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DEPARTMENT OF THE GENERAL AND OPERATIONAL SURGERY

WITH TOPOGRAPHICAL ANATOMY AND COURSE OF STOMATOLOGY

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METHODICAL INSTRACTION OF PROFESSOR FOR practical training FOR DISCIPLINE "GENERAL SURGERY. INTRODUCTION TO SPECIALTY " FOR SPECIALTY 05.31.01 "MEDICAL BUSINESS"

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Guidelines are prepared in accordance with the work program of the discipline " General surgery. Introduction to the specialty", according to the current curriculum. The structure includes guidelines for each topic studied according to the plan of classroom practical work. The guidelines are intended for training students in practical classes of the faculty of medicine, studying in the specialty 31.05.01- Medical business.

CONTENTS

Subject No. 1. Tasks of general surgery. Dontology in surgery.

Surgery is a medical, clinical discipline aimed at preventing, diagnosing, treating and researching diseases and disorders in which the bloody or bloodless surgical interventions by the hands of the surgeon or with the help of instruments and devices are of decisive importance.

General or propaedeutic surgery comes from the words propaedeutica (gr.) - pre-training, introduction to science, introductory course. The word surgery comes from the Greek words cheir - hand and ergon - action, i.e. literally hands-on. Such words as chirology - the science of the hand, chiropractic - manual therapy or treatment with hands for some diseases, palmistry - divination by hand, come from the word cheir.

Surgery as an independent discipline emerged relatively recently, and before that it was a part of medicine or its techniques, in particular, in the Middle Ages, so-called chiropractors, barber, stone cutters, and others who had self-taught and had no special medical education. Doctors-generalists, including surgeons, can be called such famous doctors of antiquity as Avicenna and Hippocrates.

Even later, in the 19th and 20th centuries, surgery was divided into separate branches: general surgery, traumatology, obstetrics, gynecology, urology, oncology, dentistry, ophthalmology, and others. Subsequently, an even smaller division of general surgery into thoracic, cardiovascular, neurosurgery, transplantation, and others began to be observed. The introduction of modern technologies has contributed to the formation of endoscopic surgery, in particular, laparoscopic, thoracoscopic, endoscopic surgery of hollow organs in bronchology, urology, gastroenterology, and also x-ray surgery.

This division of surgery into separate branches was due to the fact that the accumulation of new and new scientific data and surgical technologies made it impossible to use them with the greatest benefit for patients with a single surgeon or even a group of surgeons, whatever universals they are. This can be done only by surgeons with a perfect new technology and with experience in a particular field of surgery.

Surgery training by the famous Russian surgeon Nikolai Ivanovich Pirogov was proposed to be conducted in the departments of general, faculty and hospital surgery. Subsequently, the Department of Traumatology, Pediatric Surgery, Urology, Oncology

and others were organized to teach diagnostics and treatment of certain surgical diseases.

N.I. Pirogov also includes the following words: "There is no medicine without

surgery and there is no surgery without anatomy." Apparently, therefore, N.I. Pirogov also proposed the study of applied, clinical or topographic anatomy, which is currently being studied in conjunction with operative surgery at the departments of topographic anatomy and operative surgery.

The objectives of general surgery are: 1. To give a general idea of surgery and

surgical diseases. 2. To study and master the skills of providing first and first medical aid for surgical diseases and injuries. 3. To master some skills in surgical procedures (dressings, immobilization, application of a harness, and others). 4. To master some methods of examination of patients with surgical pathology with the formulation of an elementary diagnosis. 5. To study the terminology of the main pathological processes of the surgical profile. 6. To give general ideas about the treatment and prevention of surgical diseases. 7.

Master the techniques of care for surgical patients.

Deontology - the word comes from the Greek words deon – tribute and logos –

science. This concept was introduced by the English philosopher Jeremy Bentham (1834). The term was not then related to medicine. Deontology applicable to a medicine, means the science of the proper conduct of the medical staff in their relations with patients, their families, and among health care workers, suggesting the principles of conduct of medical staff aimed at improving the usefulness of treatment and elimination of harmful impact, including in respect of medical confidentiality, medical liability of the employee for the life and health of the patient. According to the principles of deontology, in the attitude of the health worker needs to show maximum attention and apply all their knowledge to restore health or to bring relief to the suffering; to inform the patient only information about his health that may go in his favor and not to cause iatrogenic diseases (from the Greek. Jatros – physician), i.e., diseases and disorders caused by the statements, acts or omissions of a health professional.

Naturally, the principles of deontology closely linked to the principles of morals,

morality and ethics accepted in a given society.

In General, the main provisions of the ethics outlined in the Hippocratic oath, which is given to all who decided to dedicate themselves to the noble cause of public and individual health.

Russian medicine has always distinguished unselfishness, self-sacrifice and total

efficiency. However, the development of society often implies a number of changes to those principles that were previously considered immutable and also deontology rules now increasingly important acquire legal and juridical aspects of the relations between patient and health care workers, as reflected in the legislative acts protecting the rights of both patient and medical worker rights.

Earlier in the relationship between patient and physician dominated relationships

characterized as paternalistic (pater – father, lat.), i.e. paternal, patronizing attitude of physician to patient. At present, these relations can be characterized as a partnership, i.e. a more equal relationship between doctor and patient. The latter has the right to receive full information about their illness, the nature of the planned treatment and the outcome. For surgery, transfusion of blood components and giving anesthesia, the patient must give written informed consent signed.

Geneva Convention adopted the following items concerning medical deontology:

1. Issues of confidentiality.
2. Measures of responsibility for the life and health of patients.
3. The problems of relationships in the medical community.
4. Issues of relationships with patients and their relatives.
5. Rules regarding intimate relationships between doctor and patient, developed by the Committee on ethical and legal issues with the American medical Association.

All questions about the presence of the disease, necessary diagnostic tests, medical procedures and surgery, the doctor first needs to decide with the patient. The doctor needs is clearly explained to the patient, given the recent medical education. The degree of openness of communication between a doctor with relatives, colleagues and friends of the patient as initially discussed with the patient. All this is due to the law of preservation of medical confidentiality. The exception to this rule are the following cases: unconsciousness of the patient, children, patients with mental illness and other cases of incapacity. Cases of concealing the diagnosis from the patient rare. They are mainly related diseases with the

predicted apparent death and only when the patient has signs of psychopathy, hysteria or

depression that may lead him to suicidal attempts. Naturally in such a situation all the questions of treatment of the patient resolved with close relatives. The physician should communicate with the relatives of the patient. This requires special attention when contact

relatives of patients with limited stay in the intensive care unit, isolation, quarantine in a

medical facility. The relationship doctor – the medical staff of the hospital is the

relationship with the head of Department, colleagues, doctors, nurses, Junior medical staff.

It is necessary to observe following principles: collegiality, professionalism, respect.

Building relationships with colleagues should always be based on the performance of their professional duties. The list of professional rights and responsibilities is available in each office.

Work in the surgical Department or hospital must submit to strict discipline must be observed subordination, that is the official subordination of Junior to senior positions.

Medical professional in attitude must be correct, careful, to avoid familiarity. The physician must be a specialist of high qualification, fully literate. Now patients read medical literature, especially for his illness. The doctor should be in such a situation professionally and sensitively communicate with patients. The wrong actions of doctors or other medical staff, not gently spoken word, tests, or medical history made available to the patient, can lead to phobias, there is a fear of a disease, for example: kantserofobiey - fear of getting cancer. To deontology is maintaining confidentiality. In some cases it is necessary to conceal from the patient the true disease, for example cancer. Maintaining confidentiality applies not only to physicians but also paramedics, students, that is, all those who are in contact with patients.

There is a rule: "the Word cure, but the word may cripple". Patient confidentiality does not extend to the relatives of the patient. The physician should inform close relatives (children, wife, husband, etc.) the true diagnosis, the patient's condition and prognosis. Medical ethics is closely related to the iatrogeny is a painful condition caused by the action or inaction of a health professional. If a person is insecure, mentally unstable, then it is easy to convince that

he has any disease, and this person starts to find different symptoms of imaginary diseases.

Many of you probably have even experienced it for yourself. As students, we found a lot of symptoms of those diseases that are studied. For example, in the study of vascular diseases, many have found the symptoms of obliterative endarteritis. Therefore, the doctor must convince the patient in the absence of imaginary illnesses.

To iatrogenia include diseases and damages caused by incorrect operation or treatment of the patient. So, for iatrogenic diseases include hepatitis developed after infusion of infected blood or plasma. To iatrogenic injuries include injuries to internal organs in abdominal operations. Is damage to the spleen in gastric resection, intersection of the common bile duct during cholecystectomy, etc. To deontology refers and relationship with colleagues. You cannot criticize or give assessing the actions of colleagues in the presence of the patient. Comments colleagues need to do when you need eye-to-eye, without undermining the authority of the doctor. The surgeon in his work is not an end in itself. Surgery more than any other branch of medicine is a peer. The surgeon ought not to shun any advice, whether senior or Junior. In the diagnosis, determination of indications and contraindications, method of surgery, the surgeon should consult. Not coincidentally, all of the planned operation are discussed collectively. The same applies to the choice of tactics during the operation. If during the operation the surgeon is faced with an unforeseen situation, technical difficulties, developmental anomaly, then he should consult, call the senior colleague, if necessary, to ask for his participation in the further course of the operation.

Surgery is the field of medicine, where the value of practical skills of the medical staff is exceptionally large. All the thoughts and attention of the surgeons, operating and ward sisters are focusing on the operating room, where the main work happens - surgery. During the period the operation is terminated direct contact between medical

staff and patients and dramatically intense pulsed light with broad-viceroys process interaction between surgeons, anaesthetists, nursing staff of the operating room.

If operating in a leading role for the doctors-surgeons and anesthesiologists, especially in the preoperative and in the postoperative period, a lot depends on attentive and responsive attitude to the patient nurses and Junior medical staff. Many surgeons rightly claim that surgery is the beginning of surgical treatment and its outcome determines good nursing, i.e. appropriate care in the postoperative period.

To psychological problems is fear of surgery. The patient may be afraid of the

operation, the related suffering, the pain, the consequences of intervention, to doubt its effectiveness, etc. About the fears of the patient can learn from his words, conversations with roommates. This can be assessed indirectly, by various autonomic signs: sweating, rapid heartbeat, diarrhea, frequent urination, insomnia, etc. Fear of the patient often increases under the influence of "information" that is willing to provide patients undergoing surgery and, as a rule, exaggerates all that happened with them.

About your observation of the patient, the nurse should report to your doctor and

work out the tactics of psychotherapy. It is advisable to hold a conversation with patients undergoing surgery, the adverse effects of their stories on the newly post-drinking patients preparing for surgical treatment. In preparation for the operation is very it is important to establish a good contact with the patient during the conversation to learn about the nature of his fears and concerns related to the upcoming operation, to calm, to try to change attitudes towards the upcoming stage of treatment. Many patients are afraid of anesthesia, fear of "sleep forever", to faint, to keep its secrets, etc. After the operation also raises a number of complex problems. Some surgical patients with postoperative complications can experience a variety of mental disorders. Surgery and forced-tion bed rest can cause various neurotic disorders. Often patients 2-3 days after surgery appears discontent, irritability. Amid asthenia, especially if after the surgery there were complications, can develop depression. The elderly in the postoperative period may be a delirious state with the presence of hallucinations and delusional experiences. Genesis its challenging, mostly toxic and vascular. In patients suffering from alcohol-gaisma, in the postoperative period often develops delirium tremens.

It is always advisable patients with psychosis, if the medical condition, send to

the monitoring psychiatrist. Often psychotic States developing in the form of shortsovremennykh episodes and easily dealt with the appointment of tranquilizers and neuroleptics. Questions for further treatment must address the attending or on-call physician with regard to all the circumstances.

Complex issues arise when dealing with patients operated on for malignant neoplasms. They are worried about their future fate, ask questions, and malignant the tumor, the metastases, etc. In a conversation with them you have to be very careful.

Should explain to patients that the surgery was successful and in the future is not threatened. With such patients it is necessary to conduct psychotherapeutic conversation.

Hard patients respond to surgery to remove some organs (gastric resection, breast removal, amputation, etc.). In such patients, there are real difficulties in social and psychological in nature. Patients with psychopathic personality structure your physical defect is considered as "the collapse later in life, they become depressed with suicidal thoughts and tendencies. Such patients should be monitored by medical staff.

Subject No. 2. Antiseptic.

Antiseptic. An antiseptic is a complex of measures aimed at the destruction of microbes in the wound, the pathological focus (abscess, inflammatory infiltrate) or in a whole organism. Under the destruction of bacteria in the whole body means the destruction of a total of purulent infection – sepsis. The word antiseptic comes from two Greek words anti – against and sepsis – rot. The term was proposed by English and Scottish doctor John Pringle (J. Pringle, 1707-1780), who was the founder of the preventive direction in military medicine. He established the value of putrefactive processes in the occurrence of many diseases, has implemented a system of sanitary-hygienic measures in hospitals and campaigns. In particular, they are to prevent putrefaction in the toilets it was proposed that the use of mineral acids, which would eliminate the decay and the associated odor.

Depending on the nature of the applied methods of antiseptic is divided into mechanical, physical, chemical, biological and mixed. The basic principle mechanical antisepsis is the removal of dead and infected tissue, is a breeding ground for bacteria, and removal of foreign bodies and pus. Most defiantly the principles of mechanical antiseptics embodied in primary surgical treatment of wounds, the autopsy and rehabilitation of ulcers.

So when primary surgical treatment of accidental wounds is excision of dead, contaminated

and infected tissue with sutures to the wound that creates the conditions for such wounds heal without complications. With ulcers, the latter are opened, the pus is removed and the purulent cavity is washed with antiseptic solution and drained.

Physical antiseptics and its principles based on the laws of capillarity, water absorption, osmosis, diffusion, siphon, negative pressure, as well as the application of radiation energy x-rays and ultraviolet rays, laser beams, etc., on the laws of capillarity and hygroscopicity based the use of gauze bandages made of cotton or other materials having capillarity and hygroscopicity, absorb wound contents (Fig.1) .

Fig.1. Flow Wash Drain

On the siphon principle is based the use of drainage tubes, through which the flowing contents of the body cavities and ulcers. The end of the tube being left in the cavity, must have side openings.

Radiation energy is also used for the treatment of purulent diseases and wounds. So x-rays are used to treat bone felon, and laser beams and ultraviolet rays for the treatment of purulent wounds and trophic ulcers. In addition, for sterilization of instruments with optics, special camera, which uses a pair of formalin, laser beams, ozone.

Chemical antiseptics involves the use of chemicals. All chemicals used in the antiseptic, divided into:

1. antiseptics for the treatment and washing of wounds, chronic and natural

cavities of the body;

2. antiseptics for skin treatment at the hands of the participants of the operation

and the patient (skin antiseptic);

3. antiseptics for treatment tools, care items, gloves, floors, Windows, walls, and

other General types of cleaning (disinfecting preparations or disinfectants);

4. chemotherapy drugs (antibiotics, sulfonamides and other chemical compounds) introduced into the body through the mouth, intravenously, intramuscularly or subcutaneously.

Antiseptics for washing wounds, purulent and natural cavities are furatsillin, rivanol, hydrogen peroxide, acterized, dioxidine, etc. To skin antiseptics include iodine and its preparations, or iodophors (yodopiron, yodonat), as well as alcohol, 0.5% chlorhexidine bigluconate, differently-gibitan 700 alcohol, brilliant green, etc. For pre-sterilization of the treatment tools, care items, gloves, endoscopes, floor, Windows and walls, etc. are most commonly used with different concentrations of chloramine (1-5%), high (6%) concentration of hydrogen peroxide, and for treating footwear – formalin solution. From chlorine-containing agents recently used "Spooks" which is a mixture of sodium hypochlorite with monochloramine.

In recent years, a large Arsenal of disinfectants from all backgrounds and a variety of firms. Of these the most famous is the "Virkon" (KRKA, Slovenia). The active ingredient is potassium sulfate, valid on all bacteria and viruses, except for Bacillus tuberculosis. Antiseptic is sanivar (Sweden) active principle of which is the sodium salt dichloroisocyanuric acid. The drug is active against all bacteria and viruses.

In recent years, chlorine-containing preparations and preparations based on aldehydes (formalin) and phenol as a disinfectant replaced by more efficient and less harmless to the human body drugs of the third generation Quaternary ammonium compounds. They are effective not only against bacteria but also against viruses and fungi. Currently a standard requirement is the effectiveness of disinfectants against viruses of hepatitis b and C.

To drugs the last generations of Quaternary ammonium compounds is the drug "certain" and derivatives thereof, exported to Russia by Israeli firm "ABHIKA". Recently in Russia the firm Biodez" was developed and started to be manufactured similar products Biodez-extra", "Effect-Forte" and "Disaffect". These drugs are used for treatment of furniture, General cleaning, pre-sterilization treatment of the instruments and endoscope reprocessing. Considerable expansion in recent years has been used as a biocide, sodium hypochlorite (NaClO), obtained by the electrolysis of saline solution in the apparatus constituting the steel plate covered with platinum. At a concentration of 0.03% is applied intravenously at a concentration of 0.05% topically in wounds, to wash the body cavity and at a concentration of 1% for handling tools, furniture, walls, etc. Of gaseous chemical substances have recently started to use ozone.

The main requirements for antiseptics are:

1. The bactericidal action, sporocidal, viricides and fungicide (impact on fungi).
2. No reduced effect in the presence of biological fluids (blood, urine, exudate,

intestinal contents, etc.).

3. Harmless for the body no toxic, allergic and irritant action.
4. The cheapness.

Biological antiseptics involves the use of biological drugs (antibiotics, vaccines,

toxoids, serum, gamma globulin, bacteriophages and other drugs).

Of toxoids (weakened toxins), tetanus, staphylococcal and diphtheria toxoids are

used for prophylactic purposes, creating an active, antitoxic immunity upon administration. For the treatment and prevention of surgical infection used serum (tetanus, antigangrenous).

Plasma-directed antibacterial action (antistaphylococcal, antisheteric, anti-pseudomonas) is obtained from donors immunized with antigens of the respective pathogens. Plasma is administered intravenously in an amount of 200 ml or more.

Of the immunoglobulins, human tetanus immunoglobulin (PSCI) is administered

intramuscularly for prophylaxis in the amount of 400 IU, for therapeutic purposes it is in the amount of 900 IU. For staphylococcal infections, staphylococcal gamma globulin is used.

Bacteriophages (antibacterial viruses) of the corresponding pathogens (antistaphylococcal, anti-esterichiosis, antiproteic, antigangrenous) exist in a liquid form and are introduced into wounds or wounds are broken off by them.

In addition to antibacterial drugs of biological origin, proteolytic enzymes, also

called necrolytic or mucolytic enzymes, are used to treat inflammatory diseases. These enzymes contribute to the lysis of necrotic tissue, the dilution of pus and thick mucus, the dissolution of fibrin and their better discharge, which prevents the growth of bacteria and increases their sensitivity to antibiotics and other antibacterial drugs. By origin, enzymes are divided into enzymes of animal origin (trypsin, chymotrypsin, himopsin, deoxyribonuclease, ribonuclease), bacterial origin (terryllitin, streptokinase, collagenase, asperase, lysoamidase, profesime, iruxol), plant origin (papinema, asperase, lysoamidase, phozyme, iruxol), plant origin (papinein, asperase, lysoamidase, papine, izyuksol), plant origin (papine, asparase, lysoamidase, phoresime, iruxol), vegetative origin, asparase, lysoamylase, phytogenesis, iraxol, plant origin, asymptoma, lysoamidase, and phytogenesis; Enzymes can be applied topically, intramuscularly, in the form of electrophoresis and inhalation.

Antibacterial drugs are first assigned to a broad-spectrum, then after taking a smear from a wound on bacteria and sensitivity to antibiotics, according to the results of laboratory data.

Subject No. 3. Asepsis. Structure and work of reception and diagnosis office. Surgical hospital.

Asepsis – a method of surgical operation, which ensures the prevention of the ingress of microbes into the wound with the use of organizational activities, physical factors, chemical and biological agents. The basic principle of asepsis is: everything that comes in contact with the wound must be free from microbes, i.e. sterile. Should indicate that this principle applies only to operating wounds, as all accidental injuries are always initially infected. It should be emphasized that asepsis is the prevention of wound infection, antiseptic mainly focused on the treatment of infected wounds, ulcers, infiltrates, and General infection of the body (sepsis). It is also necessary to emphasize the fact that the principles of asepsis include a number of the principles of antisepsis. This treatment at the hands of the participants of the operation and the patient's skin, remediation of accidental injury, when it is primary surgical treatment, prevention of infection of wounds during operations with the opening of the cavities and hollow organs (suction of exudate and the contents of hollow organs). However, asepsis, involving the prevention of the ingress of microbes into the wound is a more progressive direction in surgery, although very closely linked with antiseptic and stems from her methods. From this it follows that asepsis and antisepsis have inseparable relationship, and sometimes their separation is purely arbitrary.

Structure and work of reception and diagnosis office. The patient comes to a hospital through reception department or in a different way the receiving diagnostic department (RDD). In the emergency order it is delivered by car of an emergency

medical service, or arrives in the direction from district doctor or doctor of other specialties, paramedics of first-aid posts, from other hospitals or can address itself (self-address). In a planned order patient can come to a hospital with the direction from doctors of different specialties. Usually in hospitals of a surgical profile on several surgical offices one reception department will be organized.

The reception department has the following tasks:

1. Primary inspection, sorting and the direction of patients in various offices, hospitals or on out-patient treatment, rendering emergency, including out-patient help.
2. Sanitary processing of the arriving patients.
3. Registration documents for incoming patients and movement of patients in to the hospital.
4. Communication with station of an emergency medical service and other medical institutions.
5. Communication with sanitary and epidemiologic establishments.
6. Communication with law enforcement agencies in cases of criminal injuries or road accidents.

The reception and diagnostic department includes several rooms:

1) a lobby for waiting for the relatives of patients and patients arriving in a planned order;
2) the room to where the walk-in closet, a desk for nurse of reception department (registry);
3) room for patients' examination with daybeds for inspection of patients;
4) bathing and delousing establishment (dressing room, shower room, bathroom);
5) an insulator for patients with unknown diagnosis and suspicion on an infectious disease;
6) the camera for storage of clothes of the patients hospitalized in a hospital;
7) treatment rooms, operating room, dressing (gypsum), where medical procedures are carried out and some emergency operations;
8) a x-ray office for carrying out radiological inspection;
9) express laboratory;
10) offices for carrying out an electrocardiogram and ultrasonography;
11) doctor on duty department; 12) toilet.

In the emergency room nurse measuring patient blood pressure, pulse rate, temperature, cannulated the bladder for a urine test, invites laborant for blood test, as well as conducting the registration of each patient: fills the cover page of medical history, glues the guide document into it, puts the information in a register of his patients, where the surname, name and patronymic, date of birth, home address and

telephone number, date of admission to the diagnostic department and diagnosis with which the patient is directed. If the patient is enrolled in a state of unconsciousness, get information about him you can from relatives or accompanying persons. In the absence of documents and inability to obtain information on patients who are unconscious, his income is recorded in a special journal describing the main external signs, and the data of him immediately, but after helping to the patient should report to law enforcement. If the patient is in serious condition and he needs of emergency assistance, it must be provided in full capacity in the emergency department. If you can not do this, the patient should be transferred as quickly as it possible to the operating room, the intensive care unit or ward protivoshokovym. If a child is enrolled up to 16 years without unaccompanied or delivered by ambulance due to trauma or loss of consciousness,wich occurred outside the home, a nurse admissions department must notify relatives.

The patient was examined by a doctor after the registration in the patients' examination room and, if necessary, directs on instrumental and laboratory tests (x-ray, electrocardiogram, blood tests, urine, etc.). If you can not make a diagnosis,you need to isolate the patient and organize consultations with doctors of other specialties. If, after examination and observation of the patient the doctor not found indications for hospitalization, the patient is going home, about what you should record to the register failure hospitalization or outpatient card, which is passed along to the clinic at the place of residence of the patient.

In the presence of the patient's wound or suppurative disease, he goes for inspection to the dressing ward.

After examination by a doctor and make a diagnosis, the patient passes inspection by nurse to reveal a scabies and sanitizing it, which includes showering and sanitary bath, change personal clothing and linen. The need for sanitization decides by the doctor on duty of the reception department. patients which income in critical condition are referred to the emergency department or operating without sanitization, and if possible it is carried out in parallel.

Examination of the patient in the emergency department is made up on the couch, covered with oilcloth. After each inspection required disinfection the oilcloth with double wiping with a cloth moistened with a disinfectant (1% solution of chlorine bleach or other disinfectant with 0.5% detergent). Wet cleaning of all rooms and furnishings of the receiving department should be done at least 2 times a day with the above disinfectant solution with 0.5% solution of detergent. Furniture is wiped with the same solution, wash with a damp cloth panel 1 every 3 days. The upper part of the walls, ceilings, ceiling cleaned of dust 2 times a month. For the cleaning of lavatories, using 2-5% solution of chlorine bleach or other disinfectants. Disinfection material for cleaning produced by immersion for 1 hour in a 1% solution of chlorine bleach or other disinfectant.

Surgical hospital.

The surgical Department is one of the main functional elements of a hospital. The Department typically has a capacity of 60 beds. In some cases it may be increased to 90-120 beds or reduced to 15-45. In large surgical hospitals creates several surgical units. Be sure to allocate the net, septic and trauma Department, will also be selected specialized departments: urology, neurosurgical, etc. This helps to avoid mixing different cohorts of patients and the occurrence of complications during treatment. The structure of each of the surgical Department in addition to the chambers provided in the operating unit. However, in some large surgical hospitals having several specialized surgical departments (surgical, urological, gynecological, etc.) operating units concentrated in one place, sometimes occupying a whole floor, and they are called the operating room with his head and senior medical sister. The creation of a single operational unit is more preferable in view of convenience in observing sterilization-disinfection mode.

In the structure of surgical departments provided dressing rooms for the production of dressings and small operations, as well as treatment rooms, where there are all kinds of injections, dressing systems for intravenous infusion, therapeutic crystalloid solutions, blood collection from a vein for analysis, determination of blood groups and the preparation of its components or blood components for transfusions. To prepare for the work and the work itself documentation for physicians provides a staffroom, and for nurses and nursing.

In addition, often in the hallway of the offices there is a post of nurses located so that sentry nurse could monitor the movement of patients out of the chambers and down the corridor. The post has the necessary documentation, filing Cabinet for medical supplies, thermometers, blood pressure monitors, etc.

The structure of the surgical Department includes the office of food distribution to patients, as well as a number of other utility and therapeutic properties, especially the enema, toilets, bathroom, facilities for cleaning equipment and for the storage of soft inventory (blankets, mattresses, pillows, sheets, etc.).

Wet cleaning is carried out 3 times a day with the use of disinfectants, the set of which recently very large, for example, from chlorine-containing agents is "Spooks" and preparations other chemical groups - "Virkon", "Saniwa". Cleaning is dipped in the decontaminant solution rags, brushes. Hands should be protected by rubber gloves. After dinner, Junior nurse wiping the floor, air chamber, helps nurse to perform an evening appointment (giving enemas to wash away the sick, etc.). Personal hygiene of the medical staff of the surgical Department. The rules of wearing medical garments. Personal hygiene is a set of rules and recommendations aimed at maintaining the health of medical workers and maintaining a proper hygiene regime and favorable moral and psychological climate conducive to the recovery of patients.

The gown must be white or other light coloured cotton fabric, which is not

destroyed by frequent washing, boiling and treatment with disinfectants. You need to dress fully covered, was clean, tightly buttoned. The cap completely covers the hair. Leave the gown in a specially designated locker. It is strictly forbidden to go outside the hospital in overalls! Before visiting the toilet coat and hat off. Medical personnel should wear shoes while walking to the to create less noise. Slippers should not be felt or fur: they can absorb dirt and are difficult to be sanitized. Hand washing produce before and after each medical procedures, before eating and after using the toilet. Nails must be short cut. It is important to keep clean the oral cavity and the nasopharynx. You should clean the teeth 2 times a day (morning and evening), rinse your mouth after each meal.

Medical protective regime of the surgical Department. Under this concept refers

to the creation of the most favorable and comfortable conditions of stay in hospital, contributing to the recovery. This includes a sense of compassion for the patient, also known as empathy.

The task of the physician to adopt a particular mode of behavior of each patient.

Compliance is strictly monitored by ward nurse. Identify the following types of regime.

1. Common mode (keep it all walking wounded).
2. Bed rest: a) strict – position of patient (supine, semi-sitting, etc.) corresponds exactly to the directions in the history of the disease;

b) active – the patient was allowed movement in bed (turning, bending limbs, etc.);

3. Nonstrict bed – the patient is allowed to get up for eating and using the toilet.
4. An individual is permitted for special reasons (walks in the fresh air, a bath

before bedtime).

- Hospital, hospital, hospital-acquired or nosocomial infection is an infection of

existing patients in the hospital microflora, unlike community-acquired infections which are more pathogenic aggressive and more sustainable to most antibiotics and antiseptics. The most frequent causative agents of hospital infections is Staphylococcus aureus, Escherichia coli, Proteus or Pseudomonas aeruginosa, and carriers of this infection is the medical staff and patients. Infection breeds in the nasopharynx and the nasal cavity on their mucous, purulent wounds, burns on the surface.

One of the main risk factors of nosocomial infection is the duration of the patient's stay in hospital before surgery; with this in mind, for the prevention of septic infection it is important to minimize preoperative stay of patients in hospital.

The struggle for the sterility of the operating theatre comes from the perceptions

of wound infection precipitated from the air by microorganisms. In the air environment can be various microorganisms, however, from the variety of real threat to hospitals is staph. Pollution of the air environment increases in the operating room.

In the surgical Department most are infected with sinks, faucets for washing hands and especially gauze masks, which protect the air operating from bacteria located in the oral cavity and airway. Just be sure to close the mask not only the mouth but the nose, the nasal carriage of infection is more common and more dangerous).

In the observance of sanitary-hygienic regime and prevention of nosocomial infection are a number of types of cleaning in the major subdivisions of the surgical Department (operational, dressings and procedural). Provides the following types of cleaning:

1. Pre - in the morning before you start working day with a cloth moistened with

a solution of antiseptic wipe all horizontal surfaces.

2. Cleaning during the procedure, dressings and treatments consisting in cleaning

up fallen on the floor gauze balls, napkins, wiping off spilled liquids.

3. Cleaning after each patient in the operating room (change the sheets on the

operating table, the removal from the basin of contaminated surgical material), and in procedural and dressing is an intermediate service.

4. Cleaning at the end of the day or final cleaning by wiping horizontal surfaces

and washing floors antiseptic solution with 0.5% detergent solution and inclusion of a mercury-quartz lamps.

5. General cleaning – 1 time per week, at its end, where operations or ligation,

and the rest of the room 1 time a month.

This type of service has the following steps:

1) the room is clear of furniture and equipment;
2) disinfection equipment, inventory, furniture, floors and walls with antiseptic

solutions with detergent with an exposition of 1 hour;

3) ventilation 30 min;
4) washing facilities with warm running water;
5) washing distilled water. Washing is performed by a sterile nurse in sterile cloth clothing;
6) inclusion of mercury-quartz lamp for 15 min;
7) ventilation. Should indicate that ultraviolet rays sterilize not only the air but

also decontaminate various surfaces (walls, floor, ceiling), objects, tools.

Germicidal lamps include in the chambers for 30 min in the morning and

evening, dressing for an hour before taping, in between them, after the treatments and after cleaning. You should not include these lamps while one is in the room, because this can lead to radiation burns. However, disinfection of the air chambers can be made in the presence of people using shielded germicidal lamps, which are placed at a height of not less than 2 m from the floor. Germicidal lamps create a "sterile area" with a diameter of 2-3 m. it is Advisable irradiation of air they performed in combination with ventilation. This combination reduces the number of microorganisms in the air is 95%.

Subject No. 4. Asepsis. Contact infection.

Asepsis – a method of surgical operation, which ensures the prevention of the ingress of microbes into the wound with the use of organizational activities, physical factors, chemical and biological agents.

Contact infection is an infection arising from contact with the operating wound of the hands of the surgeon and other participants in the operation, instruments, surgical material, linen, and infection from the patient's skin.

In this regard, it is necessary to avoid unnecessary contact with the wound of the hands and fingers of the surgeon and other participants in the operation, i.e. the work should be apodactyl (dactylus - finger, c) with the maximum use of tools. In addition to this, wound edges should be covered with sterile wipes or linens at the time of surgery. The surrounding tissues and organs, as well as the edges of the wound, before opening the lumen of hollow organs or purulent cavities are also protected from accidental infection by covering with sterile napkins.

Operational linen includes: bathrobes, hats, shoe covers, masks, sheets, towels, pillowcases, special sleeves worn on long instruments or their drives, diapers. For the manufacture of surgical linen is used cotton fabric (coarse calico, linen) is impermeable to liquids, but permeable to air. Loose textile material and the material repeatedly used is not used, as it absorbs sweat and other liquids. Since operating underwear is used only in the operating room, it should have a corresponding color (blue, green, protective and even black). Currently widely used surgical disposable underwear, packaged in sterile bags and ready to use.

The surgical material includes gauze balls, napkins, tampons, turunds, and bandages. For their manufacture, lignin or cotton can be used, but cotton gauze is most often used as the material that best meets the requirements for surgical and dressing materials, which are: 1. Hygroscopicity; 2. Ability to dry; 3. Tight fit to the body; 4. Softness; 5. The absence of toxic, allergic and irritating effects; 6. Certain strength; 7. Cheapness. The cardinal property of gauze is hygroscopicity, based on the laws of capillarity. To test this property, a piece of 5x5 cm gauze is thrown into the water. At

the same time, he should dive into it in 10-15 seconds. The hygroscopicity of gauze can also be checked by immersing the gauze strip at one end in tinted water, which must rise along the gauze at a speed of 10-16 cm per hour.

The main methods of sterilization of surgical linen and material are thermal, radiation and chemical. The thermal method is sterilization with hot steam under pressure. For this purpose, special devices steam sterilizers are used or, according to the old terminology, autoclaves. For sterilization, the material is placed in sterilization boxes, also called bixes or drums, first proposed by K. Shimmelbush. They may be rectangular, but more often they are round. Depending on the volume, they have certain sizes and numbering appropriate in size (1, 2, 3, 4, 5).

Modern surgical instruments for the purpose is divided into general surgical and

special. General surgical instruments are instruments used in all operations (scalpel, clamps, forceps, retractors, needle holders, suture needles, etc.). Special surgical instruments are used for certain operations: neurosurgical, traumatologic, urological, ophthalmologic, etc. For functional purposes, surgical instruments are divided into the following groups: 1. Instruments that separate tissues (scalpel, scissors, amputation and resection knives, saws, chisels, etc.); 2. Exciting (clamping) tools (tweezers, clips for different purposes, forceps, etc.); 3. Instruments that expand wounds and natural openings (retractors, hooks, mirrors for expanding wounds, anus, vagina, etc.); 4. Tools to protect tissues from accidental damage (grooved probe, Buyalskiy spatula, Riverden, etc.); 5. Tools connecting fabrics. These include needle holders (Mathieu, Gegara, Troyanova), suture needles.

The importance of the sterilization quality of the instruments is provided by presterilizing treatment. After use, the instruments are subjected to the following stages of presterilization treatment: 1. Rinse under running water to remove visible contamination with blood, exudate, the contents of hollow organs, etc. 2. Soak in a 0.5% solution of detergent for 15 minutes at a temperature of 500 ° C. 3. Sink in the same solution with a brush or brush for 0.5 minutes. At the same time, attention is paid to the thoroughness of processing of hard-to-reach places (kremalyery and teeth on the branches of the clamping tools, places of the axial joints of the branches) where blood can remain, exudate and other substrates that may contain infection. 4. Rinse with running water. 5. Rinse with distilled water. 6. Drying of instruments in air sterilizers, in dry-heat cabinets at a temperature of 80850C.

Recently, ultrasound is used for presterilizing processing of instruments, for which the instruments are immersed in a special bath with water, in which ultrasound is generated by a special apparatus.

Current orders and instructions do not prohibit boiling as a method of sterilizing

surgical instruments. Although he does not guarantee their full obdozhivaniya. It has been established that protein boiling occurs when boiling at 1000 ° C and most bacteria die, but for example, soil thermophilic spores withstand boiling for 500 minutes.

Tetanus spores and hepatitis viruses also withstand long-term boiling. Bacteria, covered with earth, blood, exudate, can boil indefinitely for a long time. Stationary or portable boilers are used to sterilize instruments by boiling (the old name is sterilizers). Before boiling in water, sodium bicarbonate is added to form its 2% solution. Duration of boiling is 30 minutes from the moment of boiling.

For sterilization of instruments with optics, it is placed in paraformalin chambers

with 40% formalin, or in ozone chambers.

Currently, the most reliable method of sterilization of surgical instruments is hot

air sterilization (dry heat). This method can sterilize metal, porcelain, glass instruments. When sterilizing products made of synthetics, paper, textiles, wood, they may be charred. For sterilization, various brands and types of air sterilizers are used (the old name is dry heat ovens) with electronic regulation and control of the time and mode of sterilization. For sterilization, the regime here is applied at 1800C for 60 minutes.

Sterilization with hot steam under pressure or autoclaving causes hydration, hydrolysis and coagulation of the protein of bacterial cells or their spores. Hot steam under pressure has a higher thermal conductivity and heat capacity than air, and therefore the temperature created at this method 110-1400C is sufficient for the destruction of bacteria and their spores.

The terms of guaranteed sterility in ordinary Biks with lattice windows on each

side are 72 hours. In biks with filters located on the lid and bottom, the term of guaranteed sterility is 20 days. Filters must be replaced after 30 days, ue to the fact that steam sterilizers are high-risk devices operating under high pressure, therefore, people with secondary medical education who have received special instructions on safety measures when working with such devices are allowed to work with them. In addition, for the purpose of safety, the devices are located in a separate building and are called a CSO (central sterile ward). Each device has a passport, instruction manual, test result, a list of identified faults, repair marks.

When using the apparatus, the following parameters of pressure, temperature and

exposure are used. So with a pressure of 2 atmospheres at a temperature of 1320C, the exposure is 20 minutes. This mode is used for sterilization of textile materials and instruments that cannot be sterilized in devices for sterilization with hot air. The mode of 1.1 atmospheres at a temperature of 1200 ° C and at an exposure of 45 minutes is used to sterilize products from rubber, rubber, glass, and plastic. In sterilization there are the following phases: 1. Heating; 2. Balancing; 3. Destruction; 4. Cooling.

When covering the issues of preparing the hands of participants in the operation,

it should be noted that the microflora of the hands is divided into flora on the skin surface and into the flora deep in the skin (crypts, cracks, folds, mouths of hair follicles, excretory ducts of the sebaceous and sweat glands).

Preparation of hands is divided into hygienic and surgical. Hygienic preparation

consists in the care of hands that exclude the wearing of rings, rings, long nails, the use of manicure, as well as the mandatory use of rubber gloves in everyday life when caring for animals, working in the garden, processing raw vegetables and meat, removal from surgery for injuries and purulent hand skin diseases.

Surgical treatment of the hands is the treatment of the hands immediately before

the operation. The classical methods are the methods of Alfeld, Furbringer, SpasokukotskyKochergin and others, but these methods are not used now. Ultrasonic treatment of hands was also used, but now it is also not used due to the harmful effects on the skin. Currently, the existing instructions recommended 2 ways. The first way is to wash the hands to the middle third of the forearm with a sterile napkin or brush for 3-5 minutes, paying attention to the processing of nail beds, skin folds, interdigital spaces. After that, hands are wiped with a sterile cloth. Then the hands and the lower third of the forearm are twice treated with a 0.5% chlorhexidine bigluconate (gibitan) solution in 700 ethanol for 2-3 minutes.

The second way is to wash the hands and forearms with a solution of C-4 (Permur) for 1 minute. To prepare a solution of C-4 in 1 liter of water, 17.1 ml of 30-33% hydrogen peroxide solution and 6.9 ml of 100% formic acid solution are added.

Sterilization gloves. For the first time, Tsege von Manteuffel suggested wearing

gloves during an operation. The purpose of using gloves then was to prevent infection of the wound. Currently, in addition to this, gloves should prevent the patient's blood from getting into the hands of participants in the operation, which is a measure to prevent the surgeon and his assistants from becoming infected with hepatitis, HIV infection, etc.

Damaged gloves must be replaced immediately, due to the fact that during work they form the so-called "glove juice", which is a mixture of sweat and antiseptic used for the treatment of hands. The "glove juice" may also contain bacteria that have come out of the deep layers of the skin that may enter the wound. Gloves can be sterilized by autoclaving or boiling. There are also cold methods of sterilizing gloves, but they are used less frequently due to their lower reliability. Antiseptic solutions are used for cold sterilization. The following antiseptics are used for this: 1. A ternary solution containing 2% formalin, 0.3% phenol and 15% bicarbonate soda. 2. Hydrogen peroxide 6% at a temperature of 500 ° C and with an exposure of 3 hours. 3. Pervomur (C-4) exposure time 20 min. 4. Chloramine 2% exposure 2 hours.

Work without gloves is not excluded, but in these cases, hands should be washed

every 40 minutes with a solution of first-mour (C-4).

Treatment of the surgical field involves the reception before the operation of the

shower or bath, dressing clean clothes, as well as removal of hair in the area of operation. All these activities are carried out immediately before the operation. Shaving is most often used for hair removal, although it is preferable to use epilator creams. Shaving in the evening, on the eve of the operation, may facilitate penetration of microorganisms through the micro-cuttings deep into the skin through the lymphatic and blood pathways, where it can no longer be affected by skin antiseptics, which can cause inflammatory and suppurative complications after surgery. Therefore, shaving the skin of the surgical field is performed in the morning of the operation. All antiseptic preparations used for the treatment of the skin of the hands of participants in the operation and the skin of the surgical field are called skin antiseptics. The main requirements for them are: 1. Bactericidal activity, viricide, sporicidal activity and fungicide, which manifests itself not only on the surface, but also deep in the skin. 2. Reliably and permanently kill bacteria in the "glove juice" (residual effect). 3. Have a cumulative effect, i.e. skin sterility should be maintained between treatments. 4. Lack of irritating, allergic and toxic effects. 5. No reduction in effect in biological fluids (pus, blood, exudate, urine, etc.). 6. Cheapness.

The following skin antiseptics are used to treat the skin of patients immediately

before surgery: 0.5% chlorhexidine bigluconate (gibitan) solution in 700 ethanol. However, iodophors are most often used for this purpose. These include iodopyrone and yodonat. Iodopirone is an iodine complex with polyvinylpyrolidone. Iodonate is a compound of iodine with sulphate (surfactant). Solutions of chemically pure iodine are currently not used for skin treatment, since they can cause skin burns, which are the entrance gate for infection.

The treatment of the skin of the surgical field is performed according to Filonchikov-Grossich. The method consists in the fact that the skin of the patient is treated twice with an antiseptic before being covered with surgical linen. The direction of heavy movements should be from the cut to the periphery. After this, the operative field is lined with sterile linen and before the incision the skin is again processed. After performing the operation, before applying sutures on the skin, the edges of the skin wound are smeared with antiseptic once more. After suturing the skin wound, the latter is once again treated with an antiseptic solution.

Prevention of implantation infection. Implant or implanted infection is an infection that is introduced into the depth of the tissue with suture and plastic material, as well as with the injection of liquid drugs. The likelihood of developing an implant infection is increased in cases when the wound is infected, or if there is a purulent process in the body, or the operation is accompanied by the opening of a hollow organ. A feature of implantation infection is that it can manifest itself not only in the coming days after the operation, but also in a more remote time (weeks, months and years). In

these cases, they speak of a “dormant” infection, when bacteria or their spores are encapsulated together with suture material in the depth of the tissues of the connective tissue sheath formed around them. The infection is activated in case of injury to the area of operation, reduction of body resistance (hypothermia, stress, malnutrition, accession of concomitant diseases, advanced age, etc.). The concept of "dormant" infection refers to the infection caught with random foreign bodies, which can also manifest itself after months and years of finding a foreign body in the tissues of the body.

The main requirements for the suture material are: 1. Sterility; 2. Strength; 3. Resorption after performing the locking function; 4. Good tolerance by the body (no irritating, allergic and toxic effects).

Suture material is classified according to the following criteria:

1. Absorbable (catgut, a number of synthetic materials)
2. Non-absorbable (silk, some synthetic materials)

According to the structure (texture) of the thread, the suture material is divided into: 1) Monofilament (monofilament). 2) Twisted. 3) Wicker.

Silk and some synthetic materials belong to twisted and woven suture material. The main disadvantages of such materials is that passing through the fabric such threads seem to cut them with the separation of small sections of tissue that have lost blood circulation and due to subsequent necrosis being good nutrient medium for bacteria. The second disadvantage of such yarns is wicking, i.e. hygroscopicity, when a section of a thread located in the lumen of a hollow organ or on the skin surface conducts infected contents of a hollow organ or sweat deep into the tissues where the rest of the sterile part of the thread is located, which may contribute to the development of inflammatory complications. Significantly less tissue is injured when an atraumatic needle is used, which is a needle with a thread end inserted into its heel.

By origin, suture material is divided into:

1. From natural materials (silk, linen, catgut, paper).
2. From synthetic materials:
   a) not absorbable: - polyamide (nylon, kapron, perlon, dederon, supramid); - polyester (Dacron, Mercile, Teflon)
   b) absorbable: - glycolic acid polymers (dexon) - propylene derivatives (polylen, prolen, vicryl).

If necessary, stitches in infected tissues (suturing the failure of the anastomoses or their imposition between hollow organs in conditions of peritonitis, empyema of the pleura, flashing of bleeding vessels in purulent cavities, wounds, etc.) are the most acceptable for these purposes are vicryl and dexon, creating the greatest strength stitches due to their highest tissue tolerance.

The terms of resorption of absorbable suture material are different. So for the usual catgut these terms, depending on the thickness of the thread range from 6 to 12 days. Chrome or silver catgut resolves in 15-40 days.

Suture material in thickness (silk, synthetic materials) is divided: 0, 00, 000, etc. - especially thin. It is used for microsurgery (in the eyes, small vessels and nerves). Such operations are carried out under a microscope. At present, the thinnest suture material is a twelve zero suture material. To simplify the designation of the thickness of a particularly thin suture material, the numerical designation of the number of zeros is used. For example, 4/0, 5/0 (four zeros, five zeros, etc.). 1 - vascular, 2, 3 - small intestinal, 4, 5 - medium, 6, 8, 10 - thick, 7, 9 - not available. The numbering of catgut thickness: 00, 000, 1-6.

Recently, metal suture material, made from chemically inert metals of tantalum or titanium, which are not subject to corrosion due to the action of enzymes and body fluids or resorption, has been widely used for stitching tissues and organs. Stitching with such a suture material in the form of brackets is carried out with the help of special sewing machines.

Should indicate that asepsis and antiseptics differ from disinfectants, although the term disinfection involves the destruction of microbes, however, the methods of disinfection used in its present form implies the destruction only of pathogenic microbes in the outbreak of infectious, contagious, infectious lesion, i.e. lesion, which revealed a contagious infectious disease (plague, typhus, dysentery, etc.). Sterilization underpinning of asepsis and antisepsis involves the destruction of all microbes such as pathogenic and non pathogenic. In medicine to denote infection uses the term contamination (contaminatio – lat.) – contamination. This term refers to the introduction of germs or infection that may be part of the epidemic process of infectious diseases and in surgery, in violation of the principles of asepsis.

Should indicate that the wound infection can penetrate both endogenous and exogenous. Endogenous infection is in the body and after surgery, in penetrating postoperative wound contact, lymphogenous or hematogenous route. This includes all of purulent-inflammatory diseases: boils, infected wounds, carious teeth, diseases of the upper respiratory tract, ear, nose and throat (otitis, tonsillitis, pharyngitis), and purulent and inflammatory diseases of other organs and systems.

Exogenous infection is an infection that penetrates to the surgical wound during

surgery from the environment. It can permeate through airborne droplets (splashes saliva while talking, the air flow containing the microbes that occur when walking, splashes of infected fluid obrazuyushchiesya in any activity during the surgery). The second source of exogenous infection is a contact infection, penetrating into the wound in contact with her fingers participating in the operation, surgical material, linen or tools. The third source of exogenous implant infection is an infection introduced into the tissues of the body, during surgery with an infected suture material, implants (vascular grafts, artificial heart valves, joints, materials for osteosynthesis, etc.), as well as during the injection of drugs.

With regard to the orders regulating the sanitary-hygienic regimen and sterilization-disinfection modes, currently, the Ministry of health of the USSR No. 720 dated July 31, 1978, "On the improvement of medical care for patients with purulent surgical diseases, and the strengthening of measures against nosocomial infection." The same decree No. 215 of April 4, 1979 was published in the MOH.

Responsible for compliance with anti-epidemic and sanitary-hygienic and anti-epidemic measures in hospitals is the responsibility of the chief physician and Department heads. The latter, together with senior nurses organize the necessary actions and monitor their implementation. Older sister branch instructs middle and Junior medical staff, indicating specific control measures, the implementation of which is entrusted to individual employees. To guide and coordinate the organization and carrying out specified orders recommended the establishment in each hospital permanent sterilization and disinfection measures, the Commission (Council) under the chairmanship of the Deputy head doctor on medical issues. Its membership should be included the most experienced clinicians.

The main functions of the Commission (Board): monitoring of the completeness of registration and accounting of hospital, hospital-acquired infections; the holding of meetings and conferences with the analysis of the causes of nosocomial infections, in particular the emergence postinjection, postoperative suppurations, infiltration, phlebitis, and activities for their prevention; development of recommendations and monitoring the implementation of sanitary-hygienic and anti-epidemic regime.

Large hospitals in the organization of preventive work is carried out by hospital epidemiologist included in the composition of the Commission (Board). With the goal of preventing the introduction of infection in hospitals personnel order No. 720 and 215 provided for the following activities: - inspection and laboratory examination, including on carriage in the nasopharynx and nose pathogenic Staphylococcus in newly coming; - periodic inspections and laboratory control for novelista pathogenic Staphylococcus we are constantly working persons; - change of street clothes working on (pants, shoes, robe, etc.) before entering the office; -the instruction on carrying out basic sanitary and anti-epidemic measures on charged the individual employee to the work site; - periodic delivery standards of care; strict implementation of staff for the offices.

Safety rules for working with biological materials. In connection with the increase in the incidence of HIV infection and parenteral hepatitis b and C increases the risk of infection to health workers during the manipulation in health care institutions. Infection of medical workers most often occurs by contamination of skin and mucous membranes with body fluids of the patient (blood, serum, plasma, cerebrospinal fluid, urine, etc.) and trauma during the execution of medical manipulation (cut, stab, damage to skin, bone fragments, etc.). Risk professional infection are primarily affected by medical personnel in contact with blood and its components. The first is the staff of Hematology, intensive care, dental, maternity, gynecological, surgical, trauma departments and offices hemodialysis, treatment rooms, operating theatres, laboratories, as well as employees engaged in the procurement of blood, its components and preparations.

Given the possible infection of blood and other biological materials patient

human viruses HIV and hepatitis, cytomegaloviruses, near oncogenic viruses, the rules of professional infection prevention apply to all medical institutions, regardless of their profile. These rules are reduced to the maximum to prevent contamination of skin and mucous membranes.

All patients must be regarded as potentially infected with HIV and other blood-borne infections.

Medical staff should comply with the security rule to protect the skin and mucous membranes upon contact with blood or liquid body fluids of any patient. To do this:

1. Wash hands before and after any contact with the patient.
2. When performing manipulations to wear a gown, cap, replaceable footwear which are beyond the laboratories or offices is prohibited. 3. When performing manipulations at the hands of all damage to the skin close to the fingertips or the plaster. 4. All linen soiled with blood or liquid excreta, all samples laboratory analyses be considered as potentially infected and work with them only with gloves that are not reused. 5. Immediately after application medical instruments placed in the disinfectant solution, syringes, and catheters in a special container for disposal of sharp objects. Never take off with used syringes hypodermic needle and suture needle with the needle-holder and not to perform any manipulation with used needles. 6. To prevent splashes of blood and other biological fluids to use protective equipment eyes and face (mask, glasses, plates, screens, etc.). All workplaces where contamination of skin and mucous membranes of health workers to blood and other body fluids, shall be equipped with a first aid kit. **Subject No.5. Anaesthesia.**

Anaesthesia - analgesia. The problem of pain and analgesia is currently science Anesthesiology (aesthesis - feeling, logos - science, lat.). post exposure anesthetics (painkillers) can affect the central nervous system and the peripheral.

The method of pain relief by acting on the central nervous system called anesthesia, general anesthesia, or general anesthesia. Sometimes used the term "general anesthesia" is not correct. At the present time under anesthesia is a state of inhibition of the central nervous system under the influence of drugs and the accompanying loss of consciousness, sensitivity, conditional and unconditional reflexes certain.

On routes of administration of drugs for anesthesia, anesthesia is divided into an inhalation - by introducing a gaseous drug products (nitrous oxide) or volatile liquid preparations (Vortala etc.) Through the respiratory tract (the mask and endotracheal anesthesia by the administration of drugs through a tube inserted into the trachea).

Currently, for large, long and traumatic operations it is preferable to use endotracheal anesthesia combined with muscle relaxants, relaxing striated, including the respiratory muscles, which requires mechanical ventilation (mechanical

ventilation). The use of muscle relaxants allows anesthesia with a minimum amount of drugs for anesthesia, operate at maximum muscle relaxation, which improves access to the organs in the body cavities, reduce pathological impulses from the place of operation, especially with the reflex zones of the bowel mesentery, the root of the lung.

Local or regional anesthesia in the old terminology, is the blockade of pain impulses from the place of operation, starting from the level of the nerve receptors of the skin, mucous membranes and ending segments of the spinal cord.

Depending on the level of exposure to anesthetic and, depending on the method

of administration, the following types of regional anesthesia:

1. Local terminal (pin, surface) anesthesia through irrigation, lubrication, rinse,

spray anesthetics (1% dicain 10% Novocain and others.)

2. Local infiltration anesthesia (Reclus, 1889; Schleich, 1891).

3 Local infiltration anesthesia by layering tight creeping infiltration by Vishnevsky with 0.25-0.5% solution of novocaine.

4. Conduction anesthesia (anesthesia nerve trunks, and gossip sites, intravenous,

intra-arterial, intraosseous, spinal, epidural and epidural). For all of these types of anesthesia uses a large arsenal of anesthetics.

Subject No. 6. Resuscitation. Reanimatsiya.

Resuscitation - the science of patterns of violations of vital functions of the body, with the development of terminal conditions, methods of diagnosis, providing first and skilled care and treatment.

Reanimatsiya- a complex of measures aimed at preventing violations and restore

the vital functions of the body and treating disease postresuscitational. Resuscitation term comes from two words re - again, animatio - revival (Lat.). The term proposed by

the founder of resuscitation Soviet and Russian scientist Vladimir Alexandrovich Negovsky trauma at the International Conference (Budapest, 1961). The world's first set of resuscitation was developed by them during the Second World War, when the life of the wounded to restore them to apply artificial respiration and heart massage vnuriarterialnoe transfusion. The first wounded who with the help of these methods has been returned to life was Sergeant Valentin Cherepanov.

The basic vital functions of the body are the blood circulation, respiration and

metabolism. The reasons for violations of these functions may be different factors. First of all this bleeding, shock of different origin, respiratory failure due to asphyxia (suffocation, drowning, airway foreign body, hanging, etc..), Poisoning poisons and toxic on the basis of inflammatory and suppurative destructive diseases.

The result of all these processes is the development of terminal states of the word

terminalis (the final, ultimate, lat.). These states include predagonalnoe, agonal condition and clinical death. Predagonalnoe condition is characterized by confusion, undetectable blood pressure and pulse rate in the absence of peripheral arteries and the presence of it only on the carotid, femoral and other major arteries, dyspnea, cyanosis, or pallor. Agonal state characterized by a lack of consciousness and a weak pulse in large arteries. Heart sounds muffled breathing rare, arrhythmic, the ECG signs of hypoxia, arrhythmias. Clinical death is manifested termination function of the nervous, cardiovascular and respiratory systems. However, the metabolic processes are conserved through anaerobic glycolysis (breakdown of glucose anoxic). Here urgent steps to restore the activity of the nervous and cardiovascular systems, respiratory activity and metabolism make it possible to restore the life of the organism. Otherwise after 5 min biological death occurs due to the loss of the cerebral cortex.

Depending on what kind of vital functions were initially violated, these violations are divided into:

1) circulatory disorders (blood loss, heart failure);
2) respiratory or breathing problems (airway obstruction, reducing the respiratory

surface of the lungs);

3) hematic disorders (blood poisoning poisons - the impact of the carbon monoxide and metgemoglobinoobrazovateley, blood hemolysis);
4) histotoxic disorders, poisoning poisons violating tissue metabolism (cyanides

and others.).

Despite the varied backgrounds of factors causing a violation of vital body functions it is the end result of hypoxia (lack of oxygen), resistance to which differs in different tissues. Thus, the cerebral cortex is resistant to it for 5 minutes, the liver and kidneys for 20 minutes, the muscle for 2 hours. As a result of hypoxia organism switches to anaerobic glycolysis pathway, resulting in the formation of several times

more energy than the aerobic glycolysis (the breakdown of glucose with glucose), but the formed lactic acid (lactate), causes metabolic acidosis (shift internal environment in the acidic environment). In addition, lactate causes swelling of the endothelium of the capillaries, which exacerbates the violation of microcirculation in the capillaries, increasing education microthrombi "sludge" in the lumen of the capillaries.

Resuscitation measures taken to restore the function of vital organs, V.A.Negovsky called cardiopulmonary cerebral resuscitation, emphasizing that the ultimate and main goal of resuscitation is to restore brain function.

Resuscitation on the level and volume can be divided into elementary and qualified. Elementary events are held at the scene and include the elimination of the reasons which caused the violation of vital body functions (clearing the airway from foreign bodies, vomit, removal from the hinges when hanging, removing water from the respiratory tract drowning, blackout, stop bleeding, etc. .d.). Then, for the success of ongoing resuscitation (CPR and chest compressions) the victim is placed on a hard surface, it is enclosed by the blade roller and held artificial respiration and chest compressions. This assistance must provide any assistance provided at the scene. Qualified resuscitation care is provided in a specialized room or intensive care ambulance ambulance crews using special equipment and medical supplies.

Given the primary causal factors of violations of vital functions of the body restore blood circulation in cardiac arrest is aimed at restoring his work to that performed open or closed cardiac massage, the latter is the starting point for the lower third of the sternum. To this end, the palm of the left hand is placed on assisting the compression point. On top lay a palm of his right hand and produce rhythmic pressure on the sternum, hands unbend, power is transferred to the point of massage, it was believed that the movement should be identical heart rate (60-80 in 1 min). Recently it found that the more often done massaging motion on the heart, the more effective resuscitation, so they should be more than 100 taps on the chest. Compression of the heart between the sternum and the spine promotes blood supply of the heart chambers in its vessels.

The correct technique of indirect heart massage is a prerequisite for the success

of resuscitation. The victim must lie on his back, on a hard surface. It is advisable to raise the legs by 25 - 30 ° in order to increase the blood flow to the heart by reducing the large circulation.

When conducting an external massage of the heart, the resuscitator selects the

position to the left or right of the victim, gropes the lower end of the chest (xiphoid process) and places the proximal part of the palmar surface of the hand perpendicular to the chest on the lower half of the sternum, retreating to two transverse fingers above the xiphoid process

.

Another method of determining the point of application of pressure: the distance

from the xiphoid process (lower end of the sternum) to the nadpodrudny notch (upper end of the sternum) is divided in half and set the palmar surface on the lower half of the sternum.

The second hand is located on top, at right angles. It is very important that the

fingers do not touch the chest (Fig. 2).

This contributes to the effectiveness of heart massage and significantly reduces

the risk of rib fracture. When sudden cardiac arrest prior to a massage in all cases to be made precordial blow, delivered twice a fist from a height of 20 cm from the sternum to the point of compression. It eliminates the ventricular fibrillation, ie, such a phenomenon when every muscle fiber of the heart is reduced at their own pace, without creating effective systole.

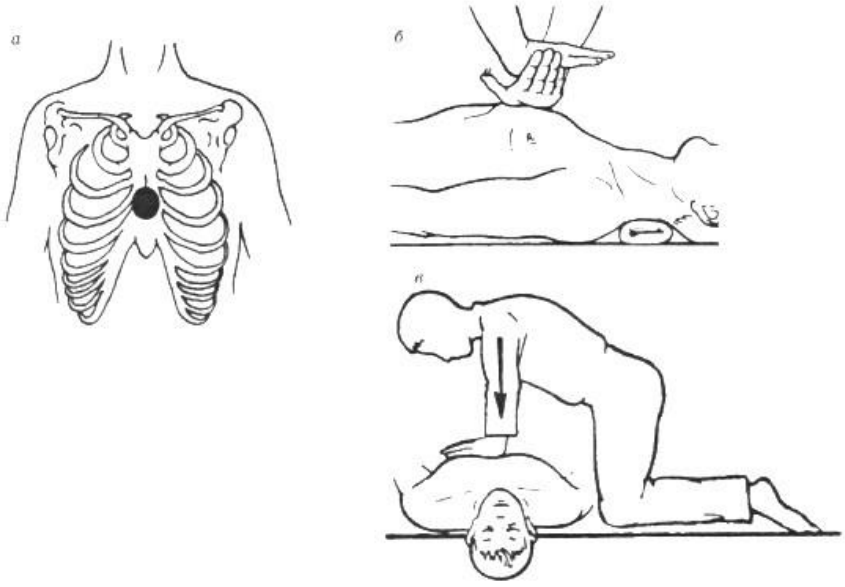


Fig.2 Conducting an indirect heart massage 2:30

To restore the heart can be used and intracardiac administration of drugs (epinephrine, 10% calcium chloride) in the IV intercostal space on the left side of 1-2 cm from the edge of the sternum.

The indications for open cardiac massage in the operating room are chest

injuries, damage to the heart, thoracic and intra-abdominal surgery, inefficiency closed massage for a few minutes. During ventricular fibrillation, also used a special device - a defibrillator is applied to the heart of a single electrical discharge voltage In 5000-7000, the force 1,5 3,5 A. For this purpose, the defibrillator pulse one electrode, which is placed on the heart, and the second under the left shoulder blade.

When blood loss to restore the BCC intravenously shimmer polyglukin, reamberin, Refortan, stabizol, Infukol-6, plasma, saline solutions, and to improve the transport of oxygen to the tissues - perftoran. In critical cases, a transfusion is carried out in two large jet vein (subclavian, femoral, internal jugular). Drugs that cause vasospasm (adrenaline, dopamine, mezaton al.) In order to increase blood pressure during this period is not injected, since it exacerbates the peripheral microcirculation, including liver and kidney. In the absence of access to the bloodstream may endotracheal administration of drugs in small quantities or their introduction in the root of the tongue or in the cavernous body of the penis. The main task here - replenishment of circulating blood volume (CBV), and then, to improve microcirculation introduced myotropic antispasmodic, relaxes the muscles and blood vessels, relieves spasms of peripheral capillaries (papaverine, no-spa, droverin, aminophylline, nicotinic acid). To improve microcirculation and appoint reopoligljukin, trental, pentillin, heparin, fraxiparine, Clexane.

The main objective of the elimination of respiratory (breathing) disorders is airway and increase the respiratory surface of the lungs, as well as the restoration of spontaneous breathing. Measures to restore the airway depends on their causes. So, vomiting respiratory removed vomit.

To combat the tongue arising in the unconscious patient or during anesthesia, use
the following steps:

1. Application glossotilt.
2. tilting the head back. To do this, the patient is placed under the blade shaft.
3. Using duct.
4. Extension of the jaw forward. Used anesthesiologist while giving anesthesia.
5. Flashing removing his tongue out and attach to the clothing of the victim thread.
6. Tracheal intubation.
7. Position the patient on his stomach. In some cases, victims are impacting the

jaw and their separation is used a special tool - gag. For this instrument is introduced in advance of the oral cavity and jaws give birth at the edge of closed jaws at the point where there are no teeth. Handles push and jaw open. During practical training students are offered at the tip of his tongue to find the gap, located between the rear surface of the last great molar of the upper and lower jaws and palatal bow.

When foreign bodies of the larynx can remove them with your fingers, or, if possible, should be deleted victim upside down. Extremely effective is welcome Geymliha, comprising the steps of providing assistance that covers the back of the patient hands, and squeezing one hand into a fist, put it in the epigastric projection (below the xiphoid process) and produces them with a different brush, a sharp jerky movements from the bottom, and upwards. Thus the remaining air in the lungs in the respiratory tract are pushed and ejected foreign body. The movement can be repeated several times. For injuries of the larynx, vocal cords edema can be used tracheostomy, konikotomiya or cricotomy. Since tracheostomy is a relatively complex operation, in these cases, when the airway must be made within a few seconds, there is more acceptable konikotomiya - dissection of thyroid-cricoid ligament that hour below the thyroid cartilage in the midline of the neck.

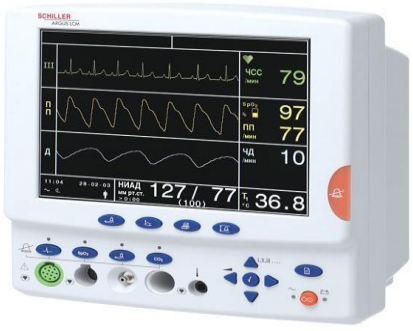
In the lab, students at each place is the projection of the thyroid signet ring binder

on the skin, which is located between the lower edge of the thyroid cartilage and the upper edge of the cricoid. To do this, put your index finger on the thyroid cartilage in the midline of the neck (men find this cartilage is easier since they it is more pronounced). Move your finger down the fingertip feels the lower edge of the thyroid cartilage, and then he falls into a hole between the two cartilage, feeling the lower edge of the thyroid and the upper edge of the cricoid cartilage. Here is the pit is the location where the konikotomiya.

Bundle may be cracked cross section into which a tube. Instead of dissection of

the ligament, the latter through the skin can be punctured thick needle (konikostomiya). In such cases, the same operation can be performed cricotomy, which consists in the dissection of the cricoid cartilage. Konikotomiya or cricotomy relatively safe operation, as the site of their production are no large blood vessels or vital organs. In all cases, opening the airway through the air access to the noise passes through it and untimely cannulation (introduction of the tracheostomy tube, or any other) can form subcutaneous emphysema.

Artificial respiration is carried out after the restoration of the airway by the "mouth to mouth" or "mouth-to-nose", held



simultaneously with the cardiac massage. Currently, the best is the ratio of the number of breaths to massage 2:30. Supply of air or oxygen into the airways can be carried out through a mask, endotracheal, tracheostomy tube or duct using AMBU (Fig. 3.) bag, anesthesia apparatus, and in their absence made a breath of air from the respiratory tract to help.

Fig. 3. Ambu's bag and cardiac monitor.

Sometimes the air or oxygen is fed through the above path with the machine high

frequency ventilation (mechanical ventilation). Given the current approaches to ensuring the safety of medical personnel, as well as the unwillingness or inability to produce respiration "mouth-to-nose" and "mouth to mouth", so it should be noted that recently there have been methods of alternative methods of artificial respiration "mouth to mouth" or "mouth-tonose". So there was research indicating that held by active compression-decompression using a special device kardiopampa (cardio pump) chest compressions at the same time has the effect of artificial respiration. The device is a handle having a vacuum suction cup on the end that is installed in the middle of the chest. Prisasyvayas to the chest wall when pressed on the device in the rhythm of the pulse is carried systole and diastole, and artificial respiration. Recently found that the rhythm of the heart massage 100 times or more per minute, and has the effect of artificial respiration.

The amount of drug therapy to patients intravenously administered necessarily

corticosteroids (adrenocortical hormones) to control acidosis with 4% sodium bicarbonate 200 ml and 5% of vitamin C in large doses (20-30 ml), vitamins B1, B6. Measures are taken to improve the function of the liver, kidneys, brain, and when necessary fight against intoxication.

When hemic hypoxia associated with the destruction of red blood cells or hemoglobin binding them with toxins struggle aimed at substitution blood transfusion hemolysis (destruction) of red blood cells (hemolytic neonatal jaundice). If poisoning metgemoglobinobrazovatelyami (potassium permanganate and others.) Used intravenous methylene blue 1% - 50 ml, of vitamin C is 5% - 30 ml, vitamins B12, B6. When carbon monoxide poisoning are also introduced large doses of vitamin C, glucose, appointed procaine 2% - 50 ml methylene blue solution with glucose (hromosmon), diphenhydramine, promethazine, aminophylline, vitamin therapy,

hyperbaric oxygen therapy is conducted, for which the patient is placed in a special chamber pressurized oxygen.

Histotoxic hypoxia caused by blocking the action of poisons tissue respiratory

enzymes (cytochromes) that prevents the entry of oxygen into energy, oxidative processes. These poisons relates hydrocyanic acid and its derivatives (cyanides), potassium cyanide et al. Treatment here is amyl nitrite inhalation (2-3 ampoules) intravenously administered sodium nitrate 1% - 10 ml slowly every 10 minutes 2-3, thiosulfate 30% sodium - 50 ml, of methylene blue 1% - 50 ml in a mixture with glucose, 40% - 40 ml (hromosmon) better gastric lavage with a weak solution of potassium permanganate, hyperbaric oxygenation.

The complex resuscitation in all cases includes cooling the brain of the skull to

reduce brain needs oxygen.

An indication of the effectiveness of resuscitation is to normalize blood pressure

and heart rate, central venous pressure (central venous pressure), recovery of reflexes (pupillary, corneal, and others.), The emergence of consciousness, the normalization of the color of the skin, the disappearance of pallor, cyanosis (cyanosis), marble or skin color (striping pale areas with areas of cyanosis), the restoration of diuresis (urine output - the amount of urine over a certain period of time, so hour urine output of 50 mL, daily 12001500 mL). If possible, the monitor produced hardware control functions of the body

(electrocardioscope, electrocardiography, pneumotachometry, blood oxygen tension). Also monitor blood parameters (hemoglobin, red blood cells, white blood cells) and urine, blood chemistry parameters (bilirubin, liver enzymes, creatinine, urea, total protein, protein fractions of blood lactate dehydrogenase, Creatinine etc.). By P. Safar (1997) stands out 3

stages and 9 phases of cardiopulmonary and cerebral resuscitation

Stage I - basic life support. It consists of three stages:

A (airwayopen) - airway; In (breathforvictim) - emergency ventilation and oxygenation; With (circulationhisblood) - maintaining circulation.

Phase II - further maintenance of life. It is to restore spontaneous circulation, normalization and stabilization of the circulatory and respiratory parameters.

Phase II includes three stages:

D (drug) - medications and infusion therapy; E

(ECG) - electrocardioscope and

echocardiography; F (fibrillation) -

defibrillation.

Stage III - maintaining long life. It is poslereanimatsionnoy intensive care and

includes the steps of:

G (gauging) - assessment of the state;

H (humanmentation) recovery of consciousness; I - correction of failure of organ functions.

It should be noted that currently leading American and European resuscitation cardiologists recommend reanimation with defibrillation and indirect cardiac massage, since the most common form of cardiac arrest is ventricular fibrillation, which is often difficult to diagnose quickly, especially at the prehospital stage.

The preparatory period of resuscitation. All the above measures are preceded by a preparatory resuscitation period, providing for:

- diagnostics of terminal conditions;
- laying on his back on a rigid base;
- release from the constraining parts of clothes.

Considering the acute shortage of time caused by the continuing hypoxia of the cerebral cortex, the preparatory stage of resuscitation should take no more than 10-15 seconds, which is possible only with a strictly defined sequence of actions and working off these skills.

Diagnosis of clinical death is carried out, on the main, early, reliable sign - the absence of a pulse on the carotid arteries and later - the wide pupils of the eyes.

For palpation of the carotid arteries, it is sufficient with the index and middle fingers (to place the fingers flat and not with the tips), to grope the lateral surface of the thyroid cartilage, then sliding along it towards the spine, to feel the pulsating artery. Lack of pulsation in this area indicates cessation of heart contractions. Checking the pulse, it is necessary not to press the carotid artery, but only to touch it.

Pulse check for 5 to 10 seconds. This technique should be treated as responsibly as the technique of artificial respiration and heart massage.

In clinical conditions, additional diagnostics of cardiac cessation is determined by ECG data. With constant monitoring, the precursors of a sudden cessation of blood circulation are polytopic ventricular extrasystoles, severe ta-chicardia or ventricular bradycardia, and increasing atrial-ventricular blockade. Asystole is a state of complete cessation of ventricular contractions; ECG - isoline.

Heart fibrillation is the loss of its ability to co-ordinate contractions; on ECG - large-wave or chalk-wave wave fibrillation.

Before the resuscitation of the victim is carried out on the back on a rigid base (couch, floor, etc.), unfasten the waist belt to prevent damage to the abdominal

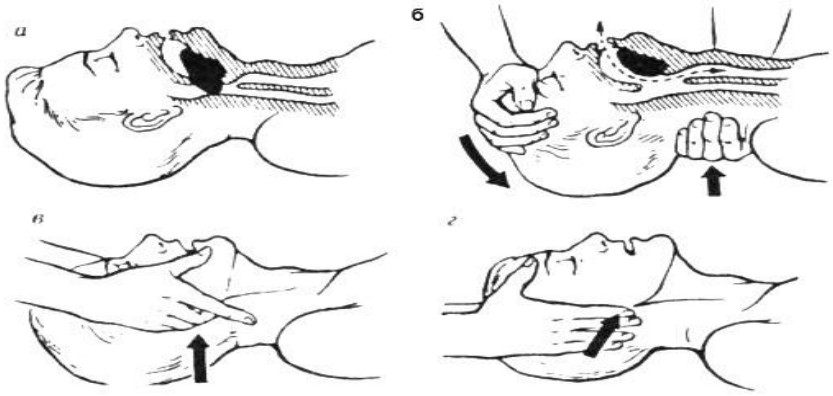
organs. Indirect heart massage is always ineffective on a soft springy surface (sofa, bed, etc.).

Stage A (restoration of the airway). To restore the airway patency, the head is

thrown backwards, which is achieved by placing one hand under the neck or the roller under the shoulder blades and pressing the other hand on the forehead. This technique allows to achieve separation of the root of the tongue from the back wall of the larynx.

In almost 20% of victims who are unconscious, the maximum extension of the

head does not provide a sufficient degree of passage of the upper respiratory tract. This requires a so-called "triple reception", developed by P. Safar (Fig. 4), which includes: a) drooping of the head; b) opening the mouth; c) extension of the lower jaw.



R and with. 4. Stages of the triple taking Safar:
(a - retraction of the tongue; b - extension of the head; c - extension of the lower jaw; g
- mouth opening

Then it is necessary to hold the "toilet" of the oropharynx with the index or two

fingers wrapped with a gauze napkin or handkerchief.

After resuscitation sometimes develops so-called postresuscitation disease is a complex of changes in the internal organs caused by hypoxia. There can be

observed changes in the cardiovascular system, manifested by tachycardia or bradycardia, cardiac arrhythmias, ECG changes. Liver may occur increased bilirubin, ALT and AST enzymes. On the part of the kidney can be observed increase of urea, creatinine. CNS effects of hypoxic encephalopathy (confusion, dezorintirovka in time and space, and others.).

Treatment postresuscitative disease is aimed at the treatment of violations of the

internal organs.

Subject No. 7. Bleeding.

Bleeding is the flow of blood from the bloodstream out into the body cavity, or tissue. Hemorrhage is the leading cause of death injuries in peacetime and in wartime. So during the Soviet-Finnish war in 1939, of all the wounded from bleeding died of 54.1%. During the great Patriotic war the figure was 50%. **Classification of bleeding**

1. Due to the occurrence the violation of the integrity of the vessel - trauma (closed, open); - arose of the vessel wall (pus, swelling, ulcer process). 2. On anatomical grounds the arterial - capillary, - venous, - parenchymal.

Clinical manifestations of bleeding are divided into General and local. Common symptoms of bleeding include: weakness, cold clammy sweat, dizziness, sometimes loss of consciousness (collapse), tachycardia, drop in blood pressure, yawning, thirst. Severity of symptoms depends on the severity of bleeding.

- Stop bleeding may be temporary, preliminary or preoperative), as well as the final. Temporary stop of bleeding or hemostasis is produced cases where it is not possible to draw definitive hemostasis, to which the required operating conditions, and sometimes special tools and surgeon owning vascular operations. Therefore, a temporary stop of bleeding is on the scene to save the life of the victim, followed by its transport to hospital. Sometimes temporary stop bleeding and is in the operating room for bleeding during the operation, until such time as the issue is not resolved on the method of final hemostasis.

There are these methods temporary stop bleeding: the Compression of the arteries to the bony protrusions (Fig. 5.).

Fig. 5. Finger pressing

This compression of the brachial artery to the humerus on the inner surface of the shoulder when arterial bleeding in the forearm and the lower third of the shoulder. Bleeding from the external carotid artery or its branches, as well as bleeding from the extracranial portion of the internal carotid artery common carotid artery is pressed against the carotid tubercle of the sixth cervical vertebra at the level of the upper edge of the thyroid cartilage. When bleeding from the axillary or brachial artery subclavian

artery is pressed against the first rib at the level of the middle third of the clavicle to the top edge. Uterine bleeding and bleeding from the femoral artery, the abdominal aorta is pressed a fist to the spine below the navel. Bleeding from the femoral artery and other arteries of the lower limb stops pressing the femoral artery to a pubic bone. Temporal artery can be pressed against the temporal bone below protivooterne ear. The external maxillary artery is pressed against the lower jaw to the middle of its branches at the bottom edge.

The axillary artery is pressed against the humerus (Fig. 6).

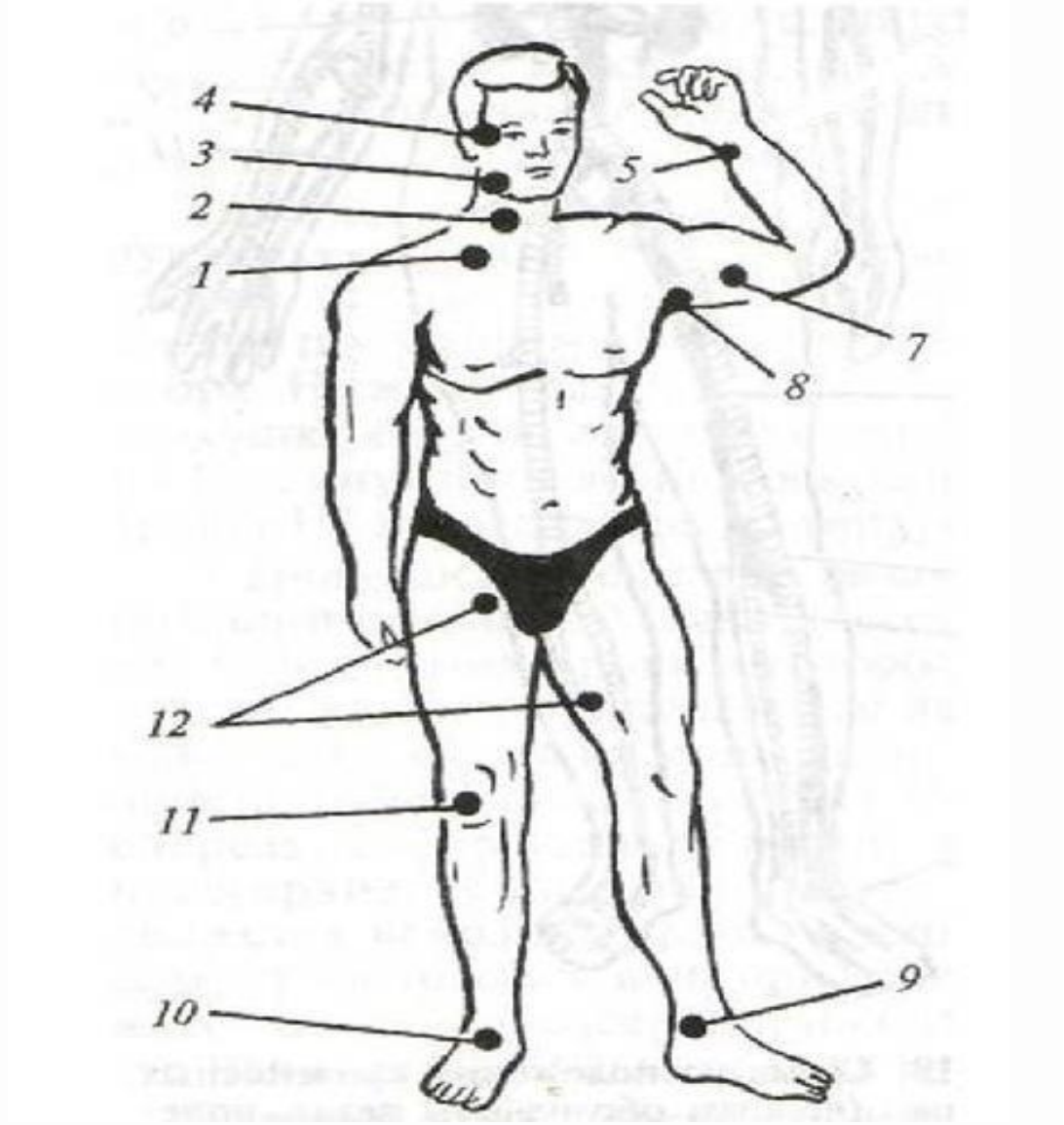


Fig. 6. Pressure points

(artery: 1 – subclavian, 2 - somnolent, 3 - external jaw;
4 - temporal, 5 - radial, 7 – humeral; 8 - axillary, 9 - posterior tibial;
10 - rear of the foot, 11 - popliteal, 12 – femoral)

I. Maximum flexion of the limb joints (Fig. 7.).

Bleeding from the arteries of the lower limb in the inguinal crease is placed the roller, the maximum hip is flexed at the hip and attached to the body. Bleeding from the arteries of the leg or forearm limb respectively bent in the knee or elbow joints with the laying of the roller into the fold joint. Forearm or leg is fixed with a bandage to the thigh or shoulder. Bleeding from the arteries of the upper limb at any level, to stop bleeding both upper limbs turned out for a spin and contact with each other in the elbow joints. This leads to kink the subclavian artery via the first edge and stop the bleeding.

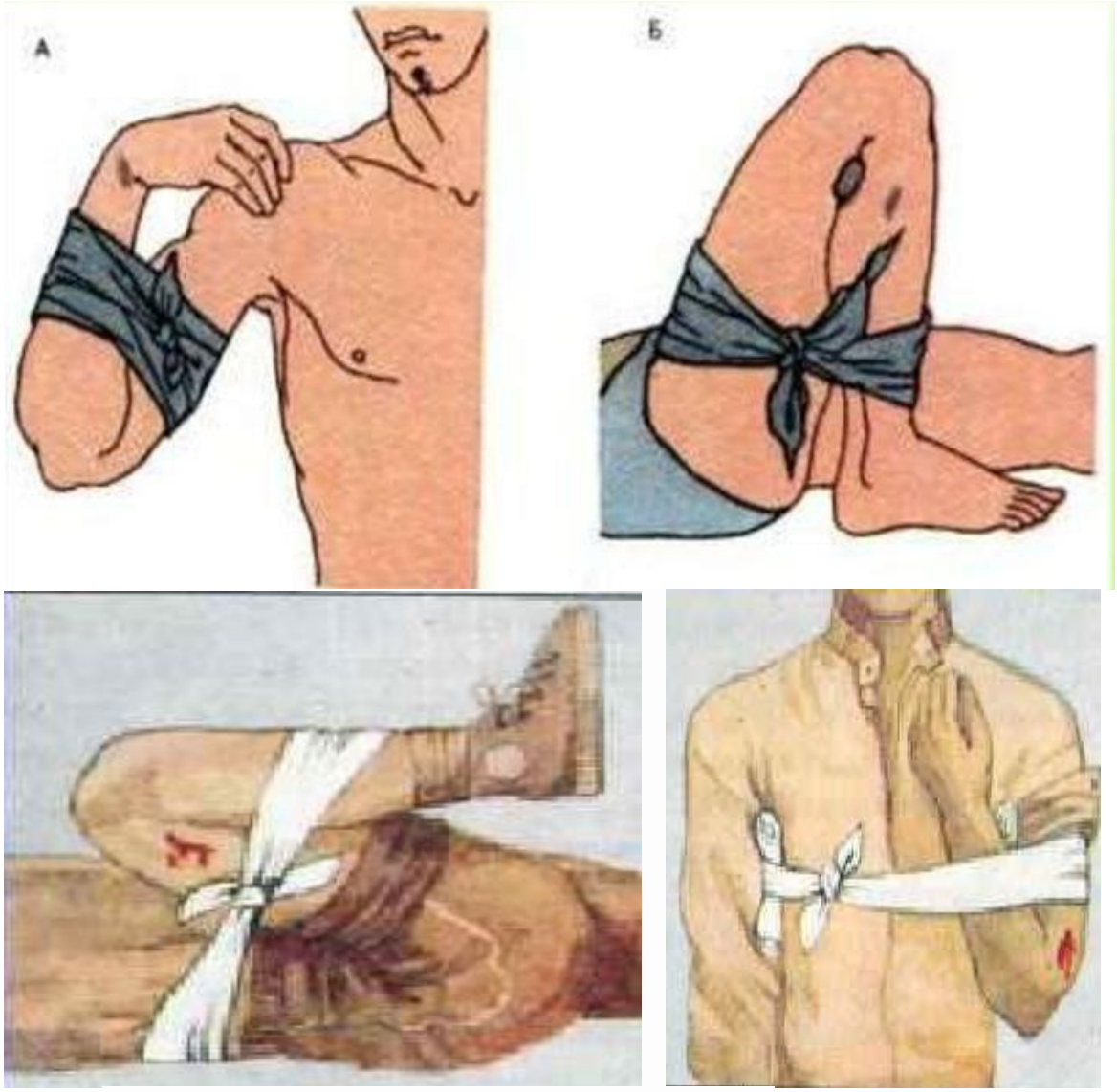


Fig. 7. Maximum flexion of the limb in the joint

III. Tamponade of the wound as a method of temporary hemostasis is used for bleeding during surgery with subsequent interventions the final hemostasis (Fig. 8).

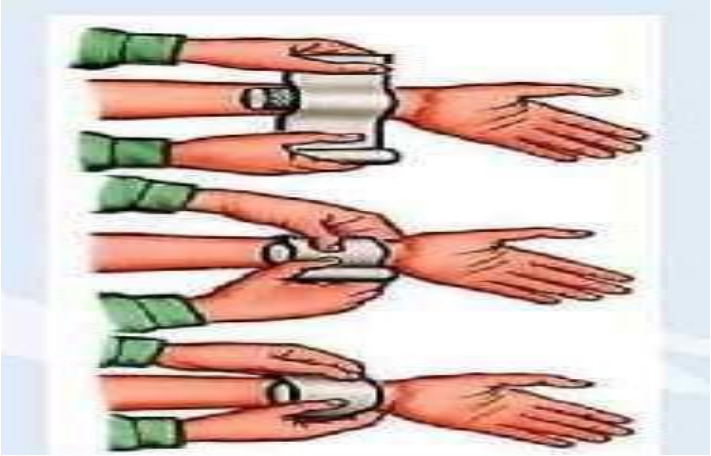


Fig. 8. Tamponade of wound with venous bleeding

IV. The overlay clip on the vessel is required when bleeding during surgery with a subsequent decision on the final hemostasis (Fig. 9).

Fig. 9. Clamping the wound

V. the Imposition of tight bandage (Fig. 10).

This type of temporary hemostasis is applied both in venous and arterial, is an alternative to a harness, in front of which the ring according to the authors of a tight band has several advantages (less pressure on nerve trunks and as a consequence, less pain, less violation of collateral circulation). Indeed in this aspect one should agree with the above authors, as the pressure of a tight bandage, created on the artery is sufficient to complete cessation of blood flow in it. This method is absolutely indicated for venous bleeding, which, in addition to bandages, creates an elevated position of the limb and the wound impose a cold.

Fig. 10. Imposition of a tight bandage

VI. Stop arterial bleeding with a rubber tourniquet Esmarch (Fig. 11).

Fig. 11. Stages of the application of zhktta

It is recommended to observe the following rules:

1. To put pressure on the pad without folds.
2. A tourniquet is applied above the wound and closer to her.
3. Before applying a tourniquet to stretch and wrap around the limb 2-3 times.
4. The free ends of the harness to bind ,or fasten hooks.
5. The correctness tourniquet determined by the pulse and the cessation of bleeding.
6. The limb with a tourniquet in the cold season to wrap up warm, but not warm.

7. The time the tourniquet is not more than 1 hour, and in the cold season no more than 30 min. After that the harness loosen, then retighten. If there is a need of further stay of the loom, after compressing the artery tourniquet is removed and shifted.

8. The harness attaches the note on the date and time of its imposition, and the person left harness.

9. Mandatory vehicle immobilization.

10. Transportation of victims with a bundle is carried out in the first place.

11. The introduction analgesics.

12. Patients with a bundle needs to have surgery in the first place.

VII. The imposition of a twist. Applied in the absence of a tourniquet (Fig. 12). To do this, use any long soft object (rope, scarf, belt, etc.). This follows the same rules as when using the harness. The subject used as twist tied around the limb, the ends of his contact. Under him, introduced a wand, which the subject used as a twist, twists to stop bleeding.

Fig. 12. Applying a twist harness

VIII. The tourniquet on Gorowo-the Gersh allows you to save limbs in collateral circulation. The tourniquet according to this method, the side limbs opposite the neurovascular bundle is applied the plate around which is applied around the limb tourniquet. The harness is pinched only major vessel which is the source of bleeding. The second semi-circle limbs due to protecting the role of boards, does not compress the harness that allows you to keep the collateral circulation.

IX. The tourniquet on the carotid artery I. Mikulic (Fig. 13).

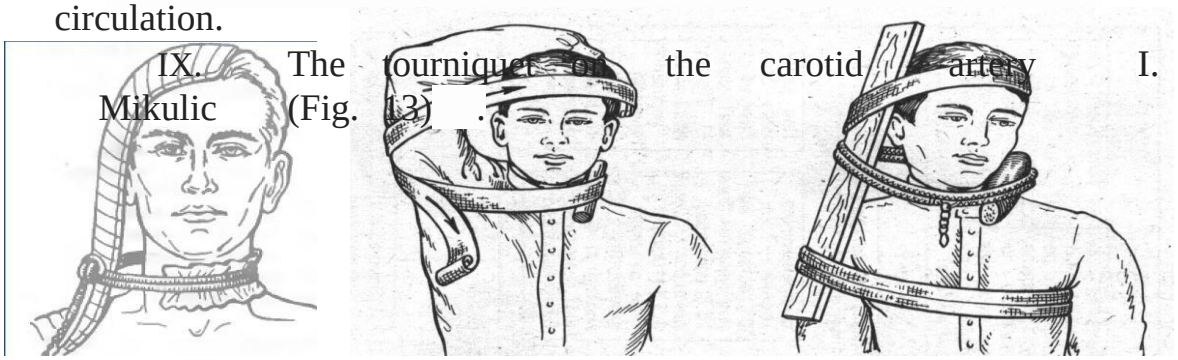


Fig. 13. Rope application

Method used for bleeding from the carotid artery. Wiring for damaged carotid artery

is superimposed in such a way as to preserve the circulation in the opposite carotid artery.

For that on the healthy side fit modeled on the contour of the head, neck, shoulder girdle

and shoulder of the tyre Kramer, fixed bintovuju bandages to the head, and shoulder girdle.

Tourniquet compresses only the damaged carotid artery. As tires can be used opposite to

damage the hand of the victim, a wound of the head or plate is attached to the opposite location of damage to the side of the face, in front of the

ear.

Subject No. 8. Blood coagulation disorders in surgical patients. Endogenous intoxication in surgery.

Hemostasis is a system of body reactions aimed at stopping bleeding. There are vascular platelet hemostasis and blood clotting. At the first one, platelets are activated in response to vessel injury, which is accompanied by primary and then secondary vasospasm. The adherence of platelets to the collagen of the vascular wall is due to the presence in the platelets, plasma, vascular endothelium of a protein called von Willenbrand factor. A number of biologically active substances, such as adrenaline, platelet activating factor (PAF), thrombin, prostaglandins, etc., are also involved. As a result, platelet gluing involving fibrinogen occurs. Subsequently, the resulting clot undergoes secondary aggregation with compaction (retraction) of the clot.

Blood coagulation is a complex enzymatic process involving plasma, cellular and tissue factors. The founder of the theory of blood coagulation including 3 phases is A.A. Schmidt. In the first phase, the formation of prothrombinase occurs, which is stimulated by thromboplastin of erythrocytes and tissues, which are released during their destruction. In the second phase, prothrombinase converts prothrombin to thrombin. In the third phase, thrombin converts fibrinogen to fibrin, which, when compacted, ensures a firm closure of the defect in the vessel.

Hemostatic disorders are currently divided into 3 forms:

1. Strengthening of blood clotting and thrombosis - hypercoagulation and the development of thrombotic processes, also called thrombophilia.
2. Reduction of blood clotting - hypocoagulation with the development of hemorrhagic syndromes.
3. Phase violation of the state of the hemostatic system - thrombohemorrhagic (TGS) or DIC.

Preoperative preparation, operational stress also contributes to increased blood clotting, which should be considered both prior to surgery, during it, and in the postoperative period in order to develop a set of measures for the prevention of thromboembolic complications, of which pulmonary artery thromboembolism is the most common.

Pulmonary embolism is a sudden blockage of the lumen of the pulmonary artery or its branches by a thrombo-embolus with cessation of oxygenated blood supply to the pulmonary veins and impaired blood supply to the pulmonary parenchyma. The most common source of thromboembolism is thrombophlebitis of the deep veins of the lower extremities, especially the proximal parts (popliteal, poplite-femoral and ileocaval). The most embolistic are floating thrombi, i.e. thrombi that attach to one of the walls of the vein do not close its lumen and gradually elongate in the form of a tape that is in the lumen of the vein can even reach the right atrium. When walking, when deep veins are squeezed between the muscles, which contributes to increased blood flow in them (muscle pump), a blood clot can break off with the blood flow through the inferior vena cava and through the right atrium into the right ventricle and from there into the pulmonary artery. In this regard, blood clots that completely occlude the vein lumen are less dangerous.

PE is classified as massive and not massive. Such a division is important in terms of clinical features, diagnosis, treatment and outcome.

The clinical course of pulmonary embolism is diverse and depends on its massiveness. With massive pulmonary embolism, patients suddenly have shortness of breath, a feeling of lack of air, chest pains appear. Patients are restless, face and upper torso bluish. Chest pain is most often caused by acute right ventricular heart failure. Patients lose consciousness, and death can occur on the background of cardiac arrest.

With less massive pulmonary embolism, cough, hemoptysis, tachycardia can be observed, and with a pulmonary infarction, with its subpleural location, pleurisy can be observed, pleural friction noise, weakening of breathing, wheezing in the lungs, fever. With recurrent pulmonary embolism, chronic pulmonary hypertension may occur. With early initiated therapy for dissolving blood clots and using anticoagulants, blood clots dissolve and blood flow to the pulmonary artery is restored.

Treatment. With massive pulmonary embolism, thrombolytic therapy is effective in the first 3-7 days of the disease. Thrombolytics are introduced into the peripheral vein, which provides the same effect as when administered directly into the pulmonary artery. Streptokinase 250,000 U / 50 ml of 5% glucose for 30 minutes, and then constantly 100,000 units every hour, are used here. The average duration of such therapy is 12-48 hours.

Of the surgical methods for the prevention of pulmonary embolism, the installation of a cava filter and embolectomy is used. Indications for the installation of a cava filter: 1. Absolute contraindications to thrombolytic and anticoagulant therapy;

2. The risk of re-thromboembolism;
3. Relapse of thromboembolism on the background of adequate anticoagulant

therapy;

4. High risk of thromboembolism.

The cava filter is a metal mesh structure often in the form of an umbrella inserted through the peripheral vein in the folded state with the help of special catheters into the lumen of the inferior vena cava and installed below the inflow of the renal veins, where the filter opens in the form of an umbrella and rests against the walls of the vein with its radial spikes around its entire circumference is fixed in it. Filters do not interfere with the flow of blood, but delay emboli.

Intoxication is one of the most important factors in the disruption of the vital activity of an organism in various diseases, including surgical ones, and is often the main object of therapeutic measures. According to the ways of penetration of toxins into the body, it can be exogenous and endogenous. The first occurs when the penetration of toxins into the body from outside the poisoning. With endogenous intoxication, toxic products of various genesis accumulate in the body, including products of intermediate or final normal metabolism in increased amounts (urea, creatinine, bilirubin, acetone, lactate, pyruvate, etc.), substances of increased proteolysis and hydrolysis of tissue proteins, mediators inflammation, biogenic amines, waste products and the breakdown of pathogenic microflora, lysosomal, proteolytic enzymes released due to the death of macrophages and leukocytes phagocytosed b actors, foreign bodies or dead tissues in the inflammatory or purulent focus.

Endogenous intoxication in surgery occurs with extensive soft tissue necrosis due to injuries or circulatory disorders, severe forms of local and general purulent infection, disorders of the body's detoxification (hepatic or renal failure), metabolic disorders (diabetes mellitus), delayed metabolic products (mechanical jaundice, intestinal obstruction).

On the course of endogenous intoxication can flow rapidly, for example, by the type of septic or toxic shock, or take a protracted or chronic course (chronic osteomyelitis, chronic lung abscess, bronchiectasis, etc.).

By origin, sources of endogenous intoxication are divided into the following forms:

1. Infectious;

2. Resorption; 3. Exchange;

4. Retention.

Bacterial and viral toxins with infectious intoxication are very diverse and specific for each disease. Each pathogen produces several toxins, also called pathogenicity factors. Toxins can have a general toxic effect, acting on all or many organs, tissues and systems of the body. Thus, endotoxin of the Pseudomonas aeruginosa causes edema and tissue necrosis, respiratory failure, acidosis, α-toxin (lecithinase C), excreted by Cl.perfringens has a dermatonecrotizing, hemolytic and lethal effect. Some toxins selectively affect certain tissues, cells and organs. So tetanohemolysin in the causative agent of tetanus causes hemolysis of red blood cells, and tetanospasmin muscle spasm.

Subject No. 9. Blood groups, Rh factor.

Blood group is an immunological property of the blood, on the basis of which the blood of all people, regardless of gender, age, race and geographical area, can be immunologically divided into groups. Blood groups are formed from a specific combination of agglutinogens (A and B) and agglutinins (α and β). Group agglutinogens A and B are polysaccharides associated with lipids and proteins, and they are located in the erythrocyte membrane. Agglutinins are natural antibodies to agglutinogens A and B and belong to the γ globulin fraction of proteins, and the antibodies that were formed after transfusing the patient's blood containing antigens that he does not have are called immune, and first of all these are antirhesus antibodies. This antigenic system is called ABO (Table 1). In addition to the alphanumeric designation of blood groups, their color marking, first proposed by
A.N. Filatov, is also used. So on the bottles and containers with blood and with its components on the label with group 0 (I) there is a colorless or black band, with group A (II) - blue or blue, with group B (III) - red, with group AB (IV) - yellow.

Table

1 Blood type classification

Group designation	**Group designation**			
	0 αβ	Aβ	Bα	AB0
International Letter Classification	**0**	**A**	**B**	**AB**

Combined classification (used in the Russian Federation)	0 (I)	A (II)	B (III)	AB (IV)

Group agglutinogen A is heterogeneous, it can be in the form of A1 and A2. A1 is observed in 85% of owners of agglutinogen A, and A2 in 15% of them. A1 has a more pronounced agglutinability and hemolytic ability, and A2 less. In determining the blood group, agglutination with A1 occurs in the first 10-30 seconds, and from A2 within 5 minutes. That is why agglutination in determining blood type should be monitored for 5 minutes. If less time is observed, then A (II) can be taken as 0 (I), and AB (IV) as B (III), which can lead to errors in the definition of groups and transfusion of blood or its components. In addition to the agglutinogens A and B, there is a factor 0, inherent to the 0 (I), A2 (II) and A2B (IV) groups. In addition, in all blood groups there is a substance H, but its greatest content is noted in the 0 (I) group. In Bombay (India) not only factors 0, A, B are absent from some of its inhabitants, but also N. the factor found in these people is the type of Bombay.

Those with A2 (II) A2B (IV) may have extraagglutinin 1, and those with A1 (II) A1B (IV) may have extraagglutinin 2.

Blood groups are important for transfusiology, transplantology, in obstetrics and gynecology, in forensic medicine for personal identification and in establishing paternity and motherhood.

Other antigenic erythrocyte systems (Rhesus Kell, Duffy, etc.) have only antigens (agglutinogens) and do not have against themselves the natural antibodies present in the AB0 system (α and β), but these antibodies can be formed in the recipient's body without this antigen when transfusion of media containing red blood cells with the missing antigen. Such antibodies are immune and they can cause blood transfusion complications with repeated transfusions of blood containing the same antigen.

The most important after ABO is Rh system. This antigen is present in erythrocytes in 85% of people, in 15% it is absent.

The Rhesus system is represented by 6 antigens, which are lipoproteins included in the stroma of the red blood cells. There are 2 nomenclature, Rhesus systems: Winner and Fisher-Reis. Therefore, the Wiener system (Rh) or the Fisher-Reuss system (D) can be used to designate the Rh factor in medical documents and on vials or on plastic containers with blood or its components.

Each person can have from 3 to 5 antigens of the Rh factor. The strongest antigenic properties is the Rh0 (D) antigen and all its 85% carriers are considered Rh positive, while

15% of people lack it and these people are Rhesus-negative. The remaining antigens are weaker in their antigenic properties and do not form anti-rhesus antibodies, which cause blood transfusion reactions during repeated blood transfusions with this antigen.

Subject No. 10. Blood transfusion.

Blood sources for blood transfusion can be:
1. Donors.
2. Autohemotransfusion.
3. Reinfusion of blood.
4. Waste blood (placental, obtained by bleeding).
5. Cadaver blood.

Donors can be all healthy people aged 18-60 years. Counter-indications for donation:

tuberculosis, syphilis, brucellosis, malaria, tularemia, malignant tumors, peptic ulcer or duodenal ulcer, osteomyelitis, liver disease (hepatitis, cirrhosis), nephritis, surgery with removal of the organ, endocrine diseases, mental diseases, psychiatric diseases, psychiatric diseases, cirrhosis, nephritis, surgery with removal of the organ, endocrine diseases, psychiatric diseases, psychiatric diseases, psychiatric diseases, cirrhosis, nephritis, surgery with removal of the organ, endocrine diseases, psychiatric diseases, psychiatric diseases, psychiatric diseases, cirrhosis, nephritis, surgery with removal of the organ, endocrine diseases, mental diseases, psychiatric diseases, psychiatric illnesses, cirrhoses, nephritis, surgery with removal of the organ, endocrine diseases, psychiatric diseases, psychiatric diseases, psychiatric diseases, cirrhoses, nephritis, surgery with removal of the organ, endocrine diseases, mental diseases. , drug addiction, alcoholism, endo-myocarditis, iritis, retinitis, myopia, grade II-III hypertension, bone deformity, otosclerosis, atherosclerosis, deaf-mutism, infectious diseases, acute inflammatory diseases, vitamin deficiency, exhaustion, HIV infection.

Blood collection is performed on the at blood transfusion stations. For this purpose, special preservatives are used.

For example, glugitsir, citroglucophosphate, allow blood to be stored for 21 days, and the use of zyulyfada, eritronaf and CPDJ for 35 days, and Absol and SJGM for 41 days. Blood is exfused under the strictest sterility in the operating room. Blood and its components are stored in a refrigerator at a temperature of +4 to + 60 ° C, the indicators of which are recorded twice a day in a special journal. The blood is settled and separated into plasma and cellular elements 3 days after taking, but the separation can be accelerated by centrifuging for 25 minutes. After that, its components are obtained from whole blood.

When transporting for more than half an hour, the blood components must be in an isothermal container (cooler bag). When transporting within a few hours, or at high ambient temperatures (above 200 ° C), it is necessary to use dry ice or cold accumulators, providing isothermal conditions in a transport container. It is necessary to protect blood components from shaking, striking, turning over and overheating, and cellular components from freezing.

Blood components include: 1. Red blood cell mass. 2. Erythrocyte suspension. The storage periods of both media depend on the type of preservative. 3. Leukomassa. Storage not more than 24 hours. 4. Platelet mass. Storage 1-3 days. 5. Native plasma. Storage not more than 24 hours. 6. Fresh frozen plasma. Storage at a temperature of minus 250C for 90 days. 7. Dry plasma. Storage 5 years. 8. Washed red blood cells. Shimmer within 24 hours. 9. Frozen red blood cells. Storage at a temperature of minus 250C for 60 days. After defrosting, shimmer within 24 hours. 10. Antistaphylococcal, antifungal, antiesteric cholesterol plasma. Storage times are the same as other types of plasma.

The erythrocyte mass is the basic blood transfusion medium, the hematocrit of which is not higher than 80% and is obtained from canned blood by separating the

plasma. Erythrocyte suspension is obtained by adding to the erythrocyte mass resuspending, preservative solution. There is also an erythrocyte mass depleted of leukocytes and platelets, as well as an erythrocyte mass thawed and washed. These transfusion media are necessary when performing replacement therapy in multiparous women, in individuals with burdened transfusion history, who have antibodies to leukocytes or platelets. The use of red blood cells depleted of leukocytes and platelets reduces the risk of transmission of viral infections (HIV, cytomegalovirus). The erythrocyte mass, thawed and washed, contains fewer leukocytes, platelets and plasma compared to other erythrocyte-containing transfusion media. It is an ideal form for storing rare blood groups, for long-term storage (for years) of blood components for autotransfusion. Erythrocyte suspension in physiological solution is obtained from whole blood after plasma removal or from the erythrocyte mass by washing it three times in isotonic solution or in special washing media. The erythrocyte laundering technique is that the erythrocyte mass is mixed with the same volume of saline and then centrifuged. The supernatant is aspirated and removed. The procedure is repeated two more times. During washing, plasma proteins, leukocytes, platelets, microaggregates of cells and the stroma of cellular components destroyed during storage are removed. This suspension is an areactogenic transfusion medium, the transfusion of which is indicated for patients with a history of non-hemolytic type posttransfusion reactions, as well as persons sensitized to leukocyte and platelet antigens, plasma proteins. The shelf life of erythrocyte suspension in physiological solution at a temperature of +40 ° C is 24 hours from the moment of preparation.

Standard erythrocyte mass is stored at a temperature of +40 - +60 C. Its storage time is determined by the composition of the preservative solution for blood, or the same solution used for resuspension when preparing erythrocyte mass.

Freshly frozen plasma is understood to mean plasma that is separated from red blood cells within 4-6 hours after exposure to blood by centrifuging or apheresis (separating and removing plasma) and placed in a low-temperature refrigerator that provides full freezing to minus 300 C per hour. This mode of plasma procurement ensures its long-term storage (up to a year). In the freshly frozen plasma, the optimal ratio preserves the labile (V and VIII) and stable (I, II, VII, IX) coagulation factors.

If cryoprecipitate is removed from plasma during fractionation (a part of plasma is rich in factor VIII), then the remaining plasma is the supernatant plasma fraction (cryosupernatant), which has its own indications.

After separation from the plasma of water, the concentration of total protein in it, plasma coagulation factors, in particular, IX, increases significantly - such a plasma is called "native plasma concentrated."

Blood products are drugs obtained by special technological processing of blood components. These include albumin, protein, thrombin, α-globulin, thrombin film, cryoprecipitate (frozen or dry).

Methods for transfusion of blood components: 1) Indirect transfusion of canned blood components of donors; 2) Direct. Blood from the donor's vein immediately after

it is taken is injected into the recipient's vein. Now practically does not apply; 3) Exchange. The recipient’s blood is exfused and the blood or blood components of the donor are transfused; 4) Autohemotransfusion or auto-donation. It is done in a planned manner. At the same time transfusion is carried out to the recipient of his own blood, taken from him in advance; 5) Reinfusion of blood. This is a blood transfusion poured into the body cavity of the patient, with diseases and injuries, accompanied by its outpouring into these cavities or blood collected during operations.

Indirect transfusions - intravenous, intraarterial, intraosseous, intracardiac, intraaortic, rarely in the cavernous bodies of the penis, springs in newborns. Intra-arterial, intra-aortic, intracardiac transfusions are used in shock, in terminal conditions under a pressure of 200-250 ml of mercury. st. more often during operations on the heart, lungs and large vessels.

Intraosseous transfusion is carried out in the sternum, calcaneus or epiphyses of large bones.

Direct - mainly fresh blood with high-grade elements is used. The curative effect here is better than with indirect blood transfusions, but at present it is rarely used.

Exchange transfusion is the partial or complete removal of the recipient’s blood and its replacement with donor blood or its components in case of poisoning, hemolysis, incompatible blood transfusion.

Subject No. 11. Scorch. Electrocution.

Scorch (sombustio, Lat.) - Is the pathological changes that arise in the skin or mucous membranes, as well as deeply lying tissues throughout the body and under the influence of high temperature, radiant energy or chemicals. The burns are thermal, electrical, radiation (X-rays, the sun's rays, radioactive isotopes), chemical (acids, alkalis, phosphorus and others.).

Half of the victims are children, which is of great moral and psychological significance for the family and the socio-economic society. The first special department for such victims have been established in 30 years of the twentieth century, in the Institute of Surgery. Vishnevsky in Moscow and at the Institute of Emergency Care.
Yu.Yu.Dzhanelidze in Leningrad, as well as in a hospital in Chicago.

It is known that protein folding occurs at a temperature of 60-700 C. At a temperature of 700 C, the cells are killed instantaneously. The extent and depth of the burn depends on the temperature and exposure termonesuschego agent, ie, the time during which a termonesuschy agent, as which may be: 1. Hot fluid; 2. The flame; 3. Hot items.

Some features are thermal burns localization. So for burns of the respiratory tract is affected most often the mouth and nasopharynx (95%). At the same time developing bronchitis, pneumonia, and sometimes pulmonary edema. Burns trachea and bronchi are more common if the patient is unconscious from the effects of smoke and hot air. Burns face, eyes and genitals are different in that they are accompanied by significant edema.

Russia has used the classification adopted burns XXVII All-Union Congress of Surgeons (1960).

I degree - redness and swelling of the skin; Grade

II - the presence of bubbles with clear serous fluid;

IIIa degree -ozhog dermis with defeat only the tops of the growth layer (the tip of the papillae);

IIIb degree - affects all layers of the skin; Grade

IV - skin and deeply lying layers, including their charring.

When I, II, IIIa degrees epithelialized skin by remaining growing zone, especially where there are depressions in the skin reaching the deeper layers of the

dermis where the skin and wrapping it sprout area less accessible to the influence of temperature at certain levels, and its exposure (mouth of the sebaceous , sweat glands and the mouth of the vellus hair), and these degrees of burns are superficial, and burns the remaining degrees of tissue regeneration is due to scarring and these burns are deep.

However, according to the classification of ICD-10, there are 3 degrees of burns. The comparison is presented in table 2.

Given that burns there are significant changes in the internal organs, this pathological process characterized as burn disease.

Scarring especially in the joints accompanied by the formation of scar strands and skin membranes, significantly impairs the function of the joints. The formation of such scars on the face of it leads to disfigurement, sometimes throwing the eyelids and lips. Therefore, treatment of deep burns more difficult and requires a long period of skin-plastic surgery, both at the stage of granulation and scarring on the stage and in the long term after the formation of scars. That is why it is very important in the provision of first aid to reduce the exposure time (exposure) termonesuschego agent on the skin, because the longer the action termonesuschego agent, the more deeply lying tissue warming. So at 70 ° C cells die immediately, but fabrics warming to 50-60 ° C they will die later. That's why when first aid is a major withdrawal of heat in the deeply lying tissues, which reduces the depth of necrosis. Therefore, immediately chilled zone burns are extremely important.

Table

2 Comparative characteristics of the degrees of burns

Characteristic	classification XXVII All-Union Congress of Surgeons	ICD-10 classification	Burn depth
Skin hyperemia	I power	I power	Superficial burn
Blistering	II power		
Skin necrosis	III-A power	II power	
Complete skin necrosis	III-Б power	III power	Deep burn
Necrosis of the skin and underlying tissues	IV power		

Chemical burns. There are rough handling chemicals and improper storage,

which leads to their skin or in the gastro-intestinal tract. These substances are called corrosive toxins, and include acids, bases, phosphorus, quick lime. Acid burns accompanied by necrotic coagulation to form on the surface of the burn albuminates, preventing the penetration of substances depth. Alkalis cause liquefactive necrosis due to saponification of fats that are in the tissues, which promotes penetration deep into the matter. Chemical burns to the skin have clear boundaries and streaks. The color of the surface of the burn depends on the type of exposure. Since sulfuric acid stain fabrics in brown or black; nitric yellowbrown or yellow-green; Salt in yellow; Hydrofluoric in milky blue or gray; hydrogen peroxide in white; borohydride in gray. Sometimes you can identify the smell of the substance. When alkali burns marked swelling and formation of weeping surface. Clinically chemical burns accompanied by a sensation of burning pain in the area of the burn. The phenomena of shock can occur only when extensive burns. In case of burns of the mouth, esophagus and stomach pain may occur in the oral cavity, the lips, the chin, neck, i.e. where there may be streaks of poison. There have chest pain, burns the esophagus or stomach epigastric burns. Some organic acids (acetic acid) in addition to providing local and obscherezorbtivnoe (general toxic) action consists in the fact that they cause hemolysis (destruction) of red blood cells, as well as toxic nephroso nephritis (kidney inflammation), manifesting the appearance of urine color of meat slops, oliguria (reduced amount of urine) or anuria (absence of urine), azotemia. This requires the replacement of kidney function for elimination of acute renal failure (hemodialysis, peritoneal dialysis).

First aid for thermal burns is to eliminate high-action agent. To do this, you must reset the burning clothes to extinguish the fire, wrapped in burning site to extinguish the flames rolling on the ground, fill it with water, to plunge into the water.

When exposed to high-temperature fabric warmed agent, and it may be the cause of their death continued even after removal of the high temperature. Therefore, in order to take away the heat from the tissue to be cooled burn surface with cold water or cold objects for at least 15-20 minutes. positive impact of cold on the burn surface can be demonstrated by an example of a conventional household. If you accidentally burn your fingers in the kitchen, if we need to wash their hands with warm water, then we feel pain and tingling in the area of the burn, but when we let the cold water - pains are reduced or completely. Thus, the body itself tells us that he needs in thermal burns. If you stuck to the burn surface pieces of molten bitumen or plastic, then the first aid and subsequent treatment of them should not be removed. Burn the surface closed with sterile cloth, and if not, then a sheet of underwear or bed or other clean cloth. Burn surface can be left uncovered. With burns of the fingers must be removed from them a ring or rings as increasing edema can lead to poor circulation in the fingers.

If the victim can be delivered to the surgical ward for 30 min, then medical assistance at the stage of first aid, in addition to cooling the burn surface is not required if it can be delivered to only 1-1.5 hours, he appointed analgesics (painkillers), cardiac agents, sterile solutions. When this is not possible the patient, despite the absence of nausea and desire to drink allowed to drink at least 5 liters of warm water with a

teaspoon of salt and soda. In large cities, ambulance stations have mobile teams to assist with burn shock.

First aid for chemical burns is in a rich burn surface washing water for 10-15 min, and at later treatment for 30-40 minutes. In case of burns with hydrofluoric or hydrofluoric acid for 2-3 hours. Prolonged washing recommended due to the fact that cells and tissues adsorb poison and a long rinse able to remove it from fabrics. Washing burn surface chemical solutions - antagonists to neutralize the acid or alkali is not currently recommended. With burns of the gastrointestinal tract is recommended to first thoroughly rinsing the mouth, spitting out liquid. Then the stomach is washed with water using a probe. Then, the patient is given liquid food, enveloping or mucous helps neutralize poison (broths, milk, sour cream, yogurt, butter, raw eggs).

With an open method of treating large burn surfaces, the patient is placed on sterile sheets, the bed is covered with a frame. Sterile sheets on the frame and under the patient change daily. The temperature under the frame should be 24 - 25 ° C. It is regulated by connecting or disconnecting individual light bulbs. Burn wounds are dried with an infrared incandescent lamp or a stream of warm air from devices of different designs, up to a hair dryer.

In recent years, instead of the frame, special abacterial rooms consisting of a sanitary inspection room are used, where the patient is washed in a bath with detergent, then placed in a cabin with laminar flow of sterile air.

With this method of treatment, liquid pathological material, which is a nutrient medium for microorganisms, dries into a crust, which isolates the wound surface from secondary infection and the action of other damaging factors. For greater antimicrobial effect of isolation, the crust is smeared with a 1% iodopyrone solution once a day. Excision of the burn scab is made on the 2nd - 4th day after the patient is placed in the ward with simultaneous skin grafting.

Such patients are prone to pulmonary complications, so they are trained in breathing exercises.

Given the possibility of developing contractures, limbs create a functionally advantageous position, which in some cases, patients suffer with difficulty. It is necessary to patiently explain the purpose for which the patient is given the appropriate position and what the consequences may be if they are not followed up.

Care of burned requires careful implementation of hygiene rules. While the patient is in serious condition, you should regularly wipe your mouth, clean your nose, rinse your eyes, and carry out thorough skin hygiene around the affected area. Given the stifling unpleasant smell of purulent dressings, frequent airing of the chambers is necessary.

When removing the dressings (treatment in a closed way), the pain is very intense. Hard-to-remove dressings should be soaked with a solution of furatsilin 1: 5000 and 3% hydrogen peroxide, you can use the general and local baths containing antiseptic substances (a weak solution of potassium permanganate). The dressings are unlocked and removed painlessly. Change the bandage every other day. Abundantly

soaked bandages, especially purulent discharge, it is recommended to change 2 times a day.

Depending on the extent, localization and massiveness of infection of a burn wound, therapeutic dressings are used with a 1% dioxidine solution, a 0.05% chlorhexidine solution, a 0.5-1% solution of iodopyrone, a 0.1% iodinol solution, a 10% solution of povidoneiodine, 0.1% solution of hexetidine. In case of burns, it is necessary to maintain microbiostatic environment in the wound for a long time and evenly (microbicide in case of severe burns).

If the burn is located near the joint or seizes its area, as the burn surface heals, contracture develops. To prevent it, it is necessary to start moving early in the corresponding joints.

For the prevention of bedsores with extensive burns, special “Klinitron” antidecubitus beds are used, which provide a constant microclimate of various body areas of the burned patient (Fig. 14).

Fig. 14. Bed "Klinitron" for the treatment of extensive burns

Subject No. 12. Frostbite. Electrocution.

Frostbite (congelatio - Lat.) - The most important problems of surgery in peacetime and wartime.

Golomidov A.Y. when first proposed insulation frostbite frostbite course with

putting the patient into a warm room, and making him a warm drink. This treatment is continued for 5-6 hours. In no event should not be applied rapidly warming or rubbing frostbitten parts.

First aid for frostbite includes 3 components:

1. The imposition of thermally insulating bandage;
2. Immobilization;
3. Warming of the proximal part of the limb, is not subjected to frostbite.

Thermal bandage is applied to the affected areas in a warm place. Do not touch

the frostbitten parts of the body warm objects or bare hands. Initially, frostbitten limb wrapped wool, fixing her bandage applied over wool insulation (oilcloth, cellophane) over his limb wrapped a warm object (woolen shawl, fur, blankets, etc.). Finiteness immobilized Cramer bus or any other object. Immobilization is necessary in order to prevent fracture of the frozen blood vessels, followed by thrombosis (blockage) of the vessel and necrosis (necrosis) tissues.

After that, the victim is transferred to a warm room, give him a hot drink, food,

conducting parallel appropriate therapeutic measures. Carrying out such a volume of first aid based on the fact that, as mentioned above, the cardiac arrest occurs when the interstitial temperature plus 11oS. It is known that when exposed to the cold cells fall into a state of suspended animation (okolozhiznennoe state of the cell) with a reduction in the need for nutrients and oxygen. Rapidly warming freezed part we enliven cells, restoring them to the need for necessary substances that can not be delivered because the circulation has not been restored, since the external warming is not able to heat all tissues and simultaneously with the recovery of the cells to restore circulation. The appearance of pain warming indicates that cells are experiencing hypoxia. These phenomena can be illustrated by the following example of a household. Coming home from the street in the cold weather, and warming his hands under warm running water, we feel a painful tingling in the fingers, which suggests that some cells have already fallen into suspended animation, and their rapid warming in the absence of blood flow leading to their death.

Imposition of thermally insulating bandage creates the conditions for a gradual

warming and restore blood flow due to internal heat. This process takes place on the border with frostbitten limb not frostbitten, which kept the circulation. The process of warming and restoring blood flow from the center to the periphery occurs within 5-8 hours. An indicator of the success of this method is the absence of pain, restoration of movement and sensitivity. Application of the method has improved the results of treatment of frostbite.

Elektorotravmam contributes to violation of safety, carelessness, overcrowding,

poor lighting in the workplace. At home electrocution occur due to a malfunction of electrical household appliances (exposed wires, no insulation or grounding). Electrocution can occur on loss of high-voltage lines, which in these cases can not approach closer 5-8 meters and go from this place have to shuffle, moving without lifting their feet off the ground.

The most acceptable theory of pathogenesis is the impact of the current view Babayants ES, according to which an electric current breaks internal bioelectric processes in the body causing failure of the heart and nervous system, as all the internal environment is electrolytes and all its activities are based on the bioelectric processes .

The electric current acts on the conducting system of the heart that can cause it to

stop, rhythm disturbances and fluttering (fibrillation) ventricles, when every muscle fiber is reduced at their own pace, which does not create an effective equivalent systole and cardiac arrest. Exposure to electric current contributes to coronary artery spasm. There instability of blood pressure, with a tendency to decrease. There may be fractures of the muscle contraction. The cause of death is under the influence of current heart failure, depression of the medulla oblongata and tetanic spasm of the respiratory muscles.

According to the severity of electric shock is divided into four degrees:

1. Seizures without loss of consciousness.
2. Convulsions with loss of consciousness.
3. Convulsions with loss of consciousness and impaired cardiac and respiratory

function.

4. Clinical death.

When providing first aid for electrical accident, it should first of all protect the first aider. It is the use of rubber gloves and rubber boots or rubber mat. Current-carrying wire should be discarded dry stick, turn off the switch, cut the wire, etc. Pulling the victim from the current-carrying object should take his dry clothes, but not for the bare body parts. Rubber gloves and rubber boots or rubber mat, there should also be applied. In primary resuscitation initially make precordial blow. When electrical accident usually develops ventricular fibrillation, so precordial blow is always needed. Then performed chest compressions and rescue breathing, as was said in the chapter on the intensive care unit.

Subject No. 13. Wounds. Renewal process.

Wounds called mechanical damage to the tissues of the body, accompanied by violation of the integrity of the skin or mucous membranes (Fig. 15). Some authors share the notion of wounds and injuries, but these concepts have only linguistic differences.

Fig. 15. Appearance of the wound

The main local signs of wounds are pain, bleeding, dehiscence. The severity of these symptoms depends on the origin and nature of the wound. The main common signs and complications of wounds are bleeding, shock, anemia, infection.

Depending on the nature of the injurious agent and the structure of the wound, they are divided into: sliced, chopped, chopped, bruised, crushed, torn, bitten, gunshot (bullet, shrapnel, shotgun pellet, caused ball and arrow-shaped projectiles). When providing first aid to stop the bleeding (tourniquet, pressure bandage, etc.), wound around cleansed with antiseptic and superimposed aseptic bandage. Separated the segments of the limbs or tissues should be retained for replantation and deliver them to the hospital. This separated portion is placed in a plastic bag, which in turn is placed in another plastic bag with ice or snow. If the wound has a foreign body (stick, knife, pieces of clothing, etc.) to take them out when first aid is not necessary, as they may tamponade the wound a large vessel and removing them can cause bleeding, damage to organs, blood vessels or can turn a non-penetrating injury penetrating.

Penetrating and non-penetrating wounds. Penetrating wounds call those wounds that penetrate into the cavities containing vital organs (abdominal, thoracic, cranial and spinal cavity and the cavity of the joints). The danger of penetrating wounds: damage vital internal organs, major blood vessels, and infections (Fig. 16.).

Fig. 16. Penetrating wound of abdomen - prolapse of intestine outwards

Penetrating injuries are accompanied by damage to the serous membranes lining the inner surface of the cavities. So the wound of the abdominal cavity is considered to be penetrating, if the damage all layers of the abdominal wall and parietal peritoneum including, for the pleural cavity, the cranial cavity, spinal cord and joints respectively parietal pleura, Dura or synovium.

According to the degree of infection, wounds are divided into:

1. Aseptic, often operational.
2. Freshly infected - these are wounds in which there are bacteria, but no inflammation. Often these are random wounds. They may become operational or sterile after primary surgical treatment (PHO).
3. Infected or purulent wounds. These are wounds in which there is an inflammatory and purulent process.

Such wounds require extensive drainage and rehabilitation. In this regard, P. Friedrich (1897) pointed out that the critical time of the onset of wound infection is 6 hours from the moment of receiving the wound.

The wound process is a multifaceted, unified and indivisible biological phenomenon. It cannot be reduced to purely enzymatic processes. Here, one process smoothly and imperceptibly into another (V. A. Polyakov), but for clinical purposes, for studying and treatment, it can be divided into a number of periods. N.I.Pirogov (1865) divided the wound process into 3 phases: primary cleansing, inflammation, regeneration. IG Rufanov (1939) and V. I. Struchkov (1970) distinguish the phase of hydration and

dehydration. SSGirgolav (1940) divided the wound process into a preparatory period, a
period of preliminary and final regeneration. The most rational is the division of the wound
process at the stage of inflammation, cleansing, granulation and epithelialization. Vessels
respond to injury with spasm, tissue metabolism slows down due to slower blood flow. The
permeability of the vascular membranes increases, leading to tissue edema, acidosis, and
accumulation of potassium salts. Due to vascular damage, tissues are often necrotized, the
influx of leukocytes, phagocytes, macrophages increases, which capture the cells of these
tissues and bacteria and phagocytes themselves while dying with the release and activation
of proteolytic enzymes, which contributes to the proteolysis of necrotic tissue and the death
of bacteria. The wound at this moment turns into a site of proteolysis (R. Lerish, 1961). The
wound is cleaned, the purulent discharge is stopped, the blood cells that had previously
played the role of macrophages and phagocytes are transformed into regeneration cells
(fibroblasts, etc.). They are involved in the formation of new blood vessels and immature
connective tissue (granulation), from which a scar or wound is epithelized during
maturation. Particularly pronounced processes of proteolysis in bruised, torn, gunshot and
bitten wounds. Few they are expressed in incised and stab
wounds.

Dead tissues, blood, are a good breeding ground for bacteria, therefore, in the absence of surgical treatment of torn, bruised, bitten and gunshot wounds, they heal during their natural flow through the suppuration phase, i.e. secondary healing often with the formation of an extensive scar. The secondary healing of such wounds is also facilitated by the presence of a tissue defect, which prevents the natural convergence of their edges and epithelialization. If the edges of the wound are closely adjacent to each other, and the healing of the wound occurs without suppuration, then this healing is called primary, the terms of which depend on their localization. So on the face and front of the neck these periods range from 3 to 5 days, wounds of the midline of the abdomen, back and feet 10-12 days, on the rest of the body from 6 to 8 days. After the wound has healed by primary (5-14 days) or secondary tension (15-30 days), the

wounds are covered with crusts, and the site of healing itself is represented by young immature connective tissue.

This process can be characterized as a forming scar. After the crust has fallen off and the epithelialization is completed, a scar that rises above the skin of pink color consists of randomly arranged fibroblasts and richly vascularized tissue giving it a pink color. The scar is thick, painful, sometimes it has a feeling of itching, there is no sensitivity in it. Such a scar can be characterized as an immature shaped scar. In the future, over a period of several months, and sometimes up to 2 years in the rumen, the capillaries develop backward, the nerve cells grow into it, and the fibroblasts acquire an ordered arrangement of their fibers according to the direction of the Langer lines. The scar is atrophied, sometimes compared to the skin or becomes retracted, acquires a white color and sensitivity. Such a scar is characterized as a mature formed scar (Ostrovsky V.K., 1999).

Wound healing under a scab occurs in case of superficial damage with a slight defect (abrasion). On the surface of such a wound, blood, lymph and pieces of damaged tissues accumulate, which dry out with the formation of a crust, after the discharge of which the epithelized surface is visible.

Dead tissues, blood, are a good breeding ground for bacteria, therefore, in the absence of surgical treatment of torn, bruised, bitten and gunshot wounds, they heal during their natural flow through the suppuration phase, i.e. secondary healing often with the formation of an extensive scar. The secondary healing of such wounds is also facilitated by the presence of a tissue defect, which prevents the natural convergence of their edges and epithelialization. If the edges of the wound are closely adjacent to each other, and the healing of the wound occurs without suppuration, then this healing is called primary, the terms of which depend on their localization. So on the face and front of the neck these periods range from 3 to 5 days, wounds of the midline of the abdomen, back and feet 10-12 days, on the rest of the body from 6 to 8 days. After the wound has healed by primary (5-14 days) or secondary tension (15-30 days), the wounds are covered with crusts, and the site of healing itself is represented by young immature connective tissue. This process can be characterized as a forming scar. After the crust has fallen off and the epithelialization is completed, a scar that rises above the skin of pink color consists of randomly arranged fibroblasts and richly vascularized tissue giving it a pink color. The scar is thick, painful, sometimes it has a feeling of itching, there is no sensitivity in it. Such a scar can be characterized as an immature shaped scar. In the future, over a period of several months, and sometimes up to 2 years in the rumen, the capillaries develop backward, the nerve cells grow into it, and the fibroblasts acquire an ordered arrangement of their fibers according to the direction of the Langer lines. The scar is atrophied, sometimes compared to the skin or becomes retracted, acquires a white color and sensitivity. Such a scar is characterized as a mature formed scar (Ostrovsky V.K., 1999).

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tissues accumulate, which dry out with the formation of a crust, after the discharge of which the epithelized surface is visible.

On examination, localization of the wound is established, and the degree of bleeding from it. In addition to inspection, palpation is performed, in no case should the wound be probed, since this may contribute to the introduction of the infection, the transformation of the non-penetrating wound into the penetrating wound, or damage to the vessel or any organ. Among the additional methods of examination, a vulnografiya (vulnerography) is proposed, in which contrast is introduced into the wound and the depth of the wound is established, its penetration into the body cavities. When rendering first aid it is necessary to stop the bleeding (tourniquet, tight bandage, etc.), the wound around is treated with an antiseptic, aseptic dressing is applied. The severed segments of the limbs or tissues should be kept for replantation and delivered to a medical institution. For this, the detached part is placed in a cellophane bag, which in turn is placed in another cellophane bag with water and the addition of ice or snow. If there is a foreign body in the wound (a stick, a knife, pieces of clothing, etc.), they should not be removed during first aid, as they can tampon the wound of a large vessel and their removal can cause bleeding, damage to organs, vessels or can transform the non-penetrating wound into penetrating.

Subject No. 14. Dressing

Dressing – the doctrine of the bands, their application, and the correct overlay. The word "dressing" comes from the Greek words δεσμοζ - desmos (bond) and έgγου – ergon (deed).

The term "bandage" is applicable to denote all that is placed on the wound surface or on the affected part of the body for treatment. In the narrow sense under the bandage is understood as a way to cover the wound surface or the location of the lesion for the purpose of protection from external factors, retention or fixation on the body surface of the dressing material – firming band, - the creation of immobility in the area of the fracture or dislocation is immobilized bandage, is creating pressure on a particular part of the body – compressive bandage, etc.).

There is the concept of "dressing" and "ligation". The first term refers to a method of covering a wound or damaged area of the body, and the term "ligation" defines a process of applying of a bandage.

Classification of bandages

Bandages are classified on various grounds. So, depending on the hardness and type of material used for the applying of bandages they are divided into two groups: soft (glue, gusset, bintovuju, etc.) and rigid, or rigid (plaster, rubber, starch), synthetic polymer (scotchcast, softcast, renater).

Depending on the purpose and mechanism of action dressings are divided into the following groups:

1) strengthen or perpetuate, i.e. retaining dressings on the wound or lesion;
2) immobilizers, or immobilized, i.e. providing the immobility of the affected part of the body, often with injuries or diseases of the musculoskeletal system to prevent the morbid phenomena during transport and in hospital settings to hold in the correct position of bone fragments in fractures or after surgery on bones and joints and create conditions for healing;
3) bandages with stretching (extension) and apparatus for stretching imposed in a hospital with fractures to ensure the so-called functional treatment, i.e. movements in healthy parts of the limbs while save the rest of the damaged part, which creates conditions to prevent joint stiffness. Reinforcing bandage according to the method of fixation of dressings are divided into lipoplasty, glue (allodynia, kleolove), gusset, sling, tees and bintovuju. Immobilizers dressings are divided into 2 groups: bus and hardening. Tire dressings can be simple (fixation or transport) and extension (tires or therapeutic apparatus for traction).

Different types of dressings are presented in figures 17-26.

Simple bus, usually used for temporary or vehicle immobilization, are metal (wire, etc.), wood, cardboard, plastic, rubber (inflatable) and other (improvised, i.e. from the material at hand). From stiffening bandages, which includes one or another of the rapidly solidified substance, apply starch adhesive bandage from liquid glass, plaster, synthetic polymer dressings.

The most widely cast. They are circular (circular); lomenie (in the form of long narrow strips in several layers of plaster bandage); window (with Windows in the bandage for dressing wounds); bridges, or intermittent; wing (in the form of two longitudinal halves); gypsum cots; plaster corsets (circular plaster bandage on the body). To manufacture these bandages instead of gypsum proposed solidifying polymer materials (scotchcast, softcast, renater), which is lighter and stronger than plaster.

Widely used soft bintovuju bandage that you put on wounds and other skin lesions (burns, frostbite, ulcers, etc.). They prevent secondary infection by microorganisms, drying the wound, help stop bleeding, etc. For this purpose, apply bandages with width 10 or 14 cm.

Each bandage is applied according to the testimony. For example, a dry aseptic bandage, consisting of 2-3 layers of sterile gauze superimposed on a fresh wound with stitches in the first days after their overlay, protects the wound from bacterial contamination. On the second and subsequent days such wounds are treated with antiseptic and a bandage are not closed, as by this time the wound edges stick together, and she is covered with a crust that prevents infection.

The imposition of so-called occasional (sealing) headbands in penetrating wounds of the chest when you need first aid, as it prevents the penetration of air into the pleural cavity from the outside and a violation of the act of breathing.

The materials used for dressings

This fabric representing textile products made so that the individual filaments, their components, are intertwined in a certain way. For their manufacture are cotton, flax, hemp, jute, wool, silk, artificial fiber. Fabric the softer, smaller than the area occupied by the fibers at the same density of weave in the fabric. The longitudinal threads are called the basis, cross – carpet.

Absorbent gauze – tight fabric bleached cotton yarn or cotton with the addition of viscose yarn. Before the use of gauze is folded in roll or folded in the form of napkins. The most commonly produced and used, the following dimensions of the pieces of gauze – 80 ×50 cm or 80 ×100 cm, and the strips 20 ×200 or 20 × 400 cm.

From pieces of gauze make the napkins, folding them in such a way that the ragged edges formed by the cutting, were tucked into the napkins in order to avoid contact of the filaments in the wound or in the body cavity. Typically, these wipes have a size of 4 × 4 or 8 × 8 cm.

Tampons – long strips of gauze with different widths wrapped inside edges (folded along the length to the middle, the edge of the roll width 2-3 cm, then the blank is again folded in half along the length). They are used to stop bleeding, improve the outflow of the contents from the wound.

Gauze balls are small pieces of gauze with wrapped edges, folded in the form of a 3-carbon plate or lump, intended to drain the wound surface and the processing of its edges.

Wool has a high hygroscopicity, is used as the soft lining with immobilization and as a means of retaining heat, and with the abundant discharge from the wound may be superimposed on top of the gauze bandages to soak detachable leaked through the gauze bandage.

Sticky plaster – thick fabric, covered with a layer of glue. Issued also combining it with gauze and cotton wool. Used in the treatment of limited cutaneous lesions, for fixing the drains and bandages.

Realest – net bandage, is used for fixation of bandages on various parts of the body:

No. 1 – for the fingers of the hand in adults, hands and feet in children

No. 2 – for the brush of the forearm, foot, elbow, radiocarpal, joint arthrodesis in adults, shoulder, lower leg, knee joint in children;

No. 3-4 – for forearm, upper arm, lower leg, knee joint in adults, hips and head in children;

No. 5-6 – for the head and thighs in adults; breast, abdomen, pelvis, perineum in children;

No. 7 – for chest, abdomen, pelvis and perineum in adults. Individual dressing package (IPP) is a sterile bandage is placed in a sterile rubberized package. The free end of the bandage has two gauze pads, one of which is applied to the input, and the second to the output aperture (exit wounds), and when the blind wounds when there is one inlet thereto are applied both pads to one another, which premenopause bandage.

In penetrating wounds of the pleural cavity, when the air at the inlet is sucked into the pleural cavity, and when you exhale is displaced outwards with a characteristic noise, and with the release of bloody bubbles. In such cases as first aid at naru impose so-called occlusive dressing. For that wound around cleansed with antiseptic and placed on the wound with both gauze pads from the IPP, and the top ukladyvaetsya rubberized package. Then the bandage is fixed with a bandage.

The rules of dressing

Bandage should not be very free and move on the surface of the body, but should not be too tight and squeeze the fabric. Places where pressure dressings should be protected with a soft gasket or other means so that the bandage itself was not the cause of skin trauma. Each bandage should fit and some aesthetic criteria that have a positive impact on the psyche of the patient. As a rule, the smallest and simple headband in any way restricts the patient. Keep this in mind when applying of bandages seek to minimize such restrictions. There are two groups of rules.

The first group is melted to bandaging:

1. Bandaging of the patient, should support him verbal contact and before applying a bandage to explain its purpose, thus attracting the patient to cooperate, which facilitates the application of bandages and allows you to monitor the patient.
2. If applied, you must stand with your face to the patient as possible.

3. You must ensure that the bandaged part of the body was in the correct position. The change of its position in the process of bandaging may adversely affect its quality. In addition, dressings bends may form folds that make all the poor bandage.

The second group regarding the process of bandaging, the following applies:

1. The width of the bandage must be equal to or be greater than the diameter bandaged body parts. The use of a narrow bandage not only increases the dressings, but can also lead to the fact that the bandage will crash into the body. The wider application of the bandage makes it difficult manipulation. When using tubular bandages can choose the diameter that it was possible without much trouble to pull it on pre-bandaged part of the body.

2. Preparing a bandage for bintovuju his head to take the right hand and the tail in the left, back, same is applied to the bandaged part. Need to watch that segment of the bandage between the head and the tail does not SAG, and was slightly stretched. The optimal length of this segment is 15-20 cm.

3. The bandage should be held in the hand so that the free end (tail) stood at a right angle with the hand in which the head bandage.

4. The bandage should start with the narrowest point, gradually moving to larger (forearm, calf). In this case, the bandage is better kept. With the same purpose, make the bends of the bandage.

5. The bandage should start with applying a simple circular tour so that one end of the bandage jutting from under the next round of the blend in the same direction. Bent and covering the tip of the bandage the next round, it can be fixed, which greatly facilitates further manipulation. The bandage also finish circular round.

6. The direction of bandaging must be from the periphery to the center or from the undamaged portion to the wound.

7. When applying dressings should always remember about the purpose of the bandage and apply such amount of rounds required to perform its functions. An excessive amount of bandage is not only economically feasible, but also causes discomfort to the patient and looks aesthetically pleasing.

8. The bandage should not be very loose and shifted, but should not be too tight and squeeze the fabric. The places of possible compression bandage should be protected with a soft strip out of a piece of cotton or gauze.

9. Upon completion of the dressing of the tip of the bandage should be secured. You can use a safety pin, the tip of the bandage can strut along, to knot the two turned tail and wrapped their bandaged part of the body, to bind both a simple knot ponytail. This tie should be on the side opposite to the localization of the wound or other pathological process. Not recommended also to tie in the joints. The third method of fixation of the tip of the last bandage can hold with a clamp under one of the above lying rounds of bandage and tie the tip of the bandage a simple knot.

10. The bandage should fit and some aesthetic criteria that have a positive impact on the psyche of the patient.

Howto

After the theoretical part of the lesson the students under the guidance of a teacher examine patients with injuries and bleeding. During the inspection of the Russian Academy of Sciences the teacher draws attention to features of a clean, postoperative wounds without complications, wounds are at the stage of purulent inflammation and wounds under regeneration and development of granulation tissue (young immature connective tissue). Focuses on the state of granulation, as a basic indicator of a favorable wound healing (pink and juicy granulation) and less supportive of the current process (granulation sluggish with a touch of fibrin). On examination of patients with bleeding and blood loss attention is drawn to the General and local signs of blood loss.

Then in the training room are practical skills to stop external bleeding with the use of different methods, including use of a tourniquet Esmarch.

In the future is development of practical skills in disargee. Students who prepared gauze bandage on the instructions of the teacher in the previous lesson, perform together for the following dressings.

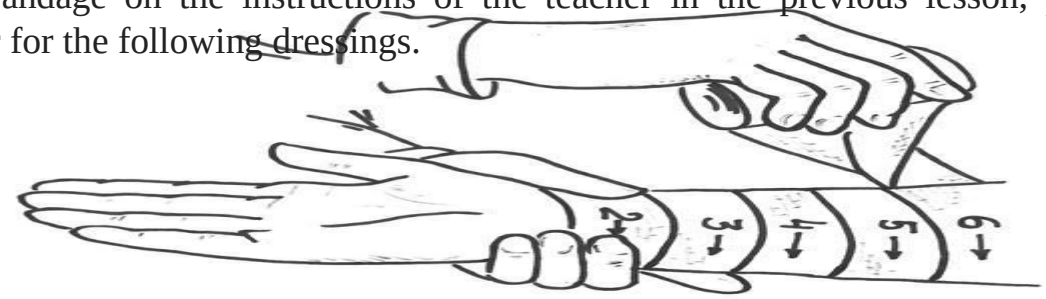

Fig. 17.Spiral bandage on the forearm, normal and reversed.

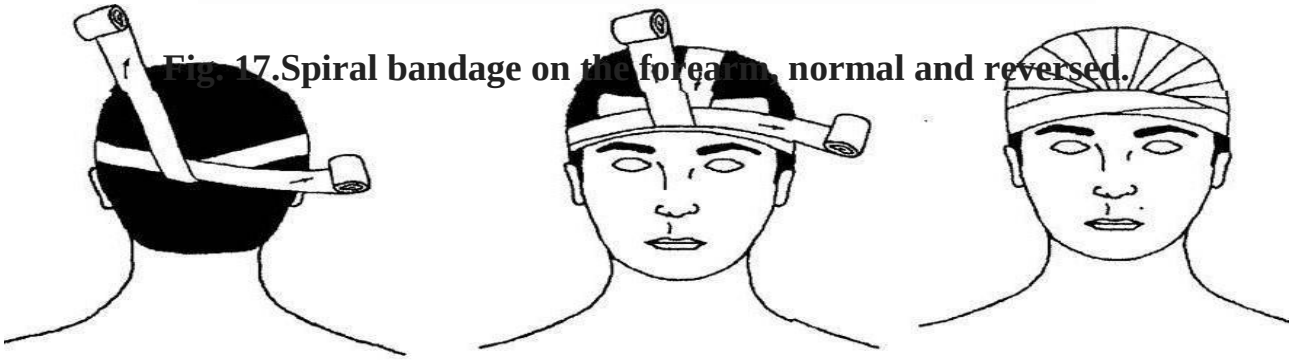

Fig. 18. Beanie Hippocrates classic two bandages and using a double-headed bandage.

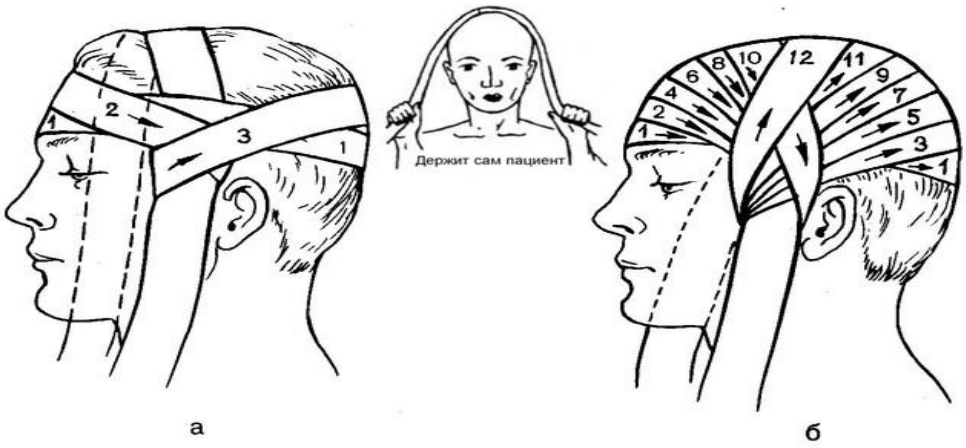

Fig. 19. Bandage "cap" on the head.

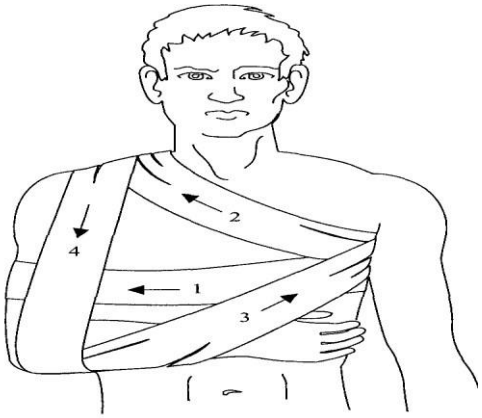

Fig. 20. Bandage Deso and at Approx. Bandage Dezo begins with a healthy side. "Det", "healthy". "At approx", "sick". B, C, i.e., the bandage begins with the patient at approx.

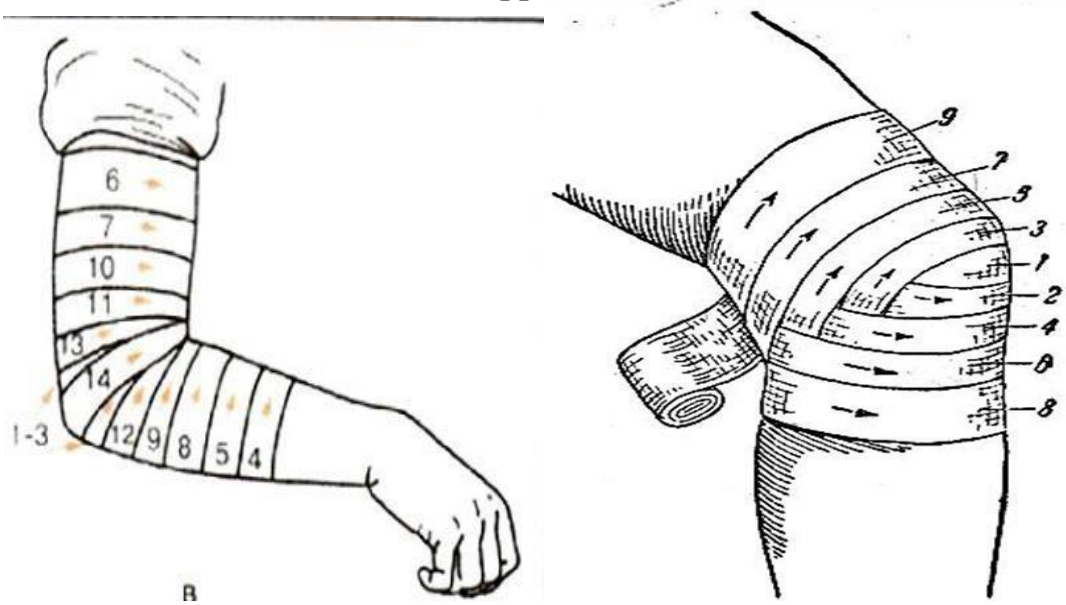

Fig. 21. Turtle headband convergent and divergent elbow and knee joints.

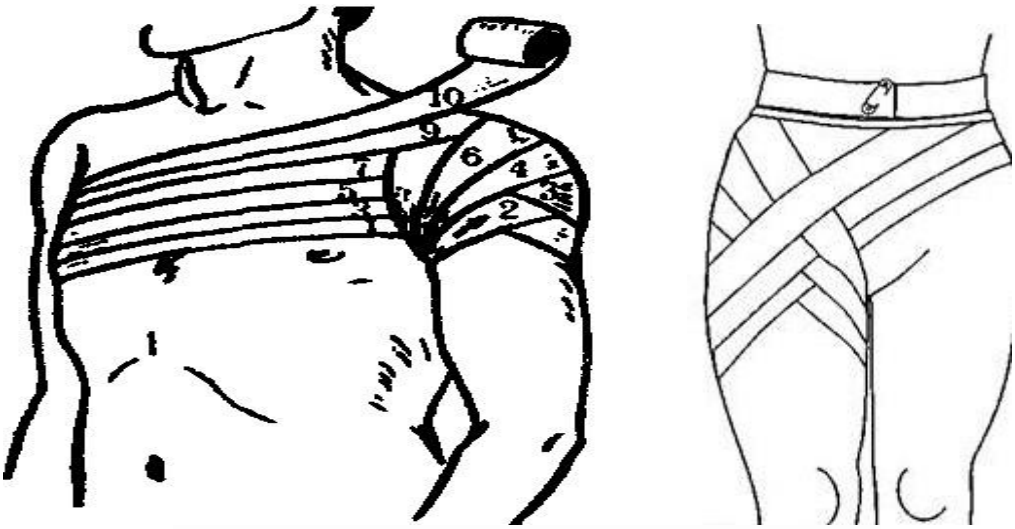

Fig. 22. Spica bandage on the shoulder joint.

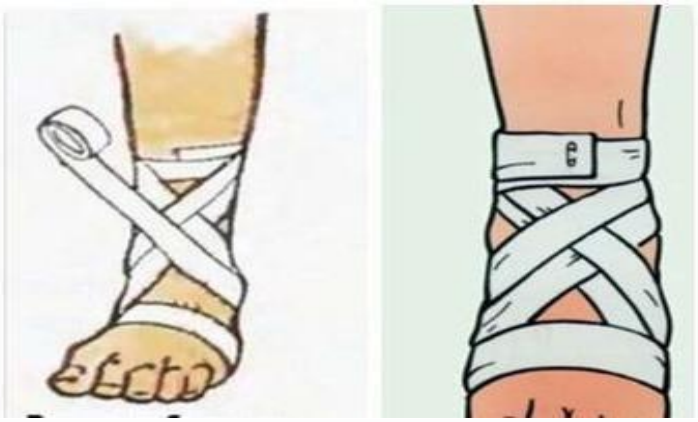

Fig. 23. Eight bandage on radiation and ankle joints.

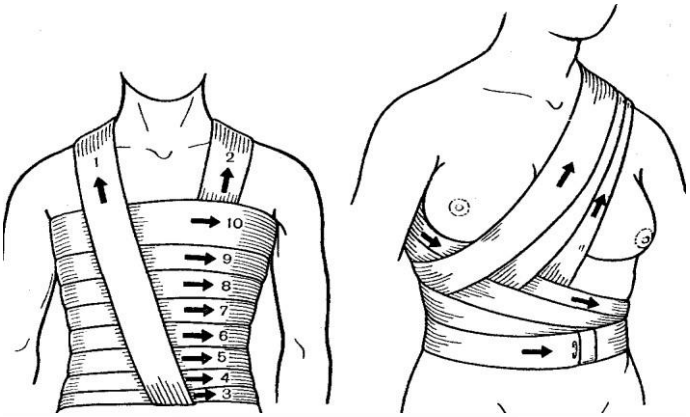

Fig. 24. Chest bandage.

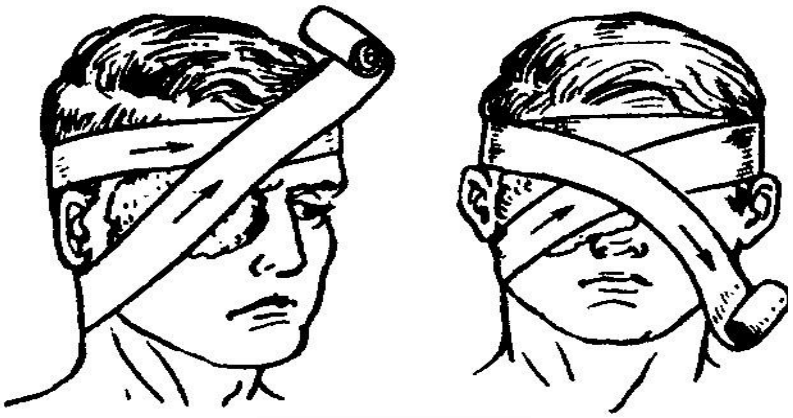

Fig. 25. Eye patch.

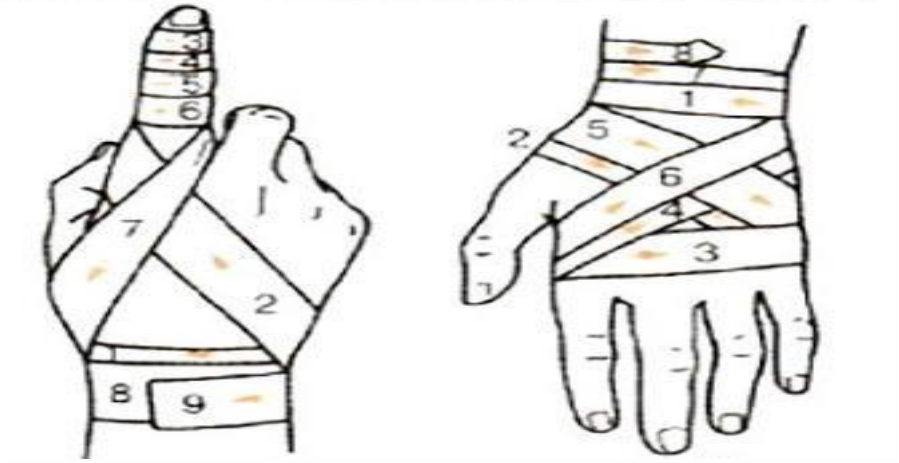

Fig. 26. Bandage on the finger and brush.

Subject No. 15. Parasitic surgical diseases

The field of medical parasitology that studies human parasite worms and the diseases they cause is called medical helminthology.

The greatest value for surgery of diseases caused by helminths is echinococcosis and alveococcosis.

The main reason for the substantiation of the unitary theory of the origin of both species of helminths was the fact that their mature forms differ little in structure.

The final owners (both parasites) are carnivorous wild and domestic animals (wolves, foxes, jackals, arctic foxes, dogs, cats, etc.) having on the intestinal mucosa the

sexually mature parasite is excreted with oncosphere feces that enter the intestines of intermediate hosts (man, large and small cattle, deer, moose, etc., and with alveococcosis
and small rodents) with grass, or into the human intestine when processing carnivorous animal hides, caring for them, etc. In the stomach or intestine, oncospheres are released from the protective membrane and penetrate through them mucosa in cr ovopathic or lymph
flow, most often in the liver or in other organs, where they develop into the larval stage. In
the wild, carnivores, when eating the organs of herbivores (liver) containing the larval stage
of echinococcus (alveococcus), become the ultimate hosts. Dogs, cats and wild carnivores
can become the final owners when eating the organs of slaughtered domestic animals that
have fallen into the waste (meat processing plants, household slaughter) and containing the
larvae of echinococcus or alveococcus in the liver. The difference between the biological
cycle of echinococcus and alveococcus is that in addition to humans, large and small domestic cattle, as well as deer, elk and other wild herbivores, rodents (mice, rats, muskrats,
polar mice, etc.) act as intermediate owners. by eating which carnivores become the ultimate
masters of
alvecoccus.

Echinococcosis is a chronic disease caused by the larvae of the tapeworm

echinococcus (Echinococcus granulosus). The body of the mature parasite has a length of
3.4–6.2 mm, a width of 0.47–0.98 mm, and consists of a head (scolex), a neck, and 3-4
segments. On the head has 4 suckers and a double crown of 38-40 hooks. In the last

segment there is a uterus containing 400-800 eggs. Eggs (oncospheres) with feces into the external environment. The cyst larva consists of 2 embryonic and cuticular (chitinous) shells, inside of which contain daughter and grandchildren. The body forms the third fibrous membrane. In the pathogenesis, sensitization of the body by the products of the parasite's development and its mechanical action on the surrounding organs and tissues matter.

Alveococcosis is also a chronic disease caused by the larvae of the worm Echinococcus multilocularis. The structure and size of the sexually mature parasite are similar to those of echinococcus. More often the liver is affected. Primary damage to other organs (lungs, heart, bones, etc.) is rare, more often it is secondary - metastatic. In case of alveococcosis, unlike echinococcosis, the reproduction of larvae goes outwards from the maternal cyst. Moreover, this growth into the surrounding tissues is infiltrating in nature, which sometimes makes it difficult to differentiate alveococcus with liver cancer. Due to infiltrative growth, the ability to relapse after operations and metastasis, the course of alveococcosis is more severe and the prognosis is much worse than with echinococcosis.

During both forms of the disease, there are 3 stages:

1. Asymptomatic stage.
2. Stage of clinical manifestations.
3. The stage of complications.

The first stage can last several years from the moment the parasite is introduced and can appear as an allergic rash and itchiness on the skin. The second stage is characterized by the appearance of the first signs of the disease: pain in the projection of the affected organ, its magnification. At the stage of complications, such complications can occur as a

breakthrough of a cyst in the body cavity or into the bile ducts, necrosis, suppuration, or cyst formation, compression of the bile ducts of the liver can lead to obstructive jaundice, and compression of the portal vein to portal hypertension.

Most often the larval stage of helminth affects the liver and lungs, but the parasites can be localized: in the kidneys, bones, brain and other organs. It is believed that the oncosphere can overcome the capillary barrier of the liver and entering the inferior vena cava, is brought through the pulmonary artery into the capillary network of the lung, but sometimes breaking the pulmonary capillary network, the parasite enters the pulmonary veins into the left ventricle of the heart, and from there into the capillary network of the great circulation (kidneys, brain, bones, etc.).

According to another point of view, the parasite penetrates the capillaries of the pulmonary circulation through the lymphatic network of the mucous membrane of the small intestine, and from there it enters the thoracic lymphatic duct, which flows into the left venous angle, is inserted into the lungs, and hence can also enter the capillaries of the pulmonary circulation.

In these diseases, the following examination methods are used: radiographic, computed, magnetic resonance, spiral tomography, laparoscopy, ultrasound, radioisotope organ scanning, splenoportography. Immunological methods are also used: 1. Kazoni reaction (Casoni, 1912) - an intracutaneous test with the contents of an echinococcal cyst. 2. Eosinophilic test. 3. Reaction of a scolex - precipitations. 4. Binding reaction compliment. 5. Antitriptic reaction. 6. Meostagminovaya test.

However, the first sign of a worm infestation of any origin may be eosinophilia.

In the surgical treatment of echinococcosis, echinococcectomy is used, which can be closed, i.e. without opening a cyst (with resection or removal of an organ) or open, when due to its large size, suppuration, or localization features, it is impossible to remove it with a part or with a whole organ. In such cases, the maternal cyst is opened and all daughter cysts, the germinal and cuticular membranes are removed, and the walls of the cyst are treated with 2% formalin, iodine or other antiseptics in order to destroy undeleted small cysts. If the cavity is large, especially in the liver, then its closure can be done with a large omentum tampon or with the thin walls of the cavity itself rolled up in a roll, caponage (suturing the cavity from the inside, or gluing it with biological glue). If the cavity cannot be closed with anything, then external drainage (marsupialization) is performed, which consists in filing the edges of the cavity wall to the edges of the wound. The cavity is drained by tubes. The same operation is performed with suppuration of the cyst.

The results of surgical treatment of alveococcosis are significantly worse. In this pathology, the following operations are used: 1. Radical operations (resection of the organ, resection - heal-peeling, heal of the node). 2. Conditionally radical operations (conditional radical resection, conditional radical resection - exfoliation, conditional radical exfoliation).
3. Palliative surgery (lumping with the removal of only part of the tumor). 4. Conservative operations (obkalyvanie parasitic node antiparasitic agents, cryodestruction, infusion of antiparasitic agents into the vessels of the liver and through the nipple drainage into the node). 5. Operations to eliminate complications (drainage of the decay cavity, operations for the breakdown of disintegration, bile-diverting operations, operations for bleeding). 6. Combined operations

Ascariasis. The disease is caused by Ascaris-Ascaris lumbricoideus. The habitat of the parasite is the entire population of the land, except for the zones of permafrost, deserts and dry steppes. These parasites belong to roundworms, while the mature female in size reaches 24-40 cm, and the male 15-25 cm. When swallowed ascaris eggs in the intestine, the larvae hatch, which through the intestinal vessels penetrate into the portal vein, and from there into the liver and then through the inferior vena cava and right heart and into the pulmonary artery. In the lungs, the larvae emerge from the vessels into the alveoli and bronchioles, and from there, when they cough, they enter the pharynx, and after swallowing, they again enter the stomach and intestines. After 2-3 months, the helminths become sexually mature and release eggs from the feces into the environment.

The first signs of the disease is sensitization in the form of an allergic reaction (rash) and eosinophilia. Then comes the phase of pulmonary manifestations of the disease. At the same time cough with poor sputum, malaise, dry and moist rales in the lungs are noted, infiltrates of eosinophilic origin are determined radiographically. There is itching, rash, urticaria, conjunctivitis. Then begins the intestinal phase: nausea, vomiting, abdominal pain, poor appetite, weight loss. Irritation of the nerve endings in the intestinal wall causes its spasm, which manifests itself with periodic paroxysmal abdominal pain, up to spastic obstruction.

Sometimes roundworms cause intestinal perforation with access to the peritoneal cavity and the development of peritonitis. They can also penetrate the bile ducts, the vermiform process with the development of cholangitis, obstructive jaundice, abscesses of the liver and appendicitis. After operations on the gastrointestinal tract, roundworm can penetrate the intestinal sutures with the development of severe purulent complications (abscesses of the abdominal cavity, peritonitis).

The diagnosis of the disease is assisted by the study of sputum for ascaris larvae and
the examination of feces for the presence of ascaris and their
eggs.

Treatment. With colic, antispasmodics are prescribed. In case of intestinal
obstruction, there is surgical treatment of ascaris. At the same time, the ball is kneaded and
removed into the large intestine. Recently, however, enterotomy and removal of the tangle,
or resection of the intestine with the tangle of ascaris are considered more adequate
operations.

Opisthorchiasis. This parasitic disease is found in the basins of the Ob, Irtysh,
Western Siberia and Kazakhstan, Kama, Northern Dvina and other rivers. Feline or Siberian
fluke disease is caused. For the first time, it was described by Professor K.N. Vinogradov
(Tomsk, 1891) when, during the autopsy of the corpses of people who died from this
disease, he discovered a helminth called Opisthorchis felineus. Epistorchosis is still called
KNVinogradov's disease. This parasite has a flat body 4-12 mm long and 1-3.5 mm wide. In
sexual maturity, it parasitizes humans, cats, dogs, foxes and other carnivorous animals that
can eat fish. The intermediate host is a freshwater mollusk. Additional hosts - fish carp
breed (carp, carp).

From humans, dogs, foxes, wolves, parasite eggs are swallowed by the freshwater
mollusk Bithynia Leachi, in which of them muracidia develops first, then sporocysts, then
redia and cercariae. The latter goes into the water, and penetrating into the body of carp fish,
it turns into a metacercarium. These breeds of fish are the main carriers of opisthorchiasis,
especially when eaten by carnivorous animals, or by humans, in their raw, or thermally
insufficiently processed form. The preservation of the source of the disease is promoted by
the use of raw fish by the inhabitants of the natives of these places (Nivkhi, Orochi).
Metacercaria in the intestine turns into an adult, which penetrates into the liver ducts and

causes dystrophic, necrobiotic and proliferative changes in the liver itself, leading to cicatricial stenosis of the bile ducts with the addition of a secondary infection (cholangitis, liver abscesses, cholecystitis) and the development of parasitic liver sclerosis. Parasites, being in the ducts of the liver cause their irritation and spasm (hepatic colic). In this case, the patient is restless, rushing from pain. Palpation in the right hypochondrium marked pain and tension of the abdominal wall. In the diagnosis of opisthorchiasis helps the presence of blood eosinophilia, as well as data from epidamnus. In the duodenal contents and in the feces are found the eggs of the parasite. With the development of purulent-destructive process in the gallbladder and ducts (cholecystitis, cholangitis, liver abscesses), the phenomena of mechanical jaundice accompanied by fever and chills are noted.

When perforation of the gallbladder or duct may develop peritonitis requiring emergency surgery. The operation includes cholecystectomy, suturing of perforated holes in the bile ducts, opening and drainage of liver abscesses. At the same time, a tube is left in the biliary tract and 2-3 ml of 1% iodinol is injected through it for degelmentization for 10-21 days. Anti-parasitic drugs are also used for conservative treatment: praziquantel, diltricid, azinox, picyton, disticide.

Subject No. 16. Tumor.

A tumor is a pathological morphogenesis, manifested in the form of atypical reproduction of tissues that have lost their ability to differentiate to the extent that is characteristic of normal cellular elements.

According to the structure of mortality of the population, cardiovascular diseases take the first place, the second - injuries, malignant tumors take the third place. This indicates the importance of the problem. In recent decades there has been an increase in the incidence of tumors. Currently, the frequency of cancerous tumors of various organs occupy the following places:

1. Lung cancer.
2. Cancer of the stomach.
3. Colon cancer.
4. Breast cancer.

To date, the cause of the development of tumors is not entirely clear. The most wellknown theories of the etiopathogenesis of tumor growth are the following: 1. Theory of stimulation by R. Virchow (chemical and physical effects); 2. Viral theory (L.A. Zilber); 3. Polyetiological theory that considers the occurrence of tumors as a multifactorial process, which is facilitated by a combination of internal and external causes. Of the internal factors, great importance is attached to psycho-neuro-endocrine-immunological disorders, with acute and chronic stresses, leading to disturbances in the hormonal and immune regulation systems, contributing to disturbances conducive to the development of the tumor process. So in the immune system, the lack of killer cells can disrupt the process of destroying old and mutant cells, which are formed in many healthy individuals and often cause cancer growth. Internal factors also include precancerous diseases (chronic inflammatory diseases, benign tumors, atrophic processes). For example, Menetria disease or chronic atrophichyperplastic gastritis. Of the external factors, carcinogens are of great importance. In the environment there are many carcinogens related to nitrosamines. One of them (3, 4 benzpyrene) is the final product of the combustion of hydrocarbons (coal and petroleum products). The second source is dust from asphalt roads, containing tar, which are part of asphalt. Dust enters the eyes, gastrointestinal tract, respiratory tract. Dust containing carcinogen in the respiratory tract of a healthy organism is removed due to protective mechanisms (ciliary epithelium of the trachea and bronchi, mucus, cough reflex, macrophage-phagocytic system). In patients with chronic lung diseases, these mechanisms weaken. Carcinogens are contained in tobacco smoke and in the food of modern man (all sorts of additives, fried and overdone food.

According to the formal genesis of the tumor are divided: 1. From the border epithelium - epithelial; 2. Of mesenchyme derivatives (loose and specialized connective tissue); 3. From specialized tissues (nervous tissue and striated muscles).

Benign tumors are represented by mature differentiated tissue, but have tissue or structural atypism manifested by a change in the ratio of histological elements (different directions of cell bundles, their uneven location in the stroma of the tumor). Benign tumors do not metastasize, have expansive growth, do not have cellular and biochemical atypism.

Malignant tumors are represented by immature undifferentiated tissue. Their atypism consists not only in changing the interrelationships of the tumor elements, but also in cell atypism, the so-called cellular atypism, since they have different size, shape, unusual relationship between the nucleus and protoplasm, the nuclei also have different shapes and sizes, their hyperchromicity is noted, many figures of mitosis. It is characterized by infiltrating growth and development of metastases.

Classification of malignant tumors by stages according to the TNMPG system, proposed by PF Denua (1952). The classification includes the following designations: T - tumor (tumor), N - nodulus (lymph node), M - metastasis (metastasis), P - penetration (depth of tumor invasion into the wall of the hollow organ), G - gradus (degree of tumor malignancy for some localizations.

Tumor size: T0 - a tumor is absent, Tis - Cancer in situ (literally, “cancer is in place”, the tumor is not accessible for visualization, but is determined only by histological examination), T1-4 - tumor size by stages.

Metastases to lymph nodes: N0 - metastases in lymph nodes are absent, N1 - metastases to regional lymph nodes, N2 - metastases to second-order lymph nodes, N3 - metastases to distant lymph nodes.

Invasion of the tumor into the wall of the organ - P1 - a tumor in the mucous membrane, P2 - germination of the tumor into the submucosa, P3 - invasion of the tumor into the subserous layer, P4 - penetration of the tumor into the surrounding tissues and organs.

Metastases - M0 - distant hematogenous hemostasis is absent. M1 - there are distant hematogenous metastases.

If the tumor is confirmed histologically, this is referred to as T1 +; N1 +; M1 +, if there is no histological confirmation, then T1-; N1 -; M-

1 tbsp. - the tumor is localized, in the mucous membrane occupies a limited area, does not grow into the wall of the organ, there are no metastases in the lymph nodes or hematogenous, which is denoted as T1; P1; N0; M0. 2 tbsp. - the tumor is larger, grows into the wall of the body, but does not go beyond its limits, single metastases in the regional lymph nodes, which is denoted as T2; P2; N1; M0. 3 tbsp. - A large tumor, with decay, germination of all walls, metastases to regional lymph nodes, which is denoted as T3; P3; N2; M0. 4 tbsp. - A tumor of considerable size, there are metastases to distant lymph nodes and hematogenous metastases to distant organs and T4 tissues; P3; N3; M1.

Types of tumor growth: 1. Expansive - growth with displacement of surrounding tissues without the introduction of cells into them, the border of the tumor is clearly expressed sometimes with the presence of a capsule. This is characteristic of benign

tumors. 2. Infiltrating growth is characterized by the penetration of tumor cells into the surrounding tissues. Mainly characteristic of malignant tumors. 3. Exophytic - growth in the lumen of a hollow organ. 4. Endophytic - growth in the wall of a hollow organ. 5. Unicentric - tumor growth from one point. 6. Multicentric - tumor growth from many points at the same time.

Tumors have virtually no specific symptoms. Like other diseases, they have common and local symptoms.

Common symptoms of malignant tumors include: weakness, malaise, loss of appetite, weight loss. The complex of these symptoms in gastric cancer A.I. Savitsky called the syndrome of "small signs" of gastric cancer.

Tumors of visible localization located on the open parts of the body, or available for simple research methods (tumors of the oral cavity, breast, rectum, skin, cancer of the lower lip, cervix) are manifested by the presence of the formation itself.

Local manifestations of gastric cancer are unspecified epigastric pains. In colon cancer, constipation alternating with diarrhea, abdominal distention, sometimes reaching intestinal obstruction. In lung cancer, there is a triad of symptoms: the patient is older than 40 years old, hemoptysis, smoking, and also coughing.

Treatment.

1. Surgical (radical and palliative operations). Earlier, in relation to surgical treatment of tumors, the expression “A small tumor is a big operation, a large tumor is a small operation” existed. This meant that in the presence of metastases or germination of a tumor in neighboring organs, a palliative operation was performed. Now with the development of operative technology, material equipment of operations and improvement of postoperative treatment, the principle “A small tumor is a big operation, a large tumor is an operation is even more.” This implies that radical surgery can be carried out with the germination of a tumor in neighboring organs and in the presence of lymphogenous metastases.
2. Chemotherapy. At present, a large arsenal of chemotherapy drugs has been developed, which are prescribed depending on the histological affiliation of the tumor. Radiation therapy (x-ray therapy, isotopes).
3. Currently, drugs (photosensitizers) are used to increase the sensitivity of tumor tissue to radiation, selectively accumulating in the tumor tissue and increasing its sensitivity to a certain type of radiation.
4. Hormone therapy is used for tumors of the reproductive system (androgens in women, estrogens in men).
5. Combined treatment. This treatment involves surgical treatment in combination with preoperative, or postoperative radiotherapy or chemotherapy.

Subject No. 17. Malformations

The science of etiology, pathogenesis, clinic, diagnosis, treatment and prevention of congenital diseases is called teratology.

Causes of congenital malformations, or teratogenic factors are divided into endogenous and exogenous (GI Lazyuk, 1979). Endogenous causes: 1. Changes in hereditary structures (mutations) of genetic origin or occurring under the influence of radiation, viruses, chemicals. 2. Endocrine diseases (diabetes). 3. Age of parents older than 35 years. Exogenous causes: 1. Physical factors (radiation, mechanical effects). 2. Chemical factors (drugs used in the home, industry, drugs, hypoxia, malnutrition). 3. Biological factors (viruses, bacteria).

Major defects in organs and systems

Craniostenosis is a deformity of the skull, due to the premature clogging of one or other of its sutures, which are overgrown by 40 years. The nature of the deformation depends on the seam undergone. For this reason, craniostenosis is divided into coronary, sagittal, coronary-sagittal, coronary lambdoid, common. The clinic is manifested by an increase in intracranial pressure: (flare, venous network on the skin of the head and face, headaches). The treatment consists in performing a bilateral bilateral craniotomy operation.

Cerebral hernia. The contents of the skull prolapses through the defect of its bones under the skin. By localization are divided into front (frontal-nasal, fronto-orbital), rear (above the occiput). Depending on what falls through the hernial hernia, the hernia is divided into meningocele (prolapse of the brain membranes), encephalocele (prolapse

of the membranes and brain tissue), encephalocystecele (prolapse of the membranes, the brain itself and its ventricles). Mental retardation, headaches, dizziness are clinically noted. When viewed at the site of hernia, a soft-elastic formation is seen. Spinal hernias also have a similar classification, external signs and complications. The difference in the clinical course is that these patients may experience dysfunctions of the lower extremities, including paralysis and pelvic disorders.

Complications of cranial and spinal hernias - hernia sac rupture, liquorrhea, cerebrospinal fluid fistula, meningitis. Therefore, mainly for such hernias, urgent operations are shown - excision of the hernia and plastic.

Cleft lip (cleft lip). By the nature and number of clefts can be complete, partial, single and bilateral. Defects do not prevent the baby from breastfeeding, but early operations are shown to these children, since their delay leads to a nose deformity. The operation (cheiloplasty) consists in plastic closure of the defect.

Cleft of the sky (cleft palate). It can be one- and two-way, full, partial, through, nonthrough. The free passage of air through the nose disrupts articulation (speech), since a certain air pressure is necessary in the roto-nasopharynx. The baby cannot suckle as it is accompanied by gagging. For conservative treatment used obturators of different designs. Prompt elimination of the defect - radical uranoplasty is recommended in 10-12 years. **Cryptorchidism** is characterized by a delayed testicle in the abdominal cavity or in the inguinal canal. In this case, the testicle is absent in the scrotum, or is palpated in the inguinal canal or in the region of the external opening of the inguinal canal. Surgical treatment is the relegation of the testicle in the scrotum.

Kidney defects are divided into the following groups: 1. Anomalies of quantity (doubling); 2. Provisions (often pelvic dystopia of the kidneys); 3. Relationship. With these defects, the kidneys grow together with poles (S-shaped or horseshoe-shaped kidney); 4. Structures (renal cysts). In case of kidney defects, surgical treatment is carried out in case of violation of their function.

Allot triad - pulmonary stenosis, atrial septal defect, right ventricular hypertrophy. Fallot's tetrad - stenosis of the pulmonary artery, right ventricular hypertrophy, ventricular septal defect, large vessels (transposition of the aorta to the right and finding it above the atrial septum). Fallot's pentad is a Fallot's tetrad with atrial septal defect.

All these heart defects belong to the defects of the blue type and manifest as shortness of breath, cyanosis of the lips and mucous membranes, developmental delay. In the diagnosis used ECG, echocardiography, intracardiac studies using sensing chambers of the heart. Treatment is prompt.

Open arterial or Botallov duct. Defect due to its non-venom in the first months after birth. Refers to pale vices. There is a discharge of blood from the aorta to the pulmonary artery, which leads to its stagnation in the lungs. The main symptoms are shortness of breath, pain in the heart. At the same time, in the second intercostal space, continuous “engine” noise is heard. Pulse fast and fast, systolic blood pressure is reduced. Surgical treatment - closure of the duct.

Coarctation of the aorta. It is characterized by its narrowing in the thoracic region and is accompanied by high blood pressure in the vessels above the narrowing. Manifested by headaches, shortness of breath, nauseous sensations in the heart. The examination methods are the same as for other heart defects. The treatment is operative and consists in the restoration of blood flow through a narrowing.

Cysts and fistula neck. Median cysts and fistulas of the neck are caused by the nonopening of the thyroid-lingual duct. Lateral cysts and fistulas are associated with the noncommunicating of remnants of the second branchial arch. Clinically characterized by the presence of rounded formations of small size, or the presence of fistulas with mucous discharge. Treatment is prompt. The operation consists in excision of cysts, and in case of median cysts and fistulas of the neck and in resection of the hyoid bone, suturing of the pharyngeal defect.

Torticollis. This defect is associated with shortening and underdevelopment of one of the sternocleidomastoid muscles. This is manifested by the inclination of the head in the direction of the shortened muscle and its rotation in the opposite direction. Head movements are limited. The muscle itself is shortened and palpable in the form of a dense cord. Diagnosis in newborns is difficult. Subsequently, this defect leads to deformation of the facial skeleton, the cervical spine, and the clavicle. With early diagnosis (the first 2 years of life), this defect can be cured conservatively and avoided deformation of the face. Conservative treatment consists in redressing (working out), the essence of which is that the muscle is stretched using special exercises. For this, the child is placed in bed in such a way that he lies with the sick side against the wall. At the same time, turning the head on the sounds from the healthy side of the child, he stretches the shortened muscle. In addition, from 2-3 weeks of age, special exercises and muscle massage are applied. Exercises consist in turning the head to a healthy side and dorsal flexion of the head, with muscle massage. Exercise is done 3-4 times a day for 5-10 minutes. In the later stages, the muscle is dissected.

Funnel chest. This defect is characterized by depression in the lower part of the body of the sternum. When inhaling, the impression sinks down (a symptom of paradoxical inhalation). At the same time the function of the lungs and heart is disturbed. Treatment is prompt.

Atresia of the esophagus. There are 6 types of this defect, which depends on its nature and relationship with the trachea. The defect is manifested by symptoms of obstruction of the esophagus and is characterized by the appearance of frothy discharge from the mouth and from the nose in the first minutes after birth, which is caused by the accumulation of saliva in the blind end of the esophagus swallowed by the newborn. Filling it, saliva enters the nasopharynx and from where it is aspirated into the respiratory tract causing pneumonia, which is often the cause of death of such children. When feeding a baby, the milk they suck immediately spits up, which is accompanied by a strong cough. That is why children with such a defect require its diagnosis in the first minutes after birth and its urgent surgical treatment. First aid is the constant after 10-15 minutes, sucking the contents through the nose and oropharynx, giving oxygen

and the prohibition of feeding. In the diagnosis of atresia of the esophagus, a simple method is to hold the catheter into the esophagus, through the mouth or nose, but sometimes it folds into the oropharynx and passes to a sufficiently large length. Therefore, it is carried out on 24 cm, and if it is curled up, then its end goes out through the mouth. When air is blown through a catheter, held 8–10 cm into the esophagus during its atresia, it goes noise through the nose and mouth, and in its absence, it freely passes into the stomach.

Congenital bowel obstruction. This defect is most often caused by stenosis and atresia of the intestine, and in the duodenum the annular pancreas, adhesions and cords. Depending on the location, obstruction may be high (small intestine) and low (large intestine). High obstruction is more severe and is characterized by vomiting with an admixture of bile in the first hours after birth, abdominal distention, gas retention. Meconium (original feces) departs first, but then it is absent. The clinic of this defect is variable and depends on the nature and localization of the causative factor. In the diagnosis, a review of the abdominal cavity radiography, revealing fluid levels (Kloyber's bowls). Surgical treatment. The main purpose of the operation is to restore the intestinal patency. Pyloric stenosis. The disease is characterized by contraction up to complete obstruction in the pyloric region of the stomach and usually manifests itself at the age of 2-4 weeks, first with regurgitation and then vomiting with a fountain. Radiologically determined obstruction of the output section of the stomach. Treatment is prompt.

Hirschsprung disease. The disease is caused by congenital hypoplasia of the Meissner submucosal sympathetic plexus of the large intestine, more often the recto-sigmoid department and the formation of the aganglionic zone, where there is no peristalsis through which the feces cannot pass. Clinically, the disease is manifested by prolonged constipation, an increase in the abdomen, like a frog. There is a physical underdevelopment. When X-ray contrast study of the colon (irrigology), there is a sharp expansion of the lumen of the intestine above the aperistaltic zone. Treatment is prompt.

Congenital dislocation of the hip, or hip dysplasia. Defect due to hypoplasia (flattening) of the articular cavity and a decrease in the head of the femur. On examination, the asymmetry of the skin folds on the thigh is noted. On the affected side of the folds more, the inguinal fold is deeper and longer. The limb is shortened. With early detection in the first 23 years, the defect can be cured conservatively without anatomical and functional consequences. The treatment is to create a position of dilution of the hips for 4-6 months. For this purpose, the Vilensky tire, Pavlik's stirrups, the Freyka airbag, etc. are used. Congenital clubfoot. The defect is characterized by adduction, supination, plantar flexion of the foot. In treatment, Fink-Etinger bandaging or graded plaster bandages, massage and development are used. Conservative treatment in the first 2-3 years of life also helps to cure the defect without any consequences.

Spinal defects. One of the reasons for the development of spinal curvature in the lateral plane (scoliosis) is lumbarization or sacralization. This pathology is manifested

by an increase in the number of lumbar or sacral vertebrae, one at the expense of the other. The latent dislocation of the arches (spina bitida acculta) of the lumbar-thoracic spine is also manifested by lateral curvature of the spine. Defect is detected by radiological examination.

Vices of the extremities can manifest as ectromelia - complete absence of one or several extremities, or as hemimelia - absence of distal limbs, for example, of the hand or foot, or as fochelia, manifested by the absence of extremities and attachment to the body of underdeveloped hands or feet.

Subject No. 18. Plastic or reconstructive surgery

The term plastic is now considered as an integral part of transplantology and means the correction of acquired or congenital defects of the human body by the transplant tissue.

Reconstructive or recovery operations are repeated operations aimed at correcting anatomical or functional disorders that were not corrected during the first operations or appeared after them. These operations are performed for diseases of the operated stomach, postcholecystectomy syndrome, after operations on the large intestine, etc.

Transplantology is a medical and biological science that studies the preparation, preservation and transplantation of cellular structures, tissues and organs with the possibility of their long-term engraftment and functioning.

Harvesting tissues and organs can be carried out from corpses and from living donors. Direct transplantation of tissues and organs without preservation is rarely used in a clinical setting (heart, kidney, liver and bone marrow transplantation). In most cases, transplantation is preceded by the stage of storage, or preservation of tissues and organs, which are preserved to preserve their original properties. The following conditions must be met: 1) Sterility; 2) Reduction or suspension of autolysis; 3) Preservation of plastic and structural properties, as well as biological and functional characteristics of organs and tissues.

The following methods are used for preserving fabrics:

1. Canning in antiseptic solutions. 2. Cooling. 3. Freezing. 4. Lyophilization.

Harder to preserve organs. It is known that 1-2 hours after cessation of blood circulation at room temperature, dystrophic changes occur in their cells (thermal ischemia). Therefore, in order to preserve or preserve organs, it is necessary to create conditions in which they could remain viable.

For this purpose, apply: 1.Simply immersion in a preservative solution; 2. Immersion with aeration; 3. Immersion in bilayer solutions; 4. Constant perfusion with pulse, or roller pumps with or without cooling, made with the help of special devices of oxygenation pumps.

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