MINISTRY OF HEATH OF UKRAINE

POLTAVA STATE MEDICAL UNIVERSITY

Department of general surgery

METHODICAL INSTRUCTIONS
FOR STUDENT SELF-DIRECTED WORK WHEN PREPARING FOR AND DURING PRACTICAL CLASS

Study discipline	**General surgery**
Module №2	***Surgical infection. Necrosis. Basics of clinical oncology. Curing of surgical patients***
Content module 1.	**Surgical infection. necrosis**
Lesson theme №25	Tetanus. Anthrax. Diphtheria of a wound. Etiology, pathogenesis, clinic, diagnosis, treatment, prevention. Diagnosis, prevention and treatment of tetanus in conditions of military operations and extreme situations
Years of study	***III***
Faculty	***International***

Poltava

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1. Relevance of the topic :

Tetanus , anaerobic gas gangrene , anthrax and diphtheria are acute infections that are studied in the clinic of infectious diseases, but are also relevant to surgery. The distinctive features of these infections are:

- The specificity of pathogens ;
- The specificity of the current global and local responses;
- Diagnosis and treatment ;
- The epidemic nature of the disease .

Tetanus - a serious toxic- infectious disease that can occur after any injury to the skin and mucous membranes contaminated with spores of the pathogen. Tetanus is easier to prevent than to cure. Despite the use of the most modern methods of treatment , mortality from it reaches 60-80 % , most reconvalistentiv (up 84%) remained disabled.

Local manifestations of cutaneous anthrax similar to acute suppurative disease caused by infection of the banal and diphtheria wounds can be regarded as non-specific purulent inflammation. Diagnostic errors can occur hospitalization in a surgical department and the spread of infection , inadequate treatment of the generalization of the process and threatens the death of patients.

Although the number of patients in this group a very small surgical clinic , clinical value for diagnosis and treatment of wound complications and topical inflammatory processes .

2 . Learning Objectives :

1. Study the features of gas gangrene , tetanus , anthrax , diphtheria wounds.
2 . To learn the principles of diagnosis and differential diagnosis of gas gangrene , tetanus , anthrax , diphtheria wounds.
3 . To study the features of surgical treatment of gas gangrene , tetanus, anthrax and diphtheria wounds.
4 . To study the features of the conservative treatment of gas gangrene , tetanus, anthrax and diphtheria wounds.
5 . Learn basic methods of prevention of gas gangrene , tetanus, anthrax and diphtheria wounds.

3. Basic knowledge, skills necessary for studying the topic (inter-disciplinary integration)

The names of the preceding disciplines	**the acquired skills**
Microbiology	Principles of microbiological research.
Pathological physiology	The etiology of gas gangrene, tetanus, anthrax, diphtheria.
Pharmacology	Signs of inflammatory process
Pathology	Principles of modern rational therapy of gas gangrene, tetanus, anthrax and diphtheria wounds

The student must have an idea :

- On the etiology, pathogenesis , classification , clinic, and the structure of gas gangrene , tetanus , anthrax , diphtheria ;
- The modern classification of wound process gas gangrene , tetanus , anthrax , diphtheria ;
- Types of wound healing ;

- On the general reaction of the organism to the agent of gas gangrene , tetanus , anthrax , diphtheria ;
- On special methods of clinical assessment of patients with acute specific surgical infection .

The student should know :
- Basics of aseptic and antiseptic ;
- Definition of specific surgical acute infection ;
- Etiology and pathogenesis of acute specific surgical infection ;
- The histological structure of the skin , fat, muscle, bone ,
- Possible general and local complications ;
- The main stages of surgery ;
- Features specific surgical management of acute infection;
- Methods specific acute surgical infection ;
- Different types of dressings that can be used ;
- The principles of care for patients with acute specific surgical infection ;
- Basic mechanisms and timing of acute specific surgical infection .

The student should be able to:
- Apply the principles of care for surgical patients (hygiene of patients with the disease site) ;
- Inspect the patient and the site of disease ;
- Be able to provide clinical interpretation of the identified symptoms;
- Establish a clinical diagnosis ;
- Appoint conservative treatment ;
- Justify the indications for surgical intervention ;
- Conduct post-operative monitoring of patients and to provide care ;
- Apply preventive agents for acute specific surgical infection ;

Mastering the skills of students:
- Master the technique of palpation to determine the boundaries impression of tissues, organs ;
- Identify the symptoms of inflammation ;
- Learn to identify fluctuation or softening in the inflammation ;
- Learning how to wash the wound with antiseptics ;
- Identify the clinical and morphological characteristics of the primary and wound healing by secondary intention ;
- To improve the technique of applying different types of bandages, depending on the localization of the pathological process;
- Master the technique of collection of material on the sensitivity of microorganisms to antibiotics.

4. Tasks for self-study in preparation for the lesson .

4.1. The list of basic terms , parameters, characteristics, which the student must learn in preparation for the class:

4.2 . Theoretical questions for the class :

1. The modern view of the etiology , pathogenesis, clinical and morphological characteristics of acute specific surgical infection .
2 . The clinic, diagnosis of wound healing in acute specific surgical infection .
3 . Methods for diagnosing and monitoring the process of wound healing in acute specific surgical infection .
4 . Modern principles and methods for the treatment of acute specific surgical infection ;
5 . Types of wound healing following surgical treatment of acute specific surgical infection ;
6. Technique for surgical treatment of acute specific surgical infection ;
7. General characteristic of the drugs that are used for the topical treatment and prevention of

infectious complications.

8. Therapy depending on the phase of wound healing .
9. Preventive measures for the further progression of the disease .

4.3.Praktical tasks used in class:

1 Transport the patient to the operating room .
2 . Laying the patient on the operating table, according to the area of the manipulation.
3 . Treatment of hands to perform the procedure.
4 . To be able to put on a sterile gown .
5 . To collect anamnesis of patients .
6. To evaluate the results of laboratory research methods and plan further investigation .
7. A plan of treatment a particular patient .
8. Drawing up of a landmark epikriza .
9. Development of primary documentation (history).
10 . An analysis of archival material.
11. Prepare a kit for washing the wound.
12. Prepare a kit for performing ligation .
13. Specimen collection for bacteriological control .
14. Different types of cleaning in contaminated dressing .
15. Disposal of dressing.
16. Manufacturing tables and other illustrative material (photos , slides, drugs) .

5. Content of topic

Tetanus . Known for a very long time. Most commonly found in the hostilities. Hippocrates described it 2,500 years ago. MI Pies provided for infectious origin tetanus. In 1889, ND The monastery discovered the pathogen in smears from the wound , and in 1884 Nikolayer - in the soil. In 1883, S. Kitazatov got a pure culture of the microbe .

Etiology, epidemiology: tetanus - tetanus bacillus (Cl.Tetani) Gram positive , spore-forming , anaerobic microorganism , length 4.2 m. Has a characteristic shape of a drumstick . Very resistant - withstands boiling up to 1 hour. In the external environment disputes persist for years.

Sources: Tetanus bacteria live in the gut of humans and domestic animals. The external environment with the faeces fall . Occur wherever a person lives : in the soil, street dust in the contaminated skin, clothing , lingerie, hair.

The input gate for tetanus bacillus can be random wound , including small surface in the form of scratches, abrasion , thermal damage to the surface . Possible penetration of the pathogen during operations in this due to defective processing of the operative field , catgut sterilization , removal of foreign bodies from the opening of the colon, etc. injections in criminal abortion , childbirth, through the umbilical cord of the newborn.

In recent years, the incidence of tetanus in Ukraine has decreased significantly . In 1998, reported a total of 41 cases (0.8 per 100,000) . However, the mortality rate remained at 60 %, which was due to :

- The age structure (85 % of the patients were over 60 years old) ;
- Violations of planned and emergency immunization ;
- Lack of proper sanatorium - formations. work (80 % of victims out of time or do not seek medical attention after injury ;)
- The presence of regions with a high risk of the disease (the degree of contamination of the soil tetanus wand 95-98 %).

Classification of tetanus (see illustrative material)

pathogenesis :

Natural immunity against tetanus is missing, but non-specific defenses are usually sufficient to overcome the infection.

Contribute to the development of tetanus :

- Large wounds (especially firearms) with significant tissue damage and necrosis ;
- Contamination of wounds land (especially in the railway and agricultural injuries) , fecal matter ;
- The presence of foreign bodies in the wound ;
- Association with the tetanus bacillus gnieridnimy and putrid bacteria
- Fatigue , cooling blood loss .

The frequency of complications of tetanus is seasonal : more common in the summer , less often - in the winter .

Tetanus do not penetrate deep into the tissue and reproduce itself in the area of infection.

Tetanus bacillus highlights exotoxin , consisting of tetanospasmin and tetanogemolisin . The first is the tonic and clonic convulsions of striated muscles , the second - destroys red blood cells. Effect of toxins on the body determines the manifestations of the disease . They quickly resorbtion lymphatic vessels , then enter the bloodstream , where they are bound to plasma globulins . Tetanus toxins have a significant affinity for the central nervous system, acting on the dorsal medulla , the motor centers of the brain, which are formed pockets of excitement. In these structures toxin enters via axons of peripheral nerves , or with blood . As a result of the overwhelming impact of toxins on plug- gamma neurons of the spinal cord, suffering brake function , there are convulsions. Tetanus toxin is equally impressive myocardium, parenchymal organs , the vegetative centers of the brain stem , and other body systems. Transferred tetanus does not leave long-lasting immunity .

Clinic of tetanus.

The incubation period lasts from 3-4 up to 20 days or more . Brief may be only at laboratory infection.

- Early symptoms :
- Violation of swallowing and sore throat;
- Pain in the area of the wound , possibly with a convulsive twitching limbs impression ;
- The pain along the nerve trunks with pressure , toothache ;
- Increased tendon reflexes , the occurrence of pathological reflexes;
- Headache , paleness , sickness , irritability , restlessness , anxiety , insomnia ;
- Increased sweating, low-grade fever , dysuria
- Spasm of facial muscles after tapping the ends of the fingers parotid region;
- Spasmodic reduction of masticatory muscles due to tapping the spatula , placed on the lower teeth (a sign of Lorin - Epstein) .

The main symptoms :

- pain in the epigastric region and the sides of the chest ;
- rigidity of chewing and facial muscles , which leads to lockjaw - the inability to open the mouth wide , " a sardonic smile ," or mournful kind of person;
- muscle tension neck, throw your head back ;
- dysphagia, articulation disorders ;
- tonic and clonic convulsions trunk and extremities, with the development of opisthotonos , posture embryo. If the court is possible fractures and ruptures of muscles ;
- tetanic reduction of intercostal muscles, breathing disorders , which takes the nature of the phrenic ;
- spasmodic contraction of the glottis , and the diaphragm, which can occur when respiratory arrest , asphyxia and death ;
- Increasing the temperature to 40-42 0C.

The development of seizures has said sequence : first, there is lockjaw , then spontaneous reduction of facial muscles , then the process involved neck muscles , and then the long muscles of the back and abdominal muscles. Least of all spasms affect muscles of the limbs , especially the top . The last thing affects swallowing , the intercostal muscles and diaphragm . This is different interrelation antagonist muscles groups.

Clinic tetanus progresses rapidly . The main manifestation of the disease are clonic convulsions of all the skeletal muscles. The intensity of the court is subject to increase . Before they occur cause the

slightest sound , light , or mechanical stimuli. Depending on the severity of seizures lasting from 1-2 seconds at intervals of several hours , up to 1-2 minutes at intervals of 10-15 minutes , several times an hour , and even sometimes serially continuously.

Loss of consciousness and sensitivity to tetanus are not typical . Tetanus polisistemic disease. With its severe violations :

- The activities of the cardiovascular system ;
- The processes of external and tissue respiration ;
- 2-3 times more oxygen consumption increases ;
- Significantly increased heat generation ;
- There is profuse sweating the loss of significant amounts of water and electrolytes;
- Observed autonomic disorders, trophic tissue ;
- Violated specific immune reactivity against bacterial antigens and non-specific immune system protection.

Acute widespread (generalized) Tetanus has a stroke , which to some extent determined by the duration of the incubation and initial periods (initial, or prodromal period Cole - at the first signs of a generalization of the disease) . What they are shorter - the harder . However, these criteria are not absolute values. Similarly, decide on the severity of the disease is possible only after 2-3 days of hospitalization . Mild form (I severity) has an incubation period of 3-4 weeks , starting -5-6 days. Manifested by muscle pain , a common tonic muscle tension , often in the face, head and neck. , There may be a lockjaw , minor dysphagia . Disordered breathing , blood circulation , and others . does not happen. The body temperature is normal or low-grade . The general condition is satisfactory. Disease duration 1-1.5 weeks . The prognosis is favorable .

Tetanus is moderate (II degree) has an incubation period - 2-3 weeks, starting - 3-4 days. Characterized by pain , generalized tonic muscle tension , partial or complete immobilization of patients , a significant trismus and dysphagia , which do not allow yourself to eat . There has been increased sweating , hyperthermia within 38-39 0C, tachycardia , hypertension , tachypnea , respectively a significant increase in oxygen consumption , increased secretion in the bronchi and Troch , frustration cough act. The condition of patients difficult . The criterion of this form is the absence of clonic seizures. Disease duration 1.5-2 weeks .

Possible complications: obstructive respiratory failure, pulmonary atelectasis with the transition into pneumonia , heart failure, secondary adrenal insufficiency , abnormal hypertension, edema of the brain. Forecast: with timely proper treatment can recover fully .

Severe form (III degree) has an incubation period - 1-2 weeks , starting - 2-3 days. Against the background of the manifestation characteristic of II degree of severity, there are clonic and tonic - clonic seizures. The temperature reaches 400C . Cramps are very painful , frequent , debilitating the patient, sometimes lead to bone fractures and muscle rupture . Against the background of the court may develop asphyxial crisis - because of gutturotetany and spasm of respiratory muscles for 5-10 seconds develop severe hypoxia with cyanosis , dilated pupils , loss of pritomnosti and heart failure. Patients frequently die within 4-5 days.

Very severe (IV degree) has an incubation period - 5-7 days , starting - 24-48 hours. Characterized by prolonged or serial seizures, which may be continuous. Typical of their resistance to conventional anticonvulsants , and even muscle relaxants . Temperature exceeds 400C . Very often there are cardio-vascular insufficiency , acute asphyxia , hypertension, edema of the brain. Death can occur within 1-2 days. In the case of recovery after the acute period of a long time remain tachycardia , hypotension , weakness , sweating, joint contractures , spinal deformities .

Chronic tetanus is rare , is characterized by a gentle flow with limited involvement of muscles in the injured area . It should be remembered that the local tetanus can go to the general .

Late and recurrent tetanus occur months or years after the injury , due to the activation of latent infection. Aggravating factors subservient trauma , surgery , particularly later removal of foreign body .

The **diagnosis** is mainly based on the clinical manifestation of the disease, and to identify Bacterioscopy tetanus toxin in the culture of secondary importance .

Treatment of tetanus is in intensive care specialists who have experience in this , anesthesiologists

, surgeons , and others . Therapeutic measures include:

- The surgical wound treatment with excision of devitalized tissue abscesses and wide -opening heats , removal of foreign bodies , scabbing . Should be directed to look for ulcers . Wounds should be left open, irrigation solution of hydrogen peroxide , antiseptics. If the wound has healed shown repeated , even more radical treatment .

- **Specific therapy** of tetanus serum (PPP) , which only neutralizes circulating toxin and tetanus human immunoglobulin (PSCHI) , which is considered to be a much better event - provides a longer circulating antitoxin in the blood with minimal sensitization . Concurrent administration of tetanus toxoid is now considered inappropriate, since it leads to the binding of antibodies introduced . PPP vaccine administered in the first 2-3 days , simultaneously intravenously at a dose of 500 IU / kg at 1:10 dilution . PSCHI is mainly used when contraindicated PPP is introduced simultaneously domyazevo at 1,000 - 10,000 IU . During active immunization of AP- and keep in mind that PPP is effective for 2-3 weeks , PSCHI - 4-6 weeks.

- Antibiotic therapy using early days of penicillin and streptomycin , which is sensitive to tetanus and then broad spectrum antibiotics and metronidazole for combating purulent complications.

- Anticonvulsant therapy with the use of barbiturates, neyroplegic mixtures antipsychotics , narcotic and non-narcotic analgesics, ataractix in various combinations. Against the frantic measures do not fit into the standard scheme. The best combination is a barbiturate phenothiazine (chlorpromazine , etc. .) And benzodiazepines (sibazon etc.). Barbiturates (0.5 % sodium thiopental or hexenal) are appointed until at irritation will occur even minor tonic tension . In severe and very severe disease used muscle relaxants antidepolyarisation action (tubarin , tubocurarine , etc.). , Held ventilation .

- Tracheotomy , which is shown in the Grade III-IV disease severity , in order to improve alveolar ventilation , prevention of acute asphyxia , evacuation of secretion from trachea and bronchi. Imposition of appropriate tracheostomy at the earliest possible time.

- Prevention and treatment of secondary pneumonia with use of broad spectrum antibiotics , given the sensitivity of the microflora , heparin , can massage , vibratory massage . Systematic turning the patient.

- Provide a lot of energy and fluid loss . In severe tetanus patients require 30 kcal / kg / day of application 10% for each degree increase in temperature of more than 37.5 0C. Appointed by the liquid and semi-liquid food . If you violate swallowing applied nutrition through a nasogastric tube or gastrostomy .

- Infusion therapy for correction of geodynamic and electrolyte imbalance , parenteral nutrition. The optimal dose of 70-75 ml / kg for the fluid introduced through a probe .

- Hypothermia , if the temperature exceeds 380 C. , with medication and physical activities (wrapping sheets soaked in cold water and diluted vinegar , cold on the projection of the great arteries , head, use of the device "Cold") .

- The use of special methods of detoxification : hemodilution , forced diuresis , plasmaferes , hyperbaric oxygenation.

- Careful skin care (prevention of pressure sores) , oral cavity. timely bowel movements , urination , prevention of keratitis , etc. .

Epidemic danger of tetanus patients are not .

Immunity had been ill does not develop because of the weakness of antigenic stimulation - a lethal dose of toxin is less immunogenic .

Prevention is an effective method of preventing the disease is active immunization with tetanus toxoid (AP s) . Active immunization is required for all persons who have no contraindications .

Full primary (routine) vaccination provides three vaccinations whooping cough adsorbed diphtheria - tetanus vaccine (DTP- in) from three months of age , with an interval of one month and the first booster dose at 18 months of life. In the future, every 10 years has been the introduction of a one-time booster dose of AP- A or ACD -A. Persons to whom the vaccine is not conducted in a timely manner , and the AP- injected 0.5 mL of 2 times at intervals of 30-40 days, then every 9-12 months and every 8-10 years. After completing the course of immunization organism retains the ability to quickly (within 2-3 days) to produce antitoxin in response to the re-introduction of the AP -A. Active immunization is

scheduled Calendar vaccinations approved by the Ministry of Health of Ukraine.

Emergency prevention of tetanus includes primary debridement and simultaneous specific immunization is shown in :

- Injuries to the violation of the integrity of the skin and mucous membranes;
- Frostbitten and burns (thermal, chemical , etc.). II-III-IV degree;
- Skip lesions of the gastrointestinal tract;
- Outside the hospital for hospital abortions and childbirth ;
- Gangrene or necrosis in any phase , abscesses ;
- Animal bites ;

Particular attention should be paid to:

- All the wounds of war and all firearm injuries ;
- All of the wounds received in the agricultural and transport injuries.
- Wounds contaminated with soil , street dust, intestinal contents , saliva ;
- Wounds containing foreign bodies ;
- Wounds with a lot of non-viable tissue .

The volume of surgical treatment due to the nature of damage , the presence and distribution of inflammatory and suppurative complications. It is advisable to use of prophylactic antibiotics, metronidazole .

Means of emergency prevention (AP -a , Td and , PSCHI , PPP) are used , depending on:

- There are documented on vaccinations ;
- Data immunological control of tension tetanus immunity;
- The nature of injury ;

The selection circuit prophylactic agents (see table).

The **prognosis** of tetanus depends on the form and severity , reactivity , timeliness and quality of specific and non-specific prevention and treatment. Mortality still reaches 60-80%. In people who have had tetanus in 84 % of cases are a variety of pathological changes :

- Cardio- vascular system - tachycardia, labile blood pressure , hypertrophy of the right heart , the blockade of the conduction system , arrhythmia ;
- Increased consumption of oxygen at a reduced ratio of its use , impaired performance of functional activity of the lungs;
- Compression deformation and compaction of the vertebral bodies , degenerative- dystrophic changes of the spine and joints.

Residual changes require rehabilitation : sanatorium treatment for 3-5 months of follow-up . Recovery efficiency is observed in 60% of recovered . The rest needs to be translated to a lighter job or disability.

ANTHRAX or anthrax (Anthrax) - an acute infectious , deadly infectious disease of humans and animals. In the past has been one of the most common infections. At present, the world each year 25 100 thous . cases of human diseases - mainly in economically backward , agricultural countries . In Ukraine, there is sporadic in more southern areas. Today there is a real danger of the use of anthrax as a biological weapon , and also means bioterarism . The disease is known for a very long time under the name " Persian fire." In 1787, during an epidemic in the Urals Russian scientist S.S.Andriivsky by self-infection proved the unity of the etiology of the disease of humans and animals and gave it a name - " anthrax ." In 1876, R. Koch described and got a pure culture of the pathogen , and in 1881 created the L.Paser live vaccine for the immunization of animal diseases .

The etiology and epidemiology. Anthrax is Bacillus Anthracis - big stick a 5 - 8x1 -1, 5 microns, aerobic or facultative anaerobic (grows better in the presence of oxygen , but not without it) , with the optimum development - t 370S , Ph 7.4. There are R and S forms . Virulent only the first one , it forms spores that are very stable in the environment, can survive up to 100 years , withstand boiling to 120 degrees for 2 hours . In humans , the agent forms a vegetative form as sticks, surrounded by a capsule that protects it from absorbing phagocytes , prevents the formation of specific antibodies. Virulence anthrax toxin is also associated with the complex , which consists of swollen - inflammatory , protective -

protecting and lethal factor .

Siberian tenderloin typical anthropozoonosis . The source of human infection are predominantly herbivores , but there may be dogs, cats , rats, white mice , bears, birds . The transmission of pathogens by blood insects. Infection occurs from the corpses of those killed in the care of sick animals , slaughtering , meat processing , leather and others . , Eating foods fertilized with anthrax spores . Disease occurs more often warm season . Artificial contamination is most likely in the form of spore forms of droplet mixture or powder filler. Militarily, the causative agent of anthrax has attracted the attention of lung capacity , long storage , creating long-term sustainable land contamination, the general lack of danger of the epidemic among its soldiers . Infection of a healthy person of the patient with little direct contact is possible.

The most common pathogen is spread by contact , are also possible nutritional , air , and transmissive mechanisms of transmission.

Pathogenesis : atrium , often in the form of spores , can be damaged areas of the skin , the respiratory and digestive tracts . Development of disease is caused by the action of endotoxin and depends on the immune system and the dose of agent , coming from the primary site of localization.

Currently, recognize the existence of localized (skin), and septic forms of anthrax . Lung and intestinal manifestations of the disease can arise depending on the pathways dispute . In the first stage , regardless of the entrance gate is affected regional lymph nodes , in the second , there is a breakthrough infection in the bloodstream , the generalization of the process: the progressive toxemia , toxicoinfection shock that most often ends in death. The incubation period can last from a few hours to a week , more often - 2-3 days. The most frequently (99 %) are localized - leather anthrax . The city is developing pathogen penetration of coagulation necrosis of the skin and subcutaneous tissue, significant swelling . Joining nonspecific infection is almost not observed. Leather anthrax rarely ends generalization of the process . If this happens, the local manifestation of almost designation .

In anthrax visceral inflammation develops in the lymph nodes of the thorax or abdomen . Lymphadenitis - most remote from the gate of infection - is the primary focus of sepsis . Contact , lymph and hematogenous routes process goes on mediastinal tissue , lungs, pleura , pericardium , digestive tract , brain and its membranes . For anthrax is characterized by acute hemorrhagic inflammation with serous , fibrinous or necrotic components. In immunogenesis bodies showing signs of depression of immune protection .

Clinical picture: Fo**r** all forms of anthrax characteristic symptoms of severe intoxication : raising the temperature to 39-40 0C , weakness , headache , insomnia , lack of appetite , delirium , convulsions , vomiting , and sometimes brain disorder.

The pulmonary form is shown :

- The short incubation period ;
- Runny nose, watery eyes ;
- Allocation of liquid , foam , blood sputum , with a high content of pathogens ;
- Fast- growing cardiovascular failure ;
- The patient's death within 2-3 days.

Gastrointestinal anthrax is characterized by:

- Acute onset ;
- Frequent , rare, bloody stools , vomiting ;
- Cutting pain in the abdomen;
- The rapidly growing cardiovascular failure ;
- The patient's death within 1-2 days.

Cutaneous anthrax is most often seen in open areas : cheeks , eyelids , forehead , neck , arms , upper arm . Can multiple localization . Are not affected by the palm , the ends of the fingers , ears , nose .

Allocate: carbunculus , edematosus , bullous and erizepilicus species.

Antracis bacteremia occurs more frequently (99.1 %) , should be periodically certain manifestations :

- After 2-14 days of infection for months incarnation appears tight , itchy , red spot that looks like an insect bite .

- For one night itching is greatly enhanced by moving into a burning pain . In the center of the bubble seal appears filled with a dark liquid , then at his place formed an ulcer the size of 8-15 mm, with a black bottom , which is the name of the carbuncle . Since then, the temperature rises , there is a headache , disturbed sleep, appetite , and others .

- In the following 5-6 days around the ulcer is formed roller inflammatory , swelling , soft tissue swelling . Sinks to the bottom of the ulcer , pressed abundantly released sero -hemorrhagic fluid. On the edge of having children vesicles , which are bursting at night , dry up , replaced them , moving to the periphery, new ones appear. This causes an increase in eccentric carbuncle , the amount of which reaches ten cm

- During the period of greatest clinical manifestations in developed areas of subcutaneous tissue , at some distance from the carbuncle can appear clearly limited areas of secondary necrosis , the latter sometimes merge with the primary focus . Carbuncle size does not determine the size of necrosis, but characterizes the severity of the disease.

- Over the next 7-14 days, gradually swelling disappears , the site of a carbuncle formed a scab , with the demarcation zone around. Normalized overall condition.

- By the end of 2-3 weeks scab rejected . in its place is granulating wound with purulent discharge . Skin defect , depending on the depth is replaced by connective tissue and young epitelizuetsya .

Anthrax carbuncle is different from the banal :

- The absence of pain ;

- The characteristic appearance and character of discharge ;

- Regional lymphadenitis , with painless lymph nodes.

Edematosus form of anthrax is rare , has a very severe , may progress to a generalized form . Its distinguishing feature is a large , progressive painless swelling of the thick , which subsequently covered with small bubbles with serous fluid and areas of necrosis. 3-4 day bubbles burst , with the release of a large amount of serous fluid. 8-10 day formed a scab , the further course reminds karbunkuloznu form of anthrax.

Bullous form as a liquid . Its characteristic is the appearance of the entrance gate to the site of infection with hemorrhagic fluid bubbles that are rapidly increasing. For 5-10 days vskrivayutsya bubbles or necrotic , ulcerated surface formed distributed , similar to anthrax carbuncle . The further course identical .

Erisipelosis form - the least common , is characterized by mild and favorable prognosis. Manifested by the appearance of swollen , reddened skin of a large number of off-white bubbles of different sizes. After 3-4 days, the bubbles are hiding , formed multiple , shallow ulcers, with bluish - down. They quickly dry up , forming a scab .

Sepsis is characterized by the appearance of anthrax in the blood, lymph, internal organs , a large number of agent . There are growing signs of intoxication , the temperature rises and then falls below normal, impaired blood clotting, which is accompanied by multiple , hemorrhagic manifestations. Develops clinical bacteriological toxic shock , multiple organ failure.

Diagnosis of anthrax include:

- Bacteriological content of the vesicles carbuncle , blood, sputum , faeces .

- Bacteriological method - seed material special medium with blood.

- The biological method - Input laboratory animals , which in the presence of anthrax killed after 24-48 hours of sepsis.

- Thermo- precipitation reaction at Ascoli , which is based on the detection of heat-stable antigen anthrax in the precipitates with serum obtained at giperimunisations horses killed cultures of microbes.

- Allergic method - used for retrospective diagnosis . Subcutaneously injected antraksinom - a complex set obtained by hydrolysis of anthrax . The appearance after 24 hours sites of inflammation is regarded as a positive reaction .

- Recently, the use of the method of molecular diagnostic and enzyme immunoassay method .

Treatment of all forms of anthrax should be comprehensive and conservative.

- Local treatment of cutaneous forms is to provide the rest of the affected area , aseptic bandage or ointment .

- Specific therapy comprising administering to a specific serum from 40 to 100 ml and the parallel application specific antyantracis gamma globulin from 20 to 150 ml per day to 450 ml per course , depending on the severity .

- Antibiotic derivatives of penicillin, tetracycline , gentamicin , chloramphenicol , cephalosporins , ftorhinalonamy .

- In addition , it is necessary to conduct desintoxication infusion therapy , correction of geodynamic and fluid and electrolyte disorders, administered corticosteroids simpatolitix and others on the principles of intensive therapy for sepsis , depending on the patient's condition.

Prevention: In hazardous areas for the occurrence of anthrax enter complex orders. surveil . events. Persons who are engaged in the study of infectious material to work with animals and animal materials, conducts routine active immunization . Scarifications or subcutaneously at intervals of 20-30 days, the injected dry whithout capsula live spore vaccine , one year revaccination is performed .

Emergency prevention is carried out in the first 5 days of exposure to infectious materials , sick people and animals. Recommended 5 -day course of antibiotics (doxycycline , rifampin , fluoroquinolones), and antyantracis globulin (20 - 25ml) . For contact persons for 8-9 days set medical supervision .

Patients with anthrax hospitalized in the infectious ward , as this is not possible , they can isolate individual therapeutic wards.

In a hospital administered daily current disinfection discharge the patient, utensils, medical supplies and patient care . The final disinfection is performed after discharge or death of the patient . Quarantine lifted after 15 days from the date of the last case of the disease.

The corpses of the dead from anthrax in cases of laboratory- confirmed , are not subject to autopsy . In an emergency, the doctor performs an autopsy pathologist in the presence of a physician epidemiologist , a specialist in very dangerous infections is performed to disinfect the room and all items of contact with the deceased.

Diphtheria (diphteria) - an acute infectious disease characterized by local fibro- necrotic inflammation (most often oropharyngeal mucosa) , the phenomena of general intoxication , mainly affecting the cardiovascular and nervous systems.

From the surgical point of view the wound diphtheria (Diphteria vulnerum). In doantiseptichny period was very common . Nowadays almost does not occur , but this possibility is not excluded.

Now is not resolved before the end of the epidemic of diphtheria 90 years of the twentieth century , when the incidence in Ukraine reached 2.2 per 100,000 population. The actual incidence is not known, since even in the developed countries have officially reported only 11-63 % of cases. The mortality from diphtheria in adults is 3-7%

Etiology The causative agent of diphtheria (Corynebacterium diphteriae) was discovered almost simultaneously Klebs (1883) and Leffler (1884). Diphtheria bacillus (bacillus Leffler) , gram positive , still , does not form spores germ , 2-8 microns in length . In pure culture dies quickly at 600C . In fibrin films by covering areas of inflammation and wounds , more stable - withstands temperature 1000C for one hour . For a long time retains virulence in the oral cavity , in an environment viable up to 15 days in water and milk - 1-3 weeks. The presence of other microbes enhances the action of diphtheria bacilli .

Depending on the enzymatic properties of hemolytic activity, the appearance of colonies , three types of agents Mitis , Gravis Intermedi . Each of them has strains which secrete or release a toxin identical for all variants of bacteria. The disease is caused only toxigenic strains . Toxigenicity deterministic special gene. With his loss ceases to be a pathogenic bacterium . Toxin associated with replication in korinobakterii bacteriophages containing the gene in their DNA toxicity. By the reaction of phage lysis , distinguish 35 fagovarov pathogens. Each type of phage is quite stable , can be manifested in the oropharynx of healthy people for many years. The ability to toxsin-formation determined and culture conditions . In the laboratory, demonstrated the possibility of conversion is not toxigenic strains in toxigenic (the phenomenon of lysogenic conversion) . Under normal circumstances, such a transformation is beyond question. Therefore, most authors believe that nontoxigenic strains of diphtheria epidemic rods do not pose danger. Such false Corynebacterium diphtheria germs are safe in the epidemic respect.

Epidemiology . Anthroponotic diphtheria infection . The sources of its distribution are patients or carriers of toxigenic diphtheria sticks. The carriers are especially dangerous because rarely occur . It is believed that they are associated with up to 90 % of diphtheria .

The path of transmission - mainly airborne . A particularly large number of diphtheria sticks mysticism in nasopharyngeal secretions in the early days of diphtheria and respiratory disease in carriers . Possible infection through utensils , toys.

Entrance gate and the place of inflammation is most often the mucous membrane of tonsils and pharynx (92%), rarely the nose (0.5%), larynx (1%) , very rare eye (0.3 %) , genital organs , skin (0 , 2 %).

Lots of cases of disease in the autumn and winter, when hypothermia and respiratory infections reduce the protective capacity of the body. In our time, the disease is observed :

- In the form of sporadic cases or outbreaks , depending on the level of immunity ;
- Ill mostly are not vaccinated or vaccinated with a violation of the rules ;
- More than often, the disease occurs in adults;
- Noted a large number of atypical forms, which are not diagnosed in time .

The susceptibility of people to diphtheria determined by the presence of diphtheria antitoxic immunity. Provides protection from the disease in the blood content of 0.03 AO / ml of specific antibodies. However, this level leaves open the possibility of forming a carrier .

After the disease is formed by a short antitoxin immunity and 1-1.5 years diphtheria may arise again . Vaccinations also does not guarantee absolute protection , but the disease has immunized more easily flow.

Pathogenesis. Toxigenic Corynebacterium embodied in the tissue near the entrance gate . Multiplying they secrete an exotoxin and neuraminidase number of biologically active substances , all of these products are responsible for local and general manifestation of the pathological process .

- Diphtheria exotoxin in strength to the body is second only to botulism and tetanus toxins . It determines the specificity of the heat-labile moiety , stops protein synthesis by cells , leading them to destruction. Thermostable moiety recognizes a target cell and fixed to them.

- Hyaluronic acid, hyaluronidase destroys capillaries increase their permeability leads to exit the tissue blood plasma with a high content of fibrin.

- Necrotoxin causes necrosis of the epithelium , accompanied by the release trombokinasy . LATEST causes the fibrinogen to fibrin , saturation of tissue and the formation on the surface characteristic of the film.

Local inflammatory reaction at first manifested by edema and hyperemia . Away form foci of necrosis, most marked at the periphery of breeding of pathogens. Strengthening of local inflammation is accompanied by a paralytic dilation and increased permeability of blood vessels. In the area of inflammation and necrosis focus macrophages . As there are a large number of exudate of fibrin, which saturates the entire thickness of the tissue and forms a tightly knit film. On the necrotic tissue easily settle and multiply secondary flora (streptococci , staphylococci , etc.). , What aggravates the disease.

Common manifestations of diphtheria. Distribution toxin and biologically active substances lymphatic pathways leading to enlargement of peripheral lymph nodes of toxigenic lymphadenitis reactive edema.

Hematogenous by toxin reaches and fixed on the surface of cells of target organs quickly penetrates to the middle , protein synthesis terminates , causing cell death. In diphtheria toxin all sensitive organs. The most vulnerable are the heart muscle cells , nerve cells , adrenal glands, kidneys. Clinical symptoms appear after a latent period , the duration of which depends on concentration of circulating toxins and biologically active substances. So peripheral neuritis , myocarditis may occur after 5-7 days and even earlier. Perhaps the development of multiple organ failure and is associated not only with the effects of exposure to toxins , but also with metabolic disorders . The most common manifestations of diphtheria marked the localization process in the oropharynx , the least - in the defeat genital skin.

Classification .

According to the location , distinguish diphtheria pharynx , larynx , nose , eyes, genitals, skin wounds.

Depending on the current process is isolated :

- Subtoxic , toxic (I-III degree) shape;
- Atypical (catarrhal) and typical (film) shape;

Diphtheria is typical : a localized , widespread , toxic.

The clinical picture of diphtheria wounds are characterized by:

- The appearance on the surface of wounds gray- yellow fibrinous raids , firmly soldered to the underlying tissues ;
- Development of a film of tissue necrosis ;
- The advent of serous- hemorrhagic discharge ;
- Edema and hyperemia of the surrounding tissue ;
- An increase in regional lymph nodes ;
- A significant inhibition of the healing process .

When diphtheria wounds general reaction of the organism is often little marked or absent. As is, the manifest typical symptoms of diphtheria : intoxication, toxic lesion of the heart muscle paralysis of individual nerves, sudden death. Accurate diagnosis of diphtheria wounds can be established only by means of bacteriological research.

Treatment of diphtheria include:

- Bed rest ;
- A high-calorie diet;
- Early - better in the first 1-2 days - the use of antitoxic serum in a dose of diphtheria :
- 30-40 thousand IU - in satisfactory condition ;
- 50-80 thousand IU - in a state of moderate severity ;
- 90-120 thousand IU - in serious condition ;
- 120-150 thousand IU in a very bad state ;

Serum is introduced intravenously domyazevo or isotonic sodium chloride solution , with corticosteroids , slow rate with 8-10 drops per minute.

- Antibiotic therapy (erythromycin 2 g per day, ampicillin to 3 g per day of penicillin to 6 million per day);
- Desintoxication therapy ;
- Heart ;
- Prevention of complications

Topical treatment should be conservative . The wounds are closed with aseptic or wet dressings with preservatives . Surgery may be used only in case of suppurative complications.

During treatment , patients with diphtheria wounds should be isolated.

Prevention . General activities are to identify and isolate patients and carriers , examination of contacts . In the hearth of disinfection , 7 days imposed quarantine.

Specific preventive aims to create herd immunity , by immunizing the entire population diphtheria toxoid .

Representatives of the groups at risk - especially health care workers must undergo an annual revaccination .

Classification of tetanus :

By the nature of damage :

- Wound ;
- Operations ;
- Injection ;
- Generic ;
- After thermal injuries ;
- Neonatal tetanus .

Dissemination :

General (common) :

primary common ;

descending;

upward ;
mixed .
- Local (limited) tetanus localized in the areas of injury :
extremities;
a head;
trank ;
several locations .

The clinical course :
- Lightning ;
- Sharp ;
- Subacute ;
- Chronic .

According to the severity of :
- Easy (I degree) ;
- Moderate (II degree) ;
- Severe (III degree) ;
- Very heavy (IV degree).

Also produce :
- Acute rapid flow and chronic ;
- Clearly marked and worn with uncharacteristic passage ;
- Late and recurrent tetanus

6. Materials for self-control.

1) The specificity of the specific causative agents of acute surgical infection ;
2) The specific causes of acute surgical infection ;
3) Determination of the specific surgical acute infection;
4) the specific clinical symptoms of acute surgical infection ;
5) Methods of diagnosis of acute specific surgical infection ;
6) Medical and surgical treatment of acute specific surgical infection ;
7) Sanitary- hygienic regimen in the care of patients with acute hirurgichnui specific infection ;
Specific and nonspecific prophylaxis of acute specific surgical infection

6.1. Tasks for self-control .

question:

1. The specificity of tetanus and gas gangrene ;
2 . Causes of anaerobic tetanus and gas gangrene ;
3 . Determination of tetanus and gas gangrene ;
4 . Clinical symptoms of tetanus and gas gangrene ;
5 . Methods of diagnosis of tetanus and gas gangrene ;
6. Conservative and surgical treatment of tetanus and gas gangrene ;
7. Sanitary and hygienic conditions in the care of the sick tetanus and gas gangrene ;
8. Specific and non-specific prevention of tetanus and gas gangrene .

objectives:

1) The course of gas gangrene , tetanus , anthrax , diphtheria wounds ;
2) The principles of management of patients with gas gangrene , tetanus , anthrax , diphtheria wounds ;
3) Surgical treatment of gas gangrene ;
4) Prevention of gas gangrene , tetanus, diphtheria, anthrax and healing;

5) The sanitary and hygienic conditions in the offices of the treatment of gas gangrene , tetanus , anthrax , diphtheria wounds

Tests in the amount of "Step 1 " is the "Step 2" .

6.3 Tests for self-control (basic knowledge)

Tests and testing task source of knowledge .

1. The most favorable for the development of tetanus are:
a) injury after elective surgery ;
b) wound after opening the abscess ;
c) deep cut wounds ;
d) superficial injuries - bruises that heal under a scab ;
e) wound with extensive necrosis of tissues, contaminated ground.

2 . Severe form of tetanus has an incubation period of :
a) 3-4 weeks ;
b) 2-3 weeks ;
c) 1-2 weeks ;
z) 5-7 days;
e) 2-3 days.

3 . In the main clinical symptoms of tetanus include all of the above except :
a) loss of pain sensation;
b) the rigidity of the masticatory muscles and the muscles of the neck ;
c) toniko - clonic convulsions ;
g) dysphagia ;
d) a significant increase in temperature.

4 . The clinical signs of anthrax carbuncle characterized (all true except)
a) the presence of a necrotic ulcer cavernous dark bottom - red ;
b) inflammatory roller with a crown of vesicles , dense and widespread basis swelling around ;
c) painless carbuncle ;
g) release of large amounts of pus thick ;
d) a significant amount of serous- fluid hemorrhagic .

5 . Treatment of cutaneous anthrax includes all of the above except for:
a) introducing specific sera against anthrax in a dose up to 100 ml ;
b) the introduction of a specific anti- anthrax gamaglobulin to 120ml ;
c) antibiotics (penicillin , tetracycline , cephalosporins , fluoroquinolones) ;
d) advanced surgical treatment ; d) dressings with a solution of antiseptic , anti-bacterial ointment on the hydrophilic base.

6. Diphtheria wounds characteristic (all true except)
a) a massive fibrin layer on the surface ;
b) obtaining a thick pus with a characteristic odor;
a) sero - spotting ;
d) swelling of surrounding tissue and skin;
d) regional lymphadenitis .

7. The optimal conditions for the development of gas gangrene occur when :
a) closed fractures ;
b) mechanical damage to the skin ;
c) burns II-IV degree;

g) frostbite II-IV degree;
e) insect bites .

8. Characteristic features of local gas gangrene are:
a) the inflammatory response , necrosis , swelling , intoxication ;
b) no inflammatory reaction , edema, necrosis ;
c) swelling, lymphangitis ;
g) elephantiasis ;
d) leucocytosis bacteriemiya , subfascial abscess .

9. Predominant localization process in gas gangrene are:
a) the head , the neck ;
b) the limb ;
c) the body ;
g) the perineum ;
d) intestine.

10 . When exposed to the body of pathogens gas gangrene developed :
a) multiple abscesses ;
b) detachment of the epidermis with necrosis of the subcutaneous tissue ;
c) gassing with necrosis of muscle and connective tissue ;
d) traumatic shock;
d) necrotic skin , muscle, bone .

11. Clinically distinguish the following forms of gas gangrene :
a) lightning ;
b) acute, subacute ;
c) acute, chronic ;
d) a chronic , recurrent ;
e) acute, relapsing .

12. Post-mortem distinguish the following forms of gas gangrene :
a) erythematosus , bullous , abscess , necrotic ;
b) metastatic , septic ;
c) septic , septicopiemic ;
g) emphysema , necrotic , abscess , edema ;
e) catarrhal , septic , tissue fusion .

13. According to the anatomic classification are the following forms of gas gangrene :
a) epifastsialis , subfascialis ;
b) intraarticularis ;
c) intraosseus ;
d) epidural , subdural ;
e) cutaneous , subcutaneous , muscular .

14. Typical signs of gas gangrene wounds during the inspection are:
a) swelling, redness , pus ;
b) swelling, red spots and streaks on the skin;
c) malodorous secretions from the wound , pale skin ;
g) emphysema, a rapid increase in edema ;
e) drawing pain in the wound , swelling, muscle twitching .

15. Nonspecific prevention of gas gangrene include:
a) primary surgical treatment of wounds ;
b) a massive antibiotic therapy ;
c) introducing antygangrenous serum ;
g) antibiotics wound injections
e) determining the sensitivity of the pathogen to antibiotics.

16. The most important therapeutic measures in gas gangrene are:
a) antishock therapy ;
b) the introduction of therapeutic doses of tetanus toxoid ;
c) desensitization and antibiotic therapy ;
d) opening the source of infection with debridement and oxibarotherapi ;
e) chipping lesions with antibiotics.

17. What is the minimum dose antygangrenous serum in the treatment of gas gangrene :
a) 30 000 IU;
b) 90, 000 IU;
c) 150 000 IU;
g) 300 000 IU;
d) 600 000 IU .

18. The characteristic clinical features of non-clostridial infection of soft tissues are:
a) swelling, marble pattern of the skin, flatulence ;
b) the flushing of the skin with clear boundaries ;
c) necrosis of muscle and connective tissue , flatulence ;
g) abscess with purulent hemorrhagic malodorous secretions ;
e) anemia , leukocytosis , muscle twitching in the area of inflammation.

19. Tetanus causes the disease , penetrating into the body through :
a) the damaged intestine serosa ;
b) broken skin or mucous membranes;
c) the upper airways ;
d) nutritional way;
e) airborne .

20. Leading role in the pathogenesis of tetanus exotoxin plays :
a) streptokinase ;
b) tetanogemolisin ;
c) hyaluronidase ;
g) leicocidin ;
e) tetanospasmin .

21. Incubation period for tetanus is on average :
a) 1-3 days ;
b) 4-14 days ;
c) 15-20 days
d) 21-30 days ;
d) 31-40 days.

22. Early symptoms of tetanus are:
a) edema, which progresses rapidly ;
b) the sardonic smile, opisthotonos ;

c) bradycardia , decreased body temperature, dry skin ;
g) clonus in the wound area , hyperthermia ;
d) loss of consciousness, paralysis.

23. A clear sign of tetanus are:
a) light-headedness;
b) decompensation cardiovascular system ;
c) anemia
d) sardonic smile ;
e) the attacks of fever , which are cycled .
24. The indications for emergency prevention of tetanus are:
a) burns and frostbite I degree ;
b) a closed fracture , rupture of muscles and tendons ;
c) operation on the colon ;
g) boil person;
d) operation on the muscles .

25. Non-specific tetanus prophylaxis consists of :
a) suturing the wound ;
b) hemosorption ;
c) the primary surgical treatment of wounds with a wide incision and drainage ;
g) barotherapy ;
e) the massive antibiotic therapy.

26. The specific active-passive prevention of tetanus is administered to the patient :
a) 1 ml of tetanus toxoid , and antibiotics ;
b) 1 ml of tetanus toxoid and muscle relaxants ;
c) 3000 AE tetanus serum and muscle relaxants ;
g) 1 ml of tetanus toxoid , 3000 AE tetanus toxoid ;
d) 3 000 AE tetanus serum and antibiotics.

27.Ekstrena specific prevention of tetanus is carried out at a concentration of tetanus toxoid in the serum of affected :
a) more than 0.1 IU / ml;
b) less than 0.1 IU / ml;
c) more than 0.01 IU / ml;
d) greater than 0.01 IU / ml;
d) less than 0.01 IU / ml.
Case studies for the source of knowledge

1. The Department received a patient with gas gangrene leg. Given the high contagiousness of anaerobic clostridial infection , you need to organize and control the observance of sanitary - epidemiological regime in office. What is it ?

2 . The patient , C., 24p . Operated on for acute appendicitis. On the fifth day a marked redness of the wound edges , swelling of the subcutaneous tissue in the upper quadrant and the upper thigh . The preliminary diagnosis ? What methods can be verified ?

3 . The patient on the fifth day after the injury the right hand , the temperature rose to 38 ° C , there were pains in the muscles , difficulty swallowing , inability to close the mouth , sardonic smile . What complication occurred in a patient ? Your actions ?

4 . Patient M. injured right hand , at the surface of the wounds marked gray- yellow fibrinous raids

, firmly soldered to the underlying tissues , no purulent What disease should be suspected , specific treatment ?

5 . C. The patient about the anaerobic gas gangrene of the right leg was held high amputation of the right thigh . How is the treatment of used bandages ?

6. The patient diagnosed with RA anthrax, bullous left forearm. What specific therapy ?

7. The patient M. ulcer on the right hand size of 20 mm, with black on the bottom edge of the subsidiaries vesicles. What disease , type of treatment at the local hospital to the stage?

8. After being wounded sick notes Ch pain in the right forearm injury , with the heavy convulsive twitching limbs. Documentary proof of immunization is not. What disease can be suspected , emergency prevention ?

9. A. The patient at the anaerobic gas gangrene right shoulder disarticulation was performed on the right upper extremity. How is the handling of used instruments ?

Tests III level of difficulty

1. A patient 30 years old , was admitted to hospital with pains in the limbs , difficulty swallowing, involuntary contraction of facial muscles ("sardonic smile") , stiffness of the neck muscles . After 3.5 weeks after being injured in a glass forearm rail having pain and spasms in the wound , excessive sweating , after 6 days - the above definition changes. Immediately after the injury done debridement , the imposition of the seams . The wound has healed, no abscesses . Antytetanus vaccinated more than 5 years ago. The general condition of the patient is satisfactory , low-grade temperature . Define the diagnosis , shape, extent of disease prognosis , therapeutic measures .

2 . A patient 40 years , the clinical picture of tetanus appeared after 2.5 weeks after injury . Four days was observed : a common disease , headache , insomnia , sweating . Then came : lockjaw , sardonic smile , stiff neck muscles , short clonic and tonic convulsions . Body temperature violations 380.S not breathing . Identify the clinical form and extent of the disease prognosis.

3 . A patient 65 years old at the time of the agricultural work was superficial wounds (abrasions) leg. Because of an injury medical care did not address. Information about antytetanus immunizations absent. After 10 days of any pain in the wound , pain on swallowing , sweating . After another 2 days there masseter muscles and stiff neck muscles , sweating . Tonic and clonic convulsions after 10-20 minutes with a tendency to more frequent , impaired swallowing, breathing , profuse sweating, temperature 400 . Define the diagnosis , shape, degree weather , diseases treatment guidelines .

3 . A patient 50 years old approached the clinic about the formation of ulcers on the cheek of a diameter of 5 cm, with an inflammatory bottom of a deep red color , inflammatory roller and painless swelling around significant sanioserous place. 4 days ago, there appeared red itchy spots, then the bubble , and after the break - an ulcer. Patient's condition is moderate , t- 39 , 50C , notes headache , insomnia , regional painless inguinal adenopathy . Define the diagnosis , measures of confirmation, and the tactics of treatment.

4 . A patient 30 years in the profession packer cattle admitted to the surgical ward after 5 days from the onset of the disease with the diagnosis of erysipelas . There is a rapidly progressive distributed , dense , painless swelling of the forearm , covered with small bubbles , areas of necrosis. Part of the bubbles burst , a large amount of serous fluid. Patient's condition is severe, there is a severe headache , delirium , the temperature reaches 400C . What disease should be suspected , that should be done to improve its accuracy , which measures cause . Determine prognosis and treatment.

5 . The patient 20 years after the opening of the thigh wound cellulitis cleared , partially filled with granulation , normalized overall condition and temperature. For no apparent reason the general condition deteriorated again , the temperature rose to 390S , there was tachycardia, deteriorated sleep and appetite . The wound was covered with a dirty tightly soldered touch fibrin appeared serous- hemorrhagic discharge, swelling and redness of the surrounding tissues , regional lymphadenitis . What complication is the case that can be taken to improve its accuracy, the necessary organizational and therapeutic measures ?

6. Man 44 years, fell into an open sewer pit. Got an open fracture of the right tibia. In the surgical ward had a primary debridement with deaf and skeletal joints vtyazhinnya.na the second day the patient appeared euphoria , pain in the wound , bloating and stamping dressing. What complication ? What local changes characteristic of this complication ? Determine prognosis and treatment.

7. In the duty hospital from the accident scene taken three patients with fractures ship bone and significant pollution of land and pieces of clothing lacerations of the lower extremities . Your actions ? Determine prognosis and treatment.

8. After the introduction of patient serum antygangrenous prevention, became feverish , acute abdominal pain , vomiting, drop in blood pressure , cold sweat, cyanosis , stupor . What complication has arisen? What do you do ? Determine prognosis and treatment.

9. In the military with multiple soft tissue injuries of both lower extremities , buttocks , back in the anaerobic treatment of any symptoms of clostridial infection. When administered tetanus toxoid in 20 minutes on the forearm appeared till1 papule , 4 cm in diameter. What was the strategy in such a situation? Determine prognosis and treatment.

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Guidelines prepared
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