely painful. The reaction to temperature stimuli is absent. EOD=150 mkA. On the X-ray: the periodontal sulcus hasn't the expressed pathological changes. What is the most probable diagnosis?

A. Acute purulent periapical inflammation  
B. Acute serous periapical inflammation  
C. Acute diffuse pulpitis  
D. Exacerbation of the chronic periapical inflammation  
E. Chronic fibrous periapical inflammation

**Recommended literature**