

Topic of lecture: Acute and chronic, odontogenic and nonodontogenic maxillofacial lymphadenitis in children. Boils and carbuncles of the face. Specific inflammatory diseases: actinomycosis, tuberculosis, syphilis. AIDS and HIV infection: manifestations in children maxillofacial. Odontogenic and nonodontogenic maxillofacial abscesses. Odontogenic and nonodontogenic maxillofacial phlegmons in children.

1. The goal of the lecture:

a) educational - To teach the students diagnostics and differential diagnostics of the acute and chronic lymphadenitis in children, methods of complex treatment and indications to it, complex post-discharge surveillance. To teach students diagnostics and differential diagnostics of abscesses and phlegmons in children using the complex treatment methods and rehabilitation. To teach the clinical course of furuncles (carbuncles), their development stages and appropriate methods of treatment, complications that result from furuncles, the ways of their management and prevention. To teach the students diagnosis, peculiarities of clinical development and differential diagnosis of actinomycosis, tuberculosis, AIDS and HIV-infection.

b) pedagogical - On a base of materials of lectures to form the concept of the necessity of knowledge about features of the structure of the maxillofacial region tissues in children in different periods of development and their relationship with the features of the clinical manifestation of the odontogenic and nonodontogenic maxillofacial lymphadenitis, boils, carbuncles, maxillofacial phlegmons and abscesses of the face. To form the algorithm of their diagnostic, treatment and prevention of complications.

2. The methodological, general education and professional orientation of the lecture.

Lymphadenitis is an acute or chronic inflammation of the lymph node which is often accompanied with lymphangitis. The lesion of the lymph nodes is usually that of the secondary origin, a consequence of the inflammatory process developing in the maxillofacial area. According to the data of our clinic, the morbidity of lymphadenitis ranges from 6 to 21.3% of all patients of the maxillofacial department. A morbidity peak of odontogenic abscesses and phlegmons happens to children at the age of 7-12 years, during high intensity of caries lesion of the temporary teeth and the first permanent molar. Abscesses and phlegmons diseases incidence increases during summer or autumn. Actinomycosis is an infectious disease which may be caused by penetration of actinomycetes into the human body. The disease may affect all tissues and organs but more often it affects (80-85% of all cases) the facial- mandibular area. Furuncles (carbuncles) account for 10% of the total number of the maxillofacial area inflammatory diseases that occur in children. 30% of children and 64 % of adults are afflicted by furuncles on the face.

Due to volumetric and flabby subcutaneous fat and a branched net of blood vessels, lymphoid tissue in children, inflammatory processes in the maxillofacial region involving furuncles tend to spread. Therefore, if to take into consideration the immune system immaturity and dermal physiological peculiarities one can understand the topicality of this problem.

The actinomycosis of the facial- mandibular area (actinomycosis regions faciei) is rarely observed in children – 3.3-6.3% of all cases, it often affects those of 7-12 years. Tuberculosis is a chronic infectious disease caused by mycobacterium tuberculosis. Tuberculosis is a transmissible disease. For the past years tuberculosis of the jaws, facial tissues and oral cavity is rarely observed. The tuberculosis of the peripheral lymphatic

nodes in children makes up to 30% of all active forms of non-pulmonary tuberculosis. It usually affects lymphatic nodes of the neck (40%), supraclavicular (18%) and submandibular nodes (12%).

8. Content of lectures

8.1. Preparatory stage.

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Aims: - On a base of materials of lectures to form the concept of the necessity of knowledge about features of the structure of the maxillofacial region tissues in children in different periods of development and their relationship with the features of the clinical manifestation of the odontogenic and nonodontogenic maxillofacial lymphadenitis, boils, carbuncles, maxillofacial phlegmons and abscesses of the face. To form the algorithm of their diagnostic, treatment and prevention of complications.

Plan:

1. Anatomical physiological mechanisms of the maxillofacial development in children of any age, diagnostically peculiarities of the odontogenic and nonodontogenic maxillofacial lymphadenitis, boils, carbuncles, maxillofacial phlegmons and abscesses of the face.
2. Clinical picture of the odontogenic and nonodontogenic maxillofacial lymphadenitis, boils, carbuncles in children.
3. Classification of the odontogenic and nonodontogenic maxillofacial lymphadenitis, boils, carbuncles in children.

4. Clinical picture of maxillofacial phlegmons and abscesses of the face in children.
5. Treatment of maxillofacial phlegmons and abscesses of the face in children.
6. The scheme of the general management of inflammation of maxillofacial soft tissues in children.
7. The consequences, possible complications of inflammation of maxillofacial soft tissues in children and their treatment.

8.2. Basic stage

There are superficial and deep lymph nodes which are situated in the head and neck region. Among them it is possible to determine the buccal, parotid and submandibular nodes, those, located near the internal ocular angle, subocular orifice, in the upper part of the nasolabial sulcus, under the buccal muscle (the line which connects the oral angle with the auricle). The submandibular lymph nodes are situated on the external surface of the mandible and on the exterior area of attachment. The parotid superficial lymph nodes are situated in front of the external acoustic duct, under the fascia parotidomasseterica. The deep lymph nodes are situated between the particles of the parotid salivary gland on the level of the ear flap. The lymph nodes are covered with a parotid gland behind the angle of the mandible. The postotic lymph nodes are situated in the area of the mastoid process. The submandibular lymph nodes (anterior, medial, posterior) are located below the jaw angle, in the bed region of the submandibular salivary gland. The submental lymph nodes are situated in a triangle between the anterior part of the m. digastricus and sublingual bone. The lingual lymph nodes are situated inside it.

A child has 4-6 times more lymph nodes than an adult, the majority of these nodes atrophy with age to be substituted with a fat tissue.

2. Etiology, pathogenesis and classification of lymphadenitis.

The odontogenic inflammatory processes in the maxillofacial area can cause infection penetration into the appropriate regional lymph nodes (submandibular, submental, buccal, parotid, and cervical) which may lead to symptomatic lymphadenitis.

The nonodontogenic lymphadenitis can be classified into the stomatogenic, rhinogenic, otogenic, and other symptomatic lymphadenitis. The inflammation of the lymph nodes may develop after children infections.

The causative agent is a nonspecific pyogenic microflora (94% of all cases-staphylococcus) there occur lymphadenitis caused by virus and specific flora.

Pathogenesis.

The regional lymph nodes filter the lymph flowing back from the appropriate tissues. During this process the bacteria, toxins, foreign bodies and products of their decay may stay in the lymph nodes. This is related to the biological fixation mechanisms. The microorganisms stay in the reticulo-endothelial cells which line the nodular sinuses, in which phagocytosis occurs. The virulence of the causative agent decreases. If no complete destruction of microorganisms occurs, they may adapt to the environment and start multiplying. Their number may reach the critical data, at which a local inflammatory process is initiated.

The antigens which are delivered with the lymph and released at microorganism death are taken by the macrophages of the medullary substance sinuses and fixed on

the dendrites of the cortex substance. Then proliferation of the plasmatic cells occurs, and these cells may directly participate in the synthesis of antibodies.

Also the lymph nodes produce serum proteins and lymphocytes important for formation of the humoral and cellular immunity. If these factors in combination don't cause complete microflora destruction, an infectious focus is to appear.

The immunity may be weakened for the stress action of the acute infection, supercooling, overheating, and penetrating radiation, muscular or emotional overexertion.

The lymph nodes are characterized by the following functions: the barrier one, protective, immunologic, haemopoetic and metabolic.

L.O. Vishnevetska (1933) offered the following scheme of human lymph nodes evolution:

1. Embryonic stage – it is characterized with accumulation of the cellular elements (endothelial, reticular and lymphocyte);

2. From birth till 3-4 years (lymphoid stage) there is focal cellular accumulation with prevalence of the lymphocyte cells.

3. From 4 till 12 years there occurs formation of the capsulas and trabeculas e.g. complete structural formation of the lymph node as organs.

The lymph nodes are insufficiently developed in the newborns and infants; they cannot perform the barrier function. This is why these children don't get ill with lymphadenitis. At 3-5 years the lymph nodes contain new cellular elements unable to produce the complete phagocytotic reaction. For this reason we may observe the compensatory increase of lymph nodes number, and they are able to detain the germs but are easily infected and inflamed. It is this age that the lymphadenitis and adenophlegmon may be most frequently observed, 42-60%.

In the children of this age period the lymphatic system is developed better than in the adults. Their lymph nodes are large, and their number is high. The tooth germ is surrounded with a ring of the lymph vessels which may form anastomosis with the lymph vessels of the bone and periosteum. This peculiarity of the lymphatic system of children provide for high morbidity of the lymph nodes inflammation.

Nonodontogenic lymphadenitis prevail in the 7-year old children, odontogenic processes – in older children. There may occur actinomycotic lymphadenitis. Lymphadenitis may also occur after the influenza, infectious mononucleosis and children infections. Almost half of the patients have undetermined localization of the primary infectious focus.

Classification of the maxillofacial and cervical lymphadenitis.

According to the development and causative agent there are such groups of lymphadenitis:

1. Nonspecific

1. Acute:

- serous;

- purulent.

2. Chronic

- purulent;

- hyperplastic;

- exacerbated chronic.

2. Specific

According to the primary infectious focus we may determine:

1. odontogenic
2. Nonodontogenic lymphadenitis
 - tonsillogenic;
 - rhinogenic;
 - otogenic;
 - dermatogenic;
 - traumatic.

According to the depth:

- deep;
- superficial.

According to the topographic-anatomic sign:

1. Submental.
 2. Submandibular.
 3. Perimandibular.
 4. Buccal
 5. Parotid
 - 6 Extramandibular
3. Clinical picture, diagnostics and development of lymphadenitis in children.

Clinical picture of lymphadenitis in children.

The most common are the submental lymphadenitis. The nonodontogenic lymphadenitis usually develops by 6 years of child's age. The younger the child is, the more rapidly clinical signs will be manifested and the more severe its development will be. Somatic condition of the child also influences the disease development.

Acute lymphadenitis.

Slight traumas of the gingival tissues and puffy mucosa are the conditions for infection to penetrate the lymphatic system at no apparent causes present. The initial stage of acute lymphadenitis is characterized by dilation of the vessels, swelling and cellular infiltration of the lymph nodes tissues, because of what it may quickly increase in size. The serous inflammation quickly develops into the purulent one, which is characterized by the necrosis of the lymphoid-reticular tissue, which further will be enzymatically fused with a cavity to be formed. The periadenitis signs appear. The fusion of the lymph node capsule provides for spread of the infectious inflammatory process over its borders.

Imperfect tissue barrier leads to the quick development of one nosologic form of the disease into another one: serous lymphadenitis – purulent lymphadenitis- periadenitis- adenophlegmon. The general reaction in children may go ahead the local inflammatory signs.

Acute serous lymphadenitis.

A child complains about the appearance of a painful “ball” under the skin in one of the anatomic areas. A trauma, various inflammatory processes or operative interventions may frequently precede it. The general condition of a child is satisfactory. Body temperature is normal or subfebrile. The haematological and biochemical data are normal.

The affected lymph node is contoured as a small round swelling. The skin under it is without changes, producing a fold. Palpation helps to determine the mobile,

slightly painful oval malformation of elastic consistency, 2-3 cm in diameter. If the submandibular lymph nodes are affected, a patient may complain of painful swallowing, parotid nodes – pain if the patient opens his mouth widely. It is possible to detect the odontogenic infection focus in the oral cavity (periodontitis, alveolitis, periostitis, etc.). The infection may be located on the skin, mucosa, and tonsillar pillars at nonodontogenic lymphadenitis.

The acute serous lymphadenitis in children (especially small children) may quickly develop into the purulent form (in 2-3 days).

If the serous inflammation doesn't develop into the purulent process, the nodes will decrease in size and become less painful at palpation. In 2-3 weeks they will obtain their usual shape and consistency.

Acute purulent lymphadenitis.

There appears throbbing pain in the affected lymph node area, explained for the formation of an abscess in a relatively closed area. As the capsule limits the infectious-inflammatory process spread, it decreases absorption of the microorganisms and tissue metabolism products. Such patients are characterized by an expressed intoxication.

The general condition is satisfactory. The body temperature usually doesn't exceed 38 degrees by Celsius, moderate neutrophilic leucocytosis is observed.

Locally it is possible to determine the swelling of the tissues of a certain anatomical area. The skin above the affected lymph node with hyperemia tense. At palpation we may determine acutely painful round malformation, of thick-elastic consistency, with positive fluctuation symptom. As the periadenitis develops, the expression of the focal contours disappears, there we may observe infiltration of the closely related tissues and limitation of the infiltrate mobility. If the lymphatic nodular capsule is fused, the pus penetrates the adjacent cellular tissue and this causes the adenophlegmon to appear. A character of the functional impairment depends on the localization of the affected lymph node. The general blood analysis shows a typical leucocytic formula shift to the left. Our clinicians state that the general blood analysis is the most informative test at the differential diagnostic of the purulent and serous lymphadenitis.

Chronic lymphadenitis.

This disease is rarely observed in children. The inflammatory hyperplasia of the tissues may develop for multiple infectioning of the lymph node. The lymph node becomes thickened and increased in size. The chronic nonspecific lymphadenitis is often developed in the submental and cervical areas. The general condition of the patient is without changes, body temperature is normal. The lymph nodes are enlarged, slightly painful, and mobile. Suppuration is rare in this case. During the chronic inflammatory process the lymph nodes are destroyed and substituted with the granulation tissue. If the process is exacerbated, we may observe skin perforation and formation of the fistulas.

Chronic hyperplastic lymphadenitis.

It is characterized by unexpressed acute stage which may be explained for some peculiarities of the microflora, e.g. its slight virulence. The general condition is satisfactory, body temperature, blood count and urine is normal. The inflamed lymph nodes are increased, quite mobile, with distinct and even contours, elastic consistency, painful at palpation. The skin under them isn't changed in color,

folded; there are no signs of periadenitis present. In the chronic inflammatory process exacerbation periods are changed by relapse periods.

Chronic purulent lymphadenitis.

The periadenitis signs are present: the lymph node isn't distinctly expressed, contours are vague, it is painful at palpation, the skin under it is hyperimated, folded with difficulty (the lymph node is fused with it). Here it is possible to determine the focus of malacia, fluctuation. The general condition may be that of moderate severity, body temperature may increase up to 38 degrees by Celsius. We may also observe leucocytosis, increased ESR, and increased content of the C - reactive protein.

Chronic specific lymphadenitis.

It is usually of a tuberculous or actinomycotic nature. At first it may resemble the clinical picture of the subdermal migrating granuloma. Later the actinomycotic lymphadenitis is characterized with a torpid development, with suppuration and fistula formation. The solid infiltration of the adjacent tissues is observed, liquid crumbly pus is discharged from the fistula. Further we may observe softening on the focal centre; the skin under it thins away and becomes dark red.

The relapse periods follow exacerbation periods. The subdermal test with actinolysates is positive. The fistular discharge contains lots of actinomycotic druses. A characteristic peculiarity of actinomycotic lymphadenitis that the positive effect of therapy is absent.

The tuberculosis lymphadenitis is characterized with no reasonable cause, slow development and prolonged subfebrile period. The bilateral affection may be observed (of the cervical nodes). The lymph nodes are slowly increased and fused into the so-called "packets", to make up the solid conglomerates with tuberculous surface. Positive Mantu's test reaction is characteristic, the pus is sterile. The roentgenoscopy may detect changes in the lungs. The lymph nodular punctate contains giant cells of Pirogov-Langhous.

The diagnostics of lymphadenitis is based on the clinical data, laboratory examination data (increased ESR, leucocytosis shifted to the left), thermovisography, node puncture. The differential diagnostics of various forms of acute lymphadenitis is performed according to the clinical picture, thermovisography data and indices of correlation of various blood elements.

It is necessary to perform the differential diagnostics of acute lymphadenitis with:

- sialoadenitis
- parotitis
- odontogenic abscess and phlegmon
- specific lymphadenitis
- lymphogranuloma, lymphatic leucosis.

It is necessary to perform the differential diagnostics of chronic lymphadenitis with the acute and chronic sialoadenitis, benign tumors, lymphatic granulomatosis, metastatic lymph node lesions and tuberculosis of lymph nodes.

Treatment of lymphadenitis in children.

The treatment of acute lymphadenitis in children is based on the same principles as the treatment of acute inflammatory soft tissue processes. As most lymphadenitis

are the secondary processes, it is necessary to determine and neutralize the primary infection focus first of all. The affected node must be treated as well.

In case of the serous inflammation the physiotherapeutic procedures (phonophoreses of hydrocortisone, electrophoresis of the 5% dimexide solution with antibiotics, ultraviolet radiation); compresses with dimexide and hypothermia are administered. If there is acute purulent inflammation present, the abscess is opened with simultaneous extraction of the fused lymph node. It is preferable to use those surgical methods which will produce the best cosmetic result (abscess puncture, suturing of the abscess with a modified Deshan's needle, etc.). After opening and drainage procedures, the physiotherapeutic procedures are applied-electrophoresis with antibiotics, enzymes, ultraviolet radiation. If there is acute nonodontogenic lymphadenitis accompanied with expressed general body reaction, it is necessary to administer the antibiotics accumulated in the soft tissues (ampicillin, cephasolin) according to the age of a patient. At acute odontogenic and chronic lymphadenitis, when the patient's condition is satisfactory, the antibiotics shouldn't be administered.

Unlike adults inflammatory diseases of soft tissues in children have peculiarities regarding the anatomical structure of tissues and the immunogenesis system defect. The entrance hilum for an infectious agent in nonodontogenic/odontogenic processes are a friable mucous membrane of the oral cavity that may be easily injured also pharyngeal and glossal tonsils, minor facial injuries. In odontogenic processes –a dental cavity and root canals. Hematogeneous infection penetration from the remote foci of inflammation is probable, mainly in newborns and small children.

Flabby tissues structure, a large number of cellular tissue, insufficiently formed fascial sheaths, significant vascular amount contribute to dramatic extension of the inflammatory process to the surrounding tissues. The presence of dental germs in the jaw, developed lymphatic apparatus located close to the brain, optic analyzer, the initial section of the digestive tract and the upper airways significantly influence an inflammatory process in children. The possibility of the infectious process spread along the vascular nervous fascicles of the neck, pharynx, and esophagus in the mediastinum is of great importance.

Due to nonspecific immunity imperfection the children body resistance is low, that in its turn may lead to septic complications, because the restriction of an inflammation focus occurs slowly. Generalization of the infection facilitates a weak formation of the specific antibodies. The causative agents in abscesses and phlegmons are a mixed flora with streptococcal and staphylococcal dominance in combination with intestinal and other bacilli. Recently, an essential part of anaerobes, bacteroides and clostridia, will as an association of aerobic and anaerobic infections has been established.

All suppurative inflammatory diseases of soft tissues in children should be treated in the in-patient departments.

- Mental area;
- Buccal area;
- Temporal area;
- Malar area;
- Parotid-masticatory area;
- Submaxillary area;

- Sublingual area.

1. Deep

- Retrobulbar cellular tissue
- Subtemporal fossa;
- Wing-maxillary fossa;
- Oral cavity floor;
- Peripharyngeal space.

I. By localization

1. Perimaxillary abscesses and phlegmons:

- A. Tissues adjacent to the mandible;
- B. Tissues adjacent to the maxilla;

Superficial (intraorbital, buccal; submaxillary, mental, sublingual, parotid-masticatory area;

- Deep (subtemporal, wing-palatine fossa and peripharyngeal space, mouth floor).

2. Abscesses and phlegmons of neighboring with perignathic tissue areas (malar area, temporal area, orbit, behind the maxillary area, neck), abscesses and phlegmons of the tongue.

Depending on the source of infection all abscesses and phlegmons of MFR and neck are divided into odontogenic (in 80-90%) and neodontogenic ones. Odontogenic processes are more common in children during mixed occlusion, neodontogenic – up to 5 years old with inhibiting affliction of the lymphatic system.

2. The clinical picture and diagnostics of acute inflammatory processes of the MFR soft tissues.

The characteristic feature of these diseases forms in children is a rapid formation of a purulent focus (during 2-3 days) and a marked general body reaction. Common reactions often outgo the development of the local symptoms of an inflammatory process.

In children phlegmons and abscesses of the submandibular area are more common (up to 69% phlegmons).

The clinical picture of abscesses and phlegmons consists of the impairment symptoms of general state and local manifestations, which evidence depends not only on the acuity of inflammatory process, but in the first place upon its location. Processes situated superficially are accompanied by the pronounced infiltration and dramatic edema of the subcutaneous facial fat, deep ones – by chewing function, swallowing, and speech impairment. Due to a small lumen of the airways the evidence of the marked layer of the submucosal cellular tissue children may develop severe disorders of the superficial respiration up to asphyxiation.

The clinical purulent-inflammatory processes of soft tissues of the maxillofacial region in children are characterized by a significant acute course. An edema is fast developed that involves the major sizes in superficially located processes. A marked intoxication is observed, a severe general condition is quite often manifested by the vitally-important organs and systems impairment. Local and general symptoms increase more rapidly in children at the age of up to 3 years.

During an inflammatory process spread from a premolar and the 1st mandibular permanent molar more often penetrate through the cellular tissue over the mouth diaphragm. Moreover, the sublingual space is often involved. The inflammatory process from the maxillary-lingual groove along the mouth floor cellular tissue may spread to the sublingual area of the salivary gland.

I. Phlegmons and abscesses located around the upper jaw.

Superficial abscesses and phlegmons

Phlegmon and abscess of the suborbital area – occur more commonly from the lateral incisors, canines and premolars, when the infection spreads from the buccal area and lateral nasal sections. An infiltrate and edema of the eyelids and malar region appear early, the upper lip is immovable.

Phlegmon and abscess of the buccal area – occur from premolars and molars, when the infection spreads from the suborbital, parotid-masticatory and infratemporal regions. If an infection focus is situated close to the skin, facial asymmetry prevails. If an inflammation focus is under the mucosal lining than changes from the side of the vestibule of the mouth dominate.

Phlegmon of the temporal area – occurs in case of infection which spreads from infratemporal fossa, parotid-masticatory region, in dermal inflammation, temporal area wounds infectioning. The clinical symptoms depend on the depth of the inflammatory focus location. A contracture is observed.

Opening of the superficial abscesses and phlegmons of the temporal area is performed through the external access in the lower section of the inflammation focus (under the malar arch).

Phlegmon of the infratemporal and ala-palatine fossae – the source of occurrence are maxillary molars, it may be as a result of tuberal anesthesia, infection spread from the buccal, parotid-masticatory region, ala-maxillary space.

Inadequacy between the local signs of the disease and a general reaction is characteristic of phlegmons. Painful infiltrate is defined in the posterior formix part of the mouth vestibule (between the maxillary cusp and coronary process of the mandible) which is deformed from the vestibular site. The contracture and a severe pain are observed that may irradiate to an eye.

There is an operative intraoral access. An opening is performed higher the transitional fold of the upper vestibule of the mouth and penetrate directly into the inflammation focus along the bone surface behind the jaw cusp.

II. Phlegmons and abscesses located around the mandible.

III. Superficial abscesses and phlegmons

Phlegmon and abscess of the mandibular area are often encountered in children that more commonly result from lower premolars and molars. Secondary lesion is seen as a consequence of the inflammatory process from the sublingual and mental area, a fossa behind the jaw, ala-maxillary and peripharyngeal spaces, submaxillary salivary gland.

A child complains of pain and swelling in the submandibular area. The general state is disturbed. Significant edemas of soft tissues of the appropriate area, a minor contracture, chewing, swallowing, speech disturbance are identified.

An operative access in inflammatory processes of this location is internal. Dissection of skin, subcutaneous fat, superficial fascia and subcutaneous muscle is

performed in the submaxillary triangle, taking a step back 2 cm from the jaw angle and a lower root parallel to the latter.

Deep abscesses and phlegmons

Phlegmon of the mouth floor – more commonly results from 36, 46 teeth. Two and more cellular spaces located over and under maxillary-sublingual muscle are involved into the inflammatory process.

A dense infiltrate is observed in the mouth floor area, inability of dental occlusion is also seen. Edema of the mouth floor of the mucous membrane is revealed. It is accompanied with essential intoxication, a patient's general condition is severe.

The operative access is external. An opening of the focus is performed in both submandibular area and in submental triangle.

Alar-maxillary space abscess – develops in case of tissues infection during anesthesia. A child suffers from limited opening of the mouth and sore throat that becomes more intensive while chewing. A contracture develops; a sharp pain appears in swallowing. The internal signs of the inflammation are absent during a long period of time, concomitant lymphadenitis is observed. An infiltrate under the angle of the mandible occurs later.

There is an extraoral access following the safe incisions line.

Peripharyngeal space phlegmon and abscess – results from the palatine tonsils inflammation, infection spread from the alar-maxillary space, submaxillary and parotid-masticatory regions.

A child complains of a significant pain in swallowing from one side. General intoxication signs are marked. Clinically there are unilateral quinsy, moderate contracture, and lymphadenitis. Later breathing disturbance, hoarseness, dysphagia are observed.

Pharyngeal wall infiltrate, palatine tonsils, soft palate are defined. There is operative extraoral access in the submaxillary area.

Jeansul-Ludwig's quinsy – a saprogenic-necrotic phlegmon of the mouth floor. It is rarely encountered in children. It is characterized by severe intoxication. A considerable edema and tissue infiltrate under the tongue, laryngeal edema are clinically determined. At first the skin has no changes (the process is localized in the mouth floor muscles).

A patient dies of intoxication, sepsis and hypoxia.

The diagnosis of an abscess or phlegmon is based on the presence of an infiltrate, positive symptom of fluctuation which is rarely seen in children, dermal local temperature elevation, leucocytosis that exceeds $10 \times 10^9/l$, neutrocytosis more than 80%, C-reactive protein, puncture data, thermovisiography. The body temperature raise to 1 0 is usually accompanied with pulse acceleration to 10 beats per minute. A pronounced tachycardia in normal or subfebrile temperature must alert a doctor. Pathological changes in the urine in abscesses and phlegmons of the maxillofacial area in children are uncommon.

Treatment of abscesses and phlegmons in children consists of a surgical and medicinal method which must be carried out in the in-patient department obligatory.

Surgical treatment. The principal step of a doctor while treating purulent-inflammatory odontogenic processes is a removal of the causative tooth with a one-stage extended opening of empyemas and their rational drainage.

Opening of the subperiosteal /periosteal abscesses may be performed under the local (better conduction (nerve block) anesthesia, if a general and psycho emotional state of a child makes it possible to do. Abscesses and phlegmons opening is carried out under the general anesthesia.

Operative accesses in suppurative diseases of the face and neck must be cosmetic and sufficient for the exudates evacuation. The wound is rinsed with antiseptics solution and drained to provide free exudates outflow. Ribbon and sometimes tubular drainages are used for this purpose.

Medication treatment in phlegmons is carried out following the same principles that in case of acute osteomyelitis. Moreover, the smaller the child the more intensive treatment should be. Disintoxication, antibacterial, antiallergic and general health-improving therapy is prescribed.

A child can lose a great amount of proteins, salts, water and vitamins due to nutrition disturbance in acute suppurative-inflammatory diseases of the MFR. From the first days of the child being in the in-patient department a drop intravenous fluid transfusion is administered for disintoxication and parenteral nutrition, as well as for salt exchange regulation. For this neocompensan, neogemodez, 5% glucose solution, vitamins B1, B2, C, PP in accordance with aged doses are transfused.

Broad-spectrum antibiotics are administered (sulbactan, amoxicillin, imipenen, meropenen, cephasolin).

To calculate the medicinal dose it is necessary to take into account the age of the child.

- A child up to the age of 1 year old is prescribed $1/24 - 1/12$ of the adult dose;
- At 1 year old - $1/12$ of the adult dose;
- At 2 years old – $1/8$;
- At 4 years old – $1/6$;
- At 6 years old – $1/4$;
- At 7 years old – $1/3$;
- At 14 years old – $1/2$;
- At 15-16 years old – $3/4$ of the adult dose.

The scheme of the dose calculation taking into consideration the child body weight.

$$K = 2 * \text{age (years old)} + \text{body mass}$$

Where **K** - % from the adult dose for a child of a definite age and appropriate body mass.

Antihistamines are administered (levamisol, pentaxil, metilurazil, neucleinat sodium), antioxidants, antimycotic drugs and symptomatic medications.

Furuncles (carbuncles) account for 10% of the total number of the maxillofacial area inflammatory diseases that occur in children. 30% of children and 64 % of adults are afflicted by furuncles on the face.

Due to volumetric and flabby subcutaneous fat and a branched net of blood vessels, lymphoid tissue in children, inflammatory processes in the maxillofacial

region involving furuncles tend to spread. Therefore, if to take into consideration the immune system immaturity and dermal physiological peculiarities one can understand the topicality of this problem.

I. Control questions:

1. Development stages of the hairy follicle inflammatory process.
2. Furuncles and carbuncles classification.
3. The most dangerous localization of furuncles and carbuncles.
4. Therapeutic management of furuncles on the various stages of development a process and the factors it depends on.
5. Furuncles treatment on the abscess formation stage.
6. The peculiarities of the clinical picture and treatment of carbuncles of the maxillofacial region in children.
7. Furuncles and carbuncles prevention.

Furuncle – an acute purulent-necrotic inflammation of the hairy follicle and surrounding tissues caused by pathogenic microorganisms' penetration which are in the dermal surface. Furuncles account for 10% - of the total number of inflammatory diseases in children.

Carbuncle – a diffuse suppurative –necrotic inflammation of several hairy follicles, sebaceous glands, deep dermal sections and subcutaneous fat. S.aureus is more common aetiological agent of the disease than S.pyogenes albus. The factors that influence the process development are dirty skin, dermal microtraumas, increased activity of sebaceous and sweat glands (especially pubertal period), a child age, climatic conditions. Carbohydrate exchange impairment, hypovitaminoses, diabetes mellitus, organism supercooling and superheating, etc.

30% of children and 64 % of adults are afflicted by furuncles on the face.

Furuncles and carbuncles in the upper labial area and nasal-labial triangle of the infraorbital and periorbital region are considered to be the most dangerous from the point of view of prognosis. It is related with the venous net to be joined directly by the venous sinuses of the tough cerebral membrane in these areas, an infectious process can spread intracranially causing such dangerous complication as meningitis that may result in sepsis or lethal outcome. These complications are more common in the so-called «malignant» (M. Pirogov 1853, F. Trendelenburg 1888) development of the disease, when the surrounding tissues are involved resulting in the facial veins thrombosis and the process extension towards the cavernous sinus of the tough cerebral membrane. The causes of such complication are the furuncle location, the attempts of its nail squeezing out without any assistance, moreover, a pyogenic membrane that surrounds the inflammation focus has a reticular structure and it is easily ruptured in case of a mechanical action on it leading to dissemination process.

The first stage is characterized by a dramatic hyperemia and tissue swelling which is accompanied by insignificant soreness. During 1 -2 days “a node” is being formed in the hairy follicle area, the surrounding tissues become infiltrated, skin hyperemia increases, a sharp tenderness occurs. The characteristic feature of the facial furuncles is a substantial edema of its adjacent tissues. If an adequate timely therapy is started, reversible process course is probable that is abscessing does not occur.

The second stage is characterized by a suppuration and necrosis. In 3-4 days after the onset of the disease purulent meltdown of the furuncle and adjacent to it

tissues takes place that is clinically manifested as fluctuation. A necrotic nail is situated in the center of the infiltrate. After unassisted or artificially (by a surgeon) opening an infiltrate, pus and a necrotic nail(rod) are excreted (sometimes a rod exudes during a couple of days), as a result a furuncle bottom looks as an ulcer covered with granulations.

The third stage is characterized by the wound healing with formation of a small hollow scar.

In children furuncles are always accompanied with regional lymphadenitis and intoxication of the various degrees. The clinical picture of carbuncles is close to furuncles but it differs by more intensive augmenting and evidence of the local symptoms of the disease, appearance of some necrotic nails located nearby, rapid process extension onto the surrounding tissues. Flegmons, facial veins phlebitis, meningitis, sepsis, a child's body severe intoxication are common complications of carbuncles.

O. Timofeev classification (1995) is similar to that being described above, however the initial stage is divided into two: ostiofolliculitis and deep folliculitis. Such distribution is used by dermatologists.

In accordance with this classification the following stages of the process are determined:

- I. Uncomplicated forms of furuncles and carbuncles.
 1. The initial stage of folliculitis:
 - a) ostiofolliculitis;
 - b) deep folliculitis.
 2. Inflammatory infiltration.
 3. Appearance and spread of suppurative-necrotic nail.
 4. Resorption of the inflammatory infiltrate.
- II. Recurrent furuncles.
- III. Complicated forms of the clinical course of furuncle and carbuncles.
 1. Cheilitis.
 2. Phlebitis and thrombophlebitides.
 3. Regional lymphadenitis, adenophlegmons.
 4. Osteomyelitides.
 5. Erisipelas.
 6. Sinus thrombosis.
 7. Meningitis.
 8. Sepsis (its various forms).

Differential diagnostics of furuncles and carbuncles according to complaints data and patients anamnesis is carried out in case of odontogenic and non-odontogenic abscesses and flegmons, tuberculosis and actinomycotic ulcer.

Treatment of furuncles and carbuncles.

Treatment policy in furuncles and carbuncles requires an individual approach and depends on the stage of the process development.

Medication treatment includes an antibacterial therapy (depending on the clinical approach - peculiarities), disintoxication (by indications), hyposensibilizing, immunomodelling, vitamin therapy and a symptomatic treatment.

The management of uncomplicated forms of furuncles on the first stage is performed conservatively: dermal mechanical irritants are eliminated (facial self-

purification) to prevent the process spread mimic muscles rest and mechanically sparing diet are administered .During this period hypothermia, dermal painting with 2% salicylic or ethyl spirit, UVR or helium-neon laser focused on the inflammation focus are administered locally .

In children furuncles and carbuncles in abscess stage are treated only in specialized in-patient departments with the use of general anesthesia. During the second stage of the process development, abscessing phase, a surgical treatment is performed together with medications complex. The local treatment consists of abscesses dissection and long-term drainage until a necrotic nail is not rejected the mechanical removal of the latter should not be carried out. Such patients need daily dressings, during which wound irrigations along the drainages with antiseptics solutions (chlorgexedine, chlorphylypt, metranidazol) are performed using proteolytic aenzymes(trypsin, chymotrypsin), a dressing is completed with aseptic dressing application using dimethylomsulphoxide and an ointment „Iruzol”, „Leavomecol”, „Ophlotrymol”. Beginning from the second day UHF, SHF, UVR, GNL, US with deflogine, and hydrocortizone. After the nail has rejected and the wound is cleaned keratoplastic medications,„Solcoseril”, „Metaluruzil”, „Actovegin” may be used. Besides, that complex anti-inflammatory medication therapy (antibiotics, antihistamines, vitamins, symptomatic medicines) is administered.

If a child has recurrent furuncles or furunculosis, than apart from the treatment mentioned above, prescribed intramuscular autohemotherapy according to the scheme: 3-5-7-9-10-10-9-7-5-3ml, brewer’s yeasts per orally, carbohydrate diet correction, laboratory blood investigations, an endocrinologist consultation are of a must. Sometimes it is necessary to carry out active specific immunization with staphylococcus antifungin and bacteriophage, staphylococcal antitoxin.

In severe forms of furuncles and their complications a passive specific immunotherapy is used by introduction of hyper immune ant staphylococcal plasma and gamma globulin.

In furuncles_(carbuncles) formed on the face with the symptoms of the facial veins phlebitis, a child is treated in the intensive unit ward, where catheterization of the subclavicular artery or vein is performed and an active infusive therapy is started: antibiotics (imipinemi, merapinemi), heparin, hydrocortizone, ascorbic acid, neohemodez, reopoliglucin, antistaphylococcal plasma and gamma globulin, blood transfusion with fresh blood is made due to heparinization in 2 days, dimedrol, methilurazil contrikal.

Furuncles prophylaxis comprises educational work and learning how to follow a personal hygiene of the facial skin, carbohydrates use culture, vitamin deficiency prevention, suppurative skin diseases prevention.

The causative microorganism is the anaerobic proactinomycte microorganisms. The majority of species of the actinomycetes are saprophytes inhabiting the human body (oral cavity, for example). The factors which stipulate for disease development are the inflammatory processes and tissue lesions of the facial-mandibular area. Actinomycotic granuloma may develop after the infectioning.

Pathogenesis. Actinomycosis may develop as an autoinfection, when the actinomycetes penetrate the facial-mandibular tissues and the specific actinomycotic granuloma or some granulomas may develop. The actinomycetes are present in the dental plaque, carious cavities, pathological gingival pockets, on the tonsils; they

constitute the basis of the dental tartar stroma. Only specific conditions in the human body may lead to the actinomycosis: decreased or impaired immune reaction of the body and nonspecific protective factor. The site of entry of actinomycetes at actinomycosis of the facial-mandibular tissues and organs may be carious teeth, pathological gingival pockets, affected or inflamed mucosa of the oral cavity, pharynx, nose, salivary glands' ducts, etc. The actinomycosis is transmitted through the lymph, blood and at direct contact. Usually the specific focus develops in well vascularized tissues: fatty tissue, connective-tissue layers of muscles and bones where the actinomycetes make up colonies – the druses. The incubation period may last from a few days to 2-3 weeks, and even a few months.

Clinical picture. The clinical picture of the disease depends on the individual peculiarities of the body, which determine the expression degree of both local and general reaction as well as on the specific granuloma's localization in the facial-mandibular area tissues. The actinomycosis often develops as an acute or chronic inflammatory process with exacerbations, characterized by the normergodic reaction. If the disease lasts for 2-3 months, the patients who already have the appropriate pathologies (primary and secondary immunodeficiency diseases), the actinomycosis acquires chronic development and it is then characterized by the hyperergodic inflammatory reaction.

According to clinical manifestations and development related to the localization of the specific granuloma, we determine the following clinical forms of actinomycosis of the face, neck, jaws and oral cavity:

1. Dermal
2. Subdermal
3. Submucous
4. Odontogenic actinomycotic granuloma
5. Mucous
6. Subdermal-intramuscular (deep)
7. Actinomycosis of the lymphatic nodes
8. Actinomycosis of the mandibular periosteum
9. Jaw actinomycosis
10. Actinomycosis of the oral cavity – tongue, tonsillar pillars, salivary glands, etc.

The dermal form.

It is rare and may appear after a person has been ill with both caries and dermal lesions. A patient complains of slight pains and thickening on a small skin area, the anamnesis contains gradual increase and thickening of the focus or foci. Dermal actinomycosis develops without fever. The examinations may reveal inflammatory skin infiltration, a focus or some foci. This is accompanied with skin thinning and a change of its color from the red-crimson to the brown-blue. There may appear pustules on the dermal skin which may merge together. The dermal form of actinomycosis spreads throughout the plane.

Actinomycosis of **the oral mucosa** is also rarely encountered. The actinomycetes may penetrate through the lesions of the mucosa injured by various objects, sometimes- cutting dental edges. Actinomycosis of the oral cavity is characterized by slow mild development without body temperature increase. The patient complains about slight pain in the focus. The examination may determine

superficial inflammatory infiltrate with crimson-red mucosa over it. It is often to observe the spread of the focus outside, its rupture and formation of separate fistular orifices from which granulations may appear.

Actinomycosis of the **lymphatic** nodes develops at the odontogenic, tonsillo-genic and otogenic ways of infection spread. The process may be manifested as an actinomycotic lymphangitis, abscessing lymphadenitis of the adenophlegmon or chronic hyperplastic lymphadenitis. The clinical picture of the lymphangitis differs by the superficial infiltrate which is solid at first and then it becomes soft and merges with the skin. Sometimes the infiltrate may look like a thick bar spreading from the affected lymphatic node upwards or downwards the neck.

Abscessing actinomycotic lymphadenitis is characterized by complaints about the local, slightly painful, solid node. The disease develops slowly, without body temperature increase. The lymphatic node is increased in size, it gradually merges with the underlying tissues, tissue infiltration around it increases gradually. At abscessing the pains increase, the body temperature increases to the subfebrile, general condition of the patient aggravates. After the process is opened, it obtains the reverse development, a thick solid conglomerate to appear after.

The **adenophlegmon** is characterized by the complaints about acute pains in the affected place. The clinical picture reminds the phlegmon caused by non-specific infection.

In **hyperplastic actinomycotic lymphadenitis** there may be observed an increased thick lymphatic node which looks like a tumor or any malformation. It is characterized by the slow, asymptomatic development. The process may exacerbate and lead to abscess formation.

Mandibular actinomycosis. The pathological process at the primary process is often localized on the mandible and quite rarely on the maxilla. The primary jaw actinomycosis may appear as a destructive and productive-destructive process. The primary destructive jaw actinomycosis may be manifested as an intraosseous abscess or intraosseous gumma. At the intraosseous process the patients may complain about pains in the affected area. If the focus is located near the mandibular canal, sensitivity in the area of mental nerve outlet may be impaired. Then the pain intensifies, like in neuralgia. There appears swelling of the adjacent soft tissues.

The clinical picture of the osseous gumma is characterized by slow development with slight pains, accompanied with exacerbations at which the inflammatory contractures of the chewing muscles may appear. The primary destructive mandibular actinomycosis may be roentgenologically manifested by the presence of one or some round cavities in the bone. The focus may be surrounded by the sclerotized area. The primary destructive mandibular lesion is observed predominantly in children and teenagers, and it is caused by odontogenic or tonsillo-genic inflammatory process. We may note skin thickening caused by the periosteal deposition, which is progressively increasing and thickened, resembling the malformation but not being it. The disease development is prolonged- from 1-3 years to some decades. It has chronic development with exacerbations, as at the destructive process. The roentgenogram shows bone malformation which spreads from the periosteum, thickening of the compact and spongy substance of the mandible. The separate resorption foci may be noted, as well as the slightly expressed bone sclerosis around these foci.

Differential diagnosis.

Actinomycosis must be differentiated with chronic odontogenic and non-odontogenic hyperplastic lymphadenitis, chronic hyperplastic periostitis and chronic destructive-productive osteomyelitis. If the actinomycotic process is complicated with the secondary infection - with abscesses, plegmons, and sialoadenitis, specific soft tissue processes (tuberculosis), furuncles and carbuncles.

Treatment. The treatment of the facial - mandibular actinomycosis is a complex one and it includes:

- 1) Surgical methods of treatment with local influence onto the wound
- 2) Measures aimed at the specific immunity
- 3) Increased general reactivity of the body
- 4) Measures aimed to affect the accompanying purulent infection.
- 5) Anti-inflammatory, antihistamine and symptomatic therapy, treatment of accompanying diseases.
- 6) Physical method of treatment and physical exercises.

The surgical treatment includes:

- 1) Extraction of the teeth which may serve as a side of entry for the infection
- 2) Surgical processing of the actinomycosis foci in the soft and bone tissues, extraction of the areas of excessive newly formatted bone and in many cases - lymphatic nodes affected with actinomycotic process.

It is especially important to manage the wound after processing the focus. The measures indicated are prolonged drainage with the subsequent scrubbing of granulations, processing of the affected tissues with a 5% iodine solution, iodoform powder introduction. If the secondary infection joins, deposition introduction of antibiotics is indicated.

Drug treatment. At the normergic development of actinomycosis it is necessary to perform actinolysate- therapy or special immunomodulators may be prescribed as well as general strengthening stimulating substances, in separate cases biologically active medicaments may be prescribed.

The actinomycosis treatment with hyperergic inflammatory reaction is started with disintoxication measures. The chronic intoxication treatment complex includes polyvitamins with microelements, enterosorbents, and medicinal plants infusions. Also of great importance may be stimulating therapy: autohaemotherapy, antigenic stimulators and general strengthening substances – polyvitamins, vitamins B1, B12, E, aloe extracts, prodigiosan, pentoxyl, methyluracil, levamisol. T-activin, thymalin. The antihistamine medications and symptomatic treatment may be prescribed. Physical treatment methods are recommended: ultrasound treatment, ionophoresis, phonophoresis of medications, helium- sodium laser, exercises).

Prevention. The oral cavity is to be sanated, the odontogenic and stomatogenic pathological foci must be eliminated. The main for actinomycosis prevention is increased general reactivity of the body.

Tuberculosis is a chronic infectious disease caused by mycobacterium tuberculosis. Tuberculosis is a transmissible disease. For the past years tuberculosis of the jaws, facial tissues and oral cavity is rarely observed. The tuberculosis of the peripheral lymphatic nodes in children makes up to 30% of all active forms of non-pulmonary tuberculosis. It usually affects lymphatic nodes of the neck (40%), supraclavicular (18%) and submandibular nodes (12%).

Etiology. The causative microorganism is mycobacterium tuberculosis, straight or bent bacillus, 1-10 mcm in length, 0.2-0.6 mcm in width. There are three types of bacteria causing tuberculosis: human (causes 92% of all cases), bull (5% of all cases) and an intermediate species (3%).

Pathogenesis. The infecting source is usually a person who is ill with tuberculosis, rarely the disease is transmitted by the fecal-oral route –through milk of infected cows. The immunity and resistance of a person to these infections are of great importance in the development of the disease. There are primary and secondary lesions. The primary lesion of the facial-mandibular lymphatic nodes appears at penetration of mycobacteria through the teeth, tonsillar pillars, oral and nasal mucosa, damaged skin. The secondary lesion develops at localization of the primary focus in other organs or tissues.

Clinical picture. The facial-mandibular tuberculosis (tuberculosis regionis faciei) in children develops as a secondary manifestation of pulmonary tuberculosis and it is accompanied with lesions of the oral cavity mucosa or lymphatic nodes. The clinical manifestations of the oral cavity mucosa tuberculosis in children are observed in case of acute milliary (disseminated) tuberculosis and secondary tuberculosis infection.

The acute milliary tuberculosis may appear in small children. It affects the mucosa, skin, internal organs and meningeal membranes. Many tubercles appear in the oral cavity, later they develop into the ulcers or erosions. The mucosal ulcers have a peculiar appearance. They are superficial, covered with a yellowish coating, with soft edges, painful, after epithelization on their place there stay smooth brilliant scars. A doctor may suspect the tuberculosis of the mucosa, basing on the unfavorable epidemiological anamnesis (presence of the disease in relatives, low life level – bad nutrition and hygiene), presence of ulcers on the mucosa, which are covered with a yellowish coating, smooth brilliant scars on the ulcers epithelization areas, positive tuberculin test, determined tuberculosis mycobacteria, and also if the child wasn't vaccinated.

Tuberculosis of the lymphatic nodes in children is always a manifestation of general disorder. The entry point here may be tonsillar pillars, but it is more often that the affected lymphatic nodes may be a consequence of the lymphogenic or haematogenic dissemination of the process, the primary focus of which is situated in the lungs or thoracic lymphatic nodes. In the case of tuberculosis, the increase of lymphatic nodes in a child is always accompanied with the general weakness, chills, fever, night sweating, and loss of appetite, disordered sleep, fatigue, irritability and inadequate excitation – euphoria, tachycardia and dyspnea. The affected lymphatic nodes make up the “packets” which consist of separate nodes. The characteristic sign of the tuberculous lymphadenitis is periadenitis. During the palpation it is possible to determine the nodes, adhered to the skin and subdermal fatty tissue, to form a single conglomerate, which is painless and rigid. In its further development the skin under it becomes reddened, then acquires bluish discoloration and becomes gradually thickened. The ulcers with uneven margins are formed over it, they excrete the cheese-like mass and whitish pus without odor. The ulcers may be present for 2-3 years, it takes long time them to heal. The fistulas may be spontaneously formed and then close, after healing of which the scars may stay on the surface. Sometimes it is possible to determine the stony areas with calcinates in the lymphatic vessels. The X-

ray of the last includes thick shades in the soft tissues of the mental area or on the external neck surface. There is localized and generalized tuberculosis of the peripheral lymphatic vessels. The generalized form is diagnosed when more than 3 groups of the lymphatic nodes are involved in the process. The process is exacerbated in 80-90% of all patients in spring or autumn, which is manifested by the increased tenderness in the affected focus and adhered lymphatic nodes because of the periadenitis. When the disease subsides, the lymphatic vessels decrease in size, become thickened, the fistulas close and form rough scars.

Tuberculosis of the soft tissues may be manifested by the so-called cold abscesses, and of the jaws – periostitis. The last ones are opened parallel to the transition fold, to obtain the creamy pus, and the drainage procedures must be performed for a long time period.

Tuberculosis of the jaws is often observed at affected lungs. It is characterized by the formation of a single focus of bone resorption, sometimes with expressed periosteal reaction. It is located on the maxilla in the area of the infraorbital margin or a zygomatic process of a maxilla, on the mandible – in the area of the body or a branch of the jaw. At first the focus isn't accompanied with painful sensations, and when it spreads onto the other areas of the bone, periosteum, and soft tissues, there appears pain, inflammatory contractures of the masticating muscles. When the process spreads onto the adjacent tissues we may observe infiltration, the skin adheres with the underlying tissues, changing its color onto the reddish and bluish. One or a few cold abscesses form, which are prone to a spontaneous rupture with excretion of a watery exudate and pads of creamy decay, after which the multiple fistulas with protruding granulations may stay. The probation of them allows determining a focus in the bone, filled with granulations, sometimes hard sequestrs. Such foci are slowly scarred and leave atrophic scars, the volume of subdermal fat decreases. The fistulas preserve for a few years, some become scarred, and the new ones appear. The X-ray shows single foci of bone resorption with definite borders and containing small sequestrs. If the disease course is prolonged, such focus is separated from the healthy bone with a sclerotic area.

Diagnosis: The diagnosis of tuberculosis in children is based on the epidemiological examination data (residence in the infection nidus, relatives ill with the disease, contact with source of infection), anamnesis (Mantu's test, manifestation of tuberculosis of another localization), classical clinical signs (increased body temperature, painful lymphatic nodes, fistulas and scars on the skin), thoracic fluorography or roentgenography data (signs of pulmonary tuberculosis), as well as the puncture of the lymphatic node with the subsequent cytological examination of the punctuate (cells of Pirogov- Lanmghans may be detected).

Differential diagnosis: The tuberculous lymphadenitis must be differentiated with lymphadenitis of various geneses, as well as those caused by respiratory viral infections, rubella, measles, infectious mononucleosis, and tularemia, systemic malignant lesions (lymphogranulomatosis, leukosis, and lymphoblastosis).

The treatment of tuberculosis is performed in the specialized tuberculosis dispensary. Opening of the affected lymphatic node which was suppurated, or its early biopsy provide for improvement of the patient's condition. After the diagnosis is established, the patient is referred to continue his treatment in tuberculosis department. The diagnostics of atypical forms of mycobacteria (L-forms) is

complicated because it can't be diagnosed via usual methods. 70% of all patients with tuberculosis in whom mycobacteria aren't detected by ordinary methods, serve as carriers of tuberculosis. The administration of effective treatment is complicated in case of the associate forms of the tuberculosis and secondary resistance development of mycobacteria to the medications.

Prognosis, if the treatment has been administered in time, is favorable.

Prevention: The administration of modern treatment methods is a basis for the prevention of tuberculosis complications development in the facial-mandibular area. A dentist should treat caries and its complications, diseases of the mucosa and parodontium.

Syphilis is a chronic venereal disease which may affect all organs and tissues, including the facial-mandibular area.

Etiology: The causative organism is *Treponema Pallidum*. It develops in the human body as a facultative anaerobe and it is most often localized in the lymphatic system. There is no inborn or acquired immunity to this disease.

Pathogenesis: Syphilis (Lues) may be caused by penetration of the causative organism (*Treponema Pallidum*) through the oral mucosa. In children it is possible to observe the inborn or acquired syphilis (infectioning occurs from the ill parents or by sexual way). There are early inborn syphilis of the newborns and small children, late and hidden inborn syphilis.

Clinical picture: The manifestations of the early inborn syphilis in the newborn children are quite various. The process may simultaneously involve many organs and systems (skin, mucous membranes, internal organs, nervous system). This period is characterized by the syphilitic pemphigus, disseminated maculopapular rash and Gochzinger's diffuse infiltration of the skin, observed predominantly on lips and chin. The deep crevices (especially in the mouth corners) appear on the infiltrated areas, after healing the radial scars are left. These scars are the characteristic sign of inborn syphilis.

Late inborn syphilis starts its manifestations after the child is 5 years. The clinical manifestations of the late inborn syphilis resemble the tertiary acquired syphilis (proturbances, gummae, affected bones and dystrophies). The majority of children with late inborn syphilis manifest positive classical serologic reactions. In case of infectioning the child by his parents, we may observe the typical development of the disease: the primary, secondary and tertiary syphilis. The primary syphilis (1-3 weeks since the infectioning) is characterized by the typical reaction of the mucosa as the appearance of ulcerations with hard infiltrate and sebaceous painless floor. This is so called chancre. The secondary syphilis (9-10 weeks after infectioning) is characterized by the appearance of white-red maculopapular rash on the skin and oral mucosa. The rash elements are 5-10mm in size and they would erode. The regional lymphatic nodes are hard, increased, though painless. At this period the patients is highly contagious. If the tertiary syphilis (1-3 years since infectioning) is present, the gummae are formed in the oral cavity. They are situated in the tissue width. They are very hard, painless at palpation, limited from the healthy tissues. The mucosa over them is hyperimated.

In case of gumma's decay we may observe ulcers of the cup shape. After the wounds heal, characteristic stellate scars are left on the mucosa. If a palatial gumma is decayed, the oral cavity becomes connected with the nasal one.

The diagnosis of syphilis is confirmed with the Wassermann's reaction as well as some other serologic reactions. Microbiological examination is of great importance too; also it is necessary to mention the morphological examination of the affected tissues.

The differential diagnosis of the syphilitic lesions of the oral cavity and jaws is difficult. The ulcerative form of the primary syphiloma may resemble a cancerous tumor which is decaying. The gummae of the mucosa may resemble the traumatic ulcer. The gummatous glossitis should be differentiated with the tuberculous and cancerous ulcer. The syphilitic lesions of the periosteum and osseous tissue must be differentiated with the non-specific and specific lesions of these tissues. The gummatous process in the bone may mangle the cancer or sarcoma. So, the diagnosis is established on the basis of roentgenological (spicule at the cancer) clinical investigation (abrupt weight loss, cachexia, quick tumor growth) and cytological analyses.

As the basic element in the primary syphilis is an ulcer (chancre), we may meet the necessity of differentiating it with the tuberculous and traumatic ulcers.

The tuberculous ulcers are usually multiple in their number, painful, with uneven edges, with yellowish drops on their floor - Trell's particles.

The traumatic ulcer is usually of uneven rounded shape, unlike the primary syphiloma. Its margins are uneven and floor is covered with a yellowish grey plaque. At palpation the ulcer is soft, painful, surrounded with a hyperimated mucosa; the infiltrate of the underlying tissues is absent. The regional lymphatic nodes are increased in size, painful at palpation.

The syphilitic angina should be differentiated with ordinary catarrhal angina, at which we observe pain at swallowing, aggravated general condition of the patient and increased body temperature. The mucosa around the tonsillar pillars is greatly hyperimated, swollen; this is a sign of an acute inflammation. In an ordinary angina the process has bilateral character. The regional lymphatic nodes are increased and painful at palpation on both sides.

The treatment of syphilis is performed in a specialized venereal hospital. If the osseous tissue of the jaws is affected, periodical pulp vitality test is indicated, if necessary - trepanation of the teeth with dead pulp and therapy like that in chronic periodontitis. The mobile teeth shouldn't be extracted, after the treatment they may be well fixed. The active surgical treatment at affected periosteum isn't indicated even if the sequesters are formed. They are extracted after the specific treatment, at the subsiding process.

The oral hygiene is also of great importance. Dental tartar must be eliminated, sharp edges of the teeth polished, oral cavity sanitation performed.

The prognosis at timely diagnostics, correct treatment and the subsequent dispensary surveillance is favorable.

Prevention: We should mention here not only the social aspect, but keeping to the hygienic norms when working with medical equipment, educative measures among the medical personnel and persons working in the consumer service, periodical medical examinations of those above mentioned.

HIV-AIDS – is a chronic disease of viral aetiology which may selectively affect the immune, nervous and digestive systems which become sensitive to various

infections called Human Immunodeficiency Virus – HIV. AIDS means Acquired Immunodeficiency Syndrome.

Etiology: AIDS was defined as a disease in 1981. It is a typical anthroponosis, a retrovirus family. These are called so because they include in its structure enzyme-reversible transcriptase which provide for reverse transcription of the RNA genome into the host cell DNA.

Pathogenesis: The source of HIV- infection may be an ill person in different disease periods, some primates. The virus is detected in human blood, sperm, cerebrospinal fluid, vaginal and cervical secretions, and breast milk and biopsy material of various tissues. The total amount of virus in the saliva, sweat and urine is insufficient for disease transmission. But the risk of infection increases if blood is combined with the saliva. The spread of AIDS in teenagers nowadays is becoming increased as insufficient education promotes multiple sexual relationships, drug usage, neglecting personal hygiene and safe sex. According to the UN expert data, in 1998 HIV most frequently affected children and teenagers under 15. In this group 1600 children are infected and 1200 of them die annually. Nowadays AIDS is the main cause of mortality of children of 1-4 years in the world. A practicing dentist must know that the ways of HIV infection transmission may be the sexual one, parenteral (posttransfusion), “syringe”, transplantation, from mother to her child – perinatal, through the placenta and breast feeding.

The following risk groups are established: homosexuals, drug addicts, prostitutes, blood recipients (donors), medical specialists (operation nurses, dentists, surgeons). Infection of the child is usually related to the infection of the mother. It is most possible to transmit HIV from mother to a child when the mother is infected during her pregnancy and also if her pregnancy and labour coincide with the last stage of HIV infection.

The stage of primary manifestation is accompanied with a fever (96%), lymphadenopathy (74%), erythematous macular-papular rash on face and trunk (70%), myalgia or arthralgia (54%). After this in 20-50% of all cases there develops the stage of a persisting generalized lymphadenopathy.

The stage of secondary infection is characterized with diseases of upper respiratory tract, skin, and mucosa of the viral, bacterial or fungal nature.

Clinical picture: The development of AIDS includes the incubation period which lasts for 5 years and resembles the infectious mononucleosis (continuous angina and increase of some groups of lymphatic nodes), syndrome of generalized lymphadenopathy (which may last from 1 to 5 years), at which the cervical, submandibular, submental, occipital and axillary lymphatic nodes are increased. They are small (not less than 1 cm), elastic, not adhered to the underlying tissues, existing for less than 3 months. Then goes the associated period of AIDS characterized by the development of cachexia during 1-1/5 months, and then – AIDS itself, a period when a child dies from multiple infections.

Peculiarities of development: HIV infections in children are stipulated for the unformed immunity system, that is why severe immunosuppression may occur. This leads to more early clinical manifestations, especially in small children. The main manifestations of AIDS in the oral cavity are:

- candidous stomatitis. The distinctive peculiarity in HIV infection is that it doesn't affect the skin and nails. The candidosis of the mucosa usually begins with

the thrush – a white plaque is formed which is removed with difficulty. After the plaque is removed, there may appear bleeding erosions. These lesions are difficult to treat.

- angular cheilitis which may often relapse after the specific treatment
- ulcerative gingivostomatitis which has generalized character with presence of deep contact ulcers on the alveolar sprouts
- hairy leukoplakia is localized on the back and middle third of the lateral surface of the tongue. It is clinically represented with rough small papillae 1mm to 1 cm in length.
- chronic relapsing herpetic infections which are characterized by the spreading of rash (migration and dissemination), skin lesions and ulcerative-necrotic form of the disease.

Diagnosis of the HIV infection is based on the three- stage indication of the specific antibodies in the child's blood. If the result obtained is positive, the expert confirmation of specific antibodies in blood is required. The last method includes not the general number of antibodies, but those appearing to specific antigens – glycoproteins. They are of major importance in detecting the target cells by the virus.

The specific antibodies are primary detected in blood only in 8-12 weeks after infection. This is why indication of the HIV in the blood can't be taken as a reliable diagnostic criterion. The early diagnosis method includes also molecular biological method, based on polymerase chain reaction or method of hybridization of the nucleic acids to the specific DNA areas.

Treatment: As AIDS possesses various types of manifestation in the oral cavity in children, the diagnosis and treatment should be performed together with infectionists, immunologists, oncologists, hematologists and other doctors in specialized hospitals.

Prevention of AIDS in dentistry provides for thorough anamnesis data collection, determining risk groups amidst the teenagers (risk group children, without definite residence, drug addicts, etc.), and instrument sterilization. The dentists must work with patients using masks, spectacles, gloves, etc.