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| <p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p> | | <p> SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p> |
| Department of Surgery, Oncology and Traumatology | | 044 – 71 / 11 |
| Lecture complex | | 7 беттің 1 беті |

Lecture complex

Course: Traumatology

Code of course: Trav 4205

Specialty: General Medicine.

Amount of study hours (credits): 150 hours (5 credits),

Course and semester of study: 4th year and 7th semester.

Amount of lectures 15 hours (12 lectures)

Shymkent, 2023

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| Lecture complex | | 7 беттің 2 беті |


The lecture complex of the discipline "Traumatology" was developed in accordance with the working curriculum (syllabus) and discussed at a meeting of the department

Protocol № 2 from 01 "09" 2023

Head of the department, Doctor of Medical Sciences, Acting Professor



Abdurakhmanov B.A.

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| Lecture complex | | 7 беттің 3 беті |

Class #1

1. Theme: Introduction to Trauma and Orthopedics. History of Traumatology and Orthopaedics. Types of traumatism. Organization of traumatological care in the Republic of Kazakhstan. Traumatism. Types of traumatism. Rehabilitation and prosthetics.

2. Objective: To acquaint students with the definition, meaning and tasks of traumatology and orthopaedics, structural organization of traumatological care in the country, main methods of bone fracture treatment based on modern achievements in traumatology, orthopaedics, errors and complications arising at fractures, rehabilitation of patients with traumas.

3. Thesis of the lecture: Orthopedics and traumatology are the sections of science about deformities and disorders of musculoskeletal system function.

Orthopedics is a Greek word and means "direct child" in a reliable translation. This term was suggested by the Frenchman Nicolas Andre in 1741, as he titled his work on deformities in children. He also proposed a symbolic emblem of orthopaedics - a curved stunted tree tied to a pole.

Orthopedics includes:

- General orthopedics;
- Children's Orthopedics;
- Traumatology;
- Bone - joint tuberculosis;
- Prosthetics;
- Structure of Traumatology, Orthopedics;
- Central Institute of Traumatology and Orthopedics (CITO);
- Institute of Traumatology and Orthopedics;
- Institute of Prosthetics
- Department of Traumatology and Orthopedics;
- Institute of Reconstructive Surgery;
- Hospitals;

Traumatology departments.

1. Incidence of injury takes the 3rd place in the country, and in people under 40 years old takes the second.

2. Continuous increase in the frequency and severity of multiple injuries (up to 20% of all injuries). The main cause of serious injury is "machine injury" and mainly injuries from transport. (Every year thousands of people die and more than 600,000 are injured by motor vehicles worldwide.)

3. With multiple co-injured injuries, 80% of those injured are admitted to treatment facilities in a state of shock. About 2/3 of them are in extremely serious condition and 1/3 are in terminal condition. (Slideshow from healthy to injured and adverse treatment outcomes).

It is stressed that the outcome of treatment as well as the life of the victim depends on the assistance provided by non-surgical doctors at the hospital stage.

The method of Prof. Ilizarov, Bliskunov, ultrasonic cutting and welding, endoprosthetics, etc. At the same time, attention is drawn to the unsatisfactory treatment of fractures (slides).

The first principle is the urgency of treating patients with fractures.

II - principle - painlessness of all manipulations including repositioning of fragments.

III - principle - elimination of displacement of fragments.


IV - principle - fixation of fracture to complete bone fusion.

V - principle - functional fracture treatment.

VI - principle - stimulation of bone tissue regeneration.

(Brief description 1-2 principles of treatment are given).

It is emphasized that fracture consolidation is more painful with the formation of primary bone callus between intermediate stages with perfectly matched fragments and reliable fixation of the fracture, which can be implemented:

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1. Conservative - closed reposition and fixation with plaster bandage; skeletal traction.

2. Operative - open reposition, osteosynthesis.

With the help of external fixation devices such as Ilizarov, Kalnberz, Tkachenko, CITO, frame devices.

1. Indications for one-stage reposition and fixation with a plaster bandage - cross fractures of the diaphysis, intraarticular fractures and bone dislocations.

2. Indications for imposition of skeletal extension - oblique, spiral, multi-slip and polyfocal fractures.

3. Indications for surgical treatment of fractures - open fractures, damage to the vascular nerve bundle, the threat of skin rupture by shrapnel.

4. Indications for surgical treatment of fractures - virtually all fractures.

Shortcomings and advantages of methods.

5. Indications for single-step reposition and fixation with a plaster bandage - cross fractures of the diaphysis, intraarticular fractures and dislocations of bones.

6. Indications for imposition of skeletal extension - oblique, spiral, multi-slip and polyfocal fractures.

7. Indications for surgical treatment of fractures - open fractures, damage to the vascular nerve bundle, the threat of skin rupture by shrapnel.

8. Indications for surgical treatment of fractures - virtually all fractures.

Shortcomings and advantages of methods.

Errors in providing assistance to victims at the prehospital stage:

- Untimely diagnosis of fractures and sprains;
- Lack of or insufficient immobilization of the injured limb;
- Delayed diagnosis of vascular nerve bundle injuries;
- failure to perform anti-shock measures on readings;
- multistage transportation of victims.

Errors and complications in the treatment of fractures in the surgical department of the Central Clinical Hospital:

- Untimely diagnosis of vascular nerve bundle injuries;
- inappropriate choice of treatment method;
- immobilization of an injured limb without a pre-replacement of fragments;
- lack of P-logic control in two projections and after immobilization ceased;
- compression of the limb in a plaster bandage;
- violation or premature termination of immobilization;

All of the above can lead to severe purulent complications, delayed consolidation, false joints (discussed in detail in practical exercises).

1) Definition of rehabilitation.

In medicine, rehabilitation is understood as the sum of measures aimed at eliminating anatomical and functional disorders in the body arising from an injury or illness.

2) The main parts of rehabilitation:

1. Rehabilitation is therapeutic;
2. Rehabilitation is public;
3. Rehabilitation is professional.

3. Aims and objectives of rehabilitation:

Therapeutic rehabilitation - includes moments of disability prevention, reduction of disability and development of adaptive skills with inevitable disability (example).

Public rehabilitation - involves the impact of society and state institutions on the affected person in order to help him/her become a full and active member of society (example).

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Vocational rehabilitation - aims at returning the disabled person to work, to a profession in which they can work, or to retrain them.

Organization of therapeutic rehabilitation:

Therapeutic rehabilitation should consist of:

1. Hospital rehabilitation department.
2. Extramural rehabilitation department.
3. A rehabilitation centre or comprehensive rehabilitation facility.

Methods of rehabilitation: surgical interventions, massages, various types of physical and thermal therapy, prosthetics, etc.

Motivation: Truncation of the limb is primarily a major psychological trauma for each person. On the other hand, this trauma is aggravated by the idea that the victim should have his own way of life, his own profession.

In these cases, the use of a prosthesis is invaluable. The prosthesis not only to some extent conceals the physical disability, but also allows making the patient, if not always full, but always partial restoration of working capacity.

Prosthesis of the upper and lower extremities are divided by their functionality, i.e. by the degree of restoration of lost functions:

1. Cosmetic, reproducing only the appearance of the limb.
2. Cosmetic active prosthesis which restore the function of the lost limb in whole or in part.

Work prosthesis by means of which certain production or household processes are performed. (displaying slides of different types of prostheses).

Output - sum of measures from the moment of injury to complete restoration of function. The role of general practitioner in the treatment of victims at the prehospital stage, and their extra-hospital rehabilitation.

4. Illustrative material:

5. Literature:

6. Control questions:

1. Introduce students to the definition, content and organization of orthopaedic traumatological care in the country.

2. The importance of studying fracture care not only by surgeons but also by non-surgical doctors at the prehospital stage.

3. Show students the modern possibilities of fracture treatment and draw their attention to significant deficiencies in the treatment of patients with trauma (continued motivation and problem formulation).

1. Clear knowledge of treatment principles will allow to exclude errors in fracture treatment both inpatient (surgery) and prehospital stage and to avoid early and late complications.


2. To show that early diagnosis, good transport immobilization, early hospitalization contribute to enhanced fracture treatment. 2.

3. general idea about fracture treatment in a surgical (traumatological hospital) - for non-surgical doctors.

Selection of the optimal treatment method for surgeons (traumatologists).

4. The importance of functional treatment of fractures in the conditions of limb fixation.

5. Good knowledge of students of clinical signs of fractures and sprains, symptoms of neurovascular beam injuries, diagnosis of shock and anti-shock therapy, evacuation tactics in rural areas. Prevention of complications based on clear knowledge - exercises on diagnostics and tactics of fracture treatment depending on localization, character of the fracture.

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| Lecture complex | | 7 беттің 6 беті |

Class #2

1. Theme: Regenerative bone regeneration. Bone conservation. Basic principles of conservative fracture treatment.

2. Objective: Regenerative bone regeneration. Microstructure of bone, blood supply innervation, sources of regeneration, stages of bone formation from calluses. Provisorative bone marrow, permanent bone marrow.

3. Lecture thesis: Reparative regeneration of bone tissue. Microstructure of bone, blood supply innervation, sources of regeneration, stages of formation of bone and corns. Provisorative bone marrow, permanent bone marrow. Nodal issues of conservative fracture treatment, 5 principles of conservative fracture treatment. Principles of fracture treatment before and during hospital care. Gypsum immobilization. Plaster technology. Types of plaster bandages. The technique of applying various plaster bandages. Errors in applying plaster bandages. Extraction (skeleton, adhesive, adhesive plaster). Places of imposition of skeletal traction. Technique of skeletal traction. Methods of treatment of patients with skeletal traction. Errors, complications. Types of treatment tires. The method of applying therapeutic immobilization tires.

By the degree of formation distinguish four types of bone calluses.

Intermediary - occurs between directly contacting bone fragments, the gap between which should be no more than 0.1 mm., and provided maximum immobility of the fragments. The space between the fragments grows a vascular network, which is filled with cells from the *system. There comes true primary healing of the bone.

Periosteum - occurs as a result of rapid reproduction of cells * layer of periosteum.

Endostal - formed on the inner surface of the cerebrospinal canal from endostal cells, and the bone marrow of both fragments.

Parasual callus - occurs from soft tissue attached to the fracture site.

Three stages of fracture healing are clinically isolated:

Stage I - fibrous or soft calluses (3-6 weeks);

Stage II - bone callus is formed in 4-12 weeks after the injury and lasts from 1 to 6 weeks;

Stage III - architectural reconstruction of bone calluses and lasts at least 1 year.

Formation of fusion in conditions of unstable fixation, when under the influence of shifting forces there is a movement of one wound surface relative to another, the tissue of the regenerate is damaged, from the side of paraossal tissues and periosal overlaps, the formation of calluses is due to fibrous or fibrous cartilage formations and promotes the development of secondary bone fusion.


The duration of the process of secondary bone formation increases the more the worse the ends of fragments are compared, the less stable their fixation and the worse and later the compensation for the broken blood supply occurs in the fragments.

The formation of the collision takes place under conditions of stable fixation.

Creation of permanent immobility at the end junction considerably improves conditions of formation of fusion, prevents occurrence of edge resorption, reduces duration of reparative regeneration and terms of bone fusion formation. Under these conditions, the fusion process is considerably simplified and accelerated. In order to create optimal conditions for the formation of complete primary bone fusion, a stable stable fixation of the fragments is required; tight contact between the wound surfaces of the fragments; early and complete compensation for injuries caused by blood flow disorders of the fragments.

FRACTURE HEALING DISORDER

Each bone, due to its biological peculiarities, has its own term of fusion and if by the end of this term the integrity of the bone is not restored, the fracture consolidation is broken. It is distinguished by the following species:

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Slow consolidation - when the fusion did not come in due time, bone marrow is either missing or poorly expressed with a clearly visible fracture line.

Non-converted fracture - similar radiological pattern and double-trouble fracture healing time.

False joint - in early terms (9-12 months) - the gap between the fragments, the ends of the fragments are mushroom-shaped dilated, and the bone and brain canal openings are sealed with sclerotized bone tissue.

CAUSES OF FRACTURE HEALING DISORDERS

1. No comparisons of fragments after closed reposition.
2. Do not try to improve the position of fragments often and unreasonably after the reposition.
3. Incomplete immobilization.
4. Removal of premature immobilization.
5. Rough handling of tissues and lack of stable contact when the reposition is open.

Negligence of general and local means of complex treatment.

TREATMENT OF FRACTURE HEALING DISORDERS

Conservative treatment consists of general and local activities.

General treatment: general hygienic gymnastics, oxygenobarotherapy; inside - multivitamins, gluconate or calcium chloride, aloe extract in 2 ml for 30-45 days, a combination of retabolil, albumin with calcium gluconate.

Local treatment: Immobilization of plaster bandage, dosed load, static-type LFK, calcium electrophoresis, phosphorus on the fracture area, magnetic therapy, laser irradiation, oxygenobarotherapy, electrostimulation.

Surgical treatment of delayed consolidation and non-corrected fracture is not currently used.

For false joints, an operation is shown that aims to turn pseudoarthritis into a normal fracture. The resulting defect is replenished with plastic methods that pursue the stimulation of osteogenesis. Operative intervention at false joints is carried out on Beck, Hakhutov, Chaklin, etc.

At present, the method of closed treatment of an uncontracted fracture and false joints with the help of compression-distraction method is widely used.

ACTIVATION OF REPARATIVE REGENERATION

During the period of formation of soft bone calluses, the purpose of treatment is to eliminate local effects of injuries (local shock, hemorrhage, microcirculation disorders, metabolic processes and to create conditions for the formation of regenerate between fragments).

Means of action on the fracture area:

1. Stability of fragments and rest of extremities.
2. Elimination of reliance on the damaged limb during the whole period of soft callus formation (especially during the first 3 weeks).
3. Elevated position of the limb.
4. Therapeutic gymnastics from 2-3 days after the reposition.
5. FTL.

I principle - the urgency of treatment of patients with fractures.

II - principle - painlessness of all manipulations, including repositioning of fragments.

III - principle - elimination of fragments displacement.


IV - principle - fixation of fracture to complete bone fusion.

V - principle - functional fracture treatment.

VI - principle - stimulation of bone tissue regeneration.

(brief description of 1-2 treatment principles is given).

It is emphasized that fracture consolidation is more painful with formation of primary bone callus between intermediate stages with perfectly matched fragments and reliable fixation of the fracture, which can be performed:

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1. Conservatively - closed reposition and fixation with a plaster bandage; skeletal traction.
 2. Operatively - open reposition, osteosynthesis.
 3. Indications for one-stage reposition and fixation with plaster bandage - diaphysis transverse fractures, intraarticular fractures and bone dislocations.
 4. Indications for imposition of skeletal extension - oblique, spiral, multi-slip and polyfocal fractures.
 5. Indications for surgical treatment of fractures - open fractures, damage to the vascular nerve bundle, the threat of skin rupture by shrapnel.
 6. Indications for surgical treatment of fractures - virtually all fractures.
- Shortcomings and advantages of methods.
7. Indications for single-step reposition and fixation with a plaster bandage - cross fractures of the diaphysis, intraarticular fractures and dislocations of bones.
 8. Indications for imposition of skeletal extension - oblique, spiral, multi-slip and polyfocal fractures.
 9. Indications for surgical treatment of fractures - open fractures, damage to the vascular nerve bundle, the threat of skin rupture by shrapnel.
 10. Indications for surgical treatment of fractures - virtually all fractures.
- Shortcomings and advantages of methods.

1) Mistakes in providing assistance to victims in the prehospital stage:

- Untimely diagnosis of fractures and sprains;
- Lack of or insufficient immobilization of the injured limb;
- Delayed diagnosis of vascular nerve bundle injuries;
- not carrying out of anti-shock measures at indications;
- multistage transportation of victims.

Errors and complications in the treatment of fractures in the surgical department of the Central Clinical Hospital:

- Untimely diagnosis of vascular nerve beam injuries;
- inappropriate choice of treatment method;
- immobilization of an injured limb without a pre-replacement of fragments;
- lack of P-logic control in two projections and after immobilization ceased;
- compression of the limb in a plaster bandage;
- violation or premature termination of immobilization;

All of the above can lead to severe purulent complications, delayed consolidation, false joints (discussed in detail in practical exercises).

1) Definition of rehabilitation.

In medicine, rehabilitation is understood as the sum of measures aimed at eliminating anatomical and functional disorders in the body arising from an injury or illness.

2) The main parts of rehabilitation:

Rehabilitation is therapeutic;

4) Rehabilitation is public;

5. Rehabilitation is professional.

3. Aims and objectives of rehabilitation:


Therapeutic rehabilitation - includes moments of disability prevention, reduction of disability and development of adaptive skills with inevitable disability (example).

Public rehabilitation - involves the impact of society and state institutions on the affected person in order to help him/her become a full and active member of society (example).

Vocational rehabilitation - aims at returning the disabled person to work, to a profession in which they can work, or to retrain them.

Organization of therapeutic rehabilitation:

Therapeutic rehabilitation should consist of:

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Hospital Rehabilitation Department: Medical rehabilitation shall consist of: Hospital Rehabilitation Department.

The Department of Extra-Hospital Rehabilitation.

A rehabilitation centre or facility for comprehensive rehabilitation.

Rehabilitation methods: Surgical interventions, massages, various types of physical and thermal therapy, prosthetics, etc.

Motivation: Truncation of the limb is primarily a major psychological trauma for each person. On the other hand, this trauma is aggravated by the idea that the victim should have his own way of life, his own profession.

In these cases, the appointment of a prosthesis is invaluable. The prosthesis not only to some extent conceals the physical disability, but also allows to make the patient, if not always full, but always partial restoration of working capacity.

Prosthesis of the upper and lower extremities are divided by their functionality, i.e. by the degree of restoration of lost functions:

Cosmetic, reproducing only the appearance of the limb.

Cosmetic active prosthesis that reproduce the function of the lost limb fully or partially.

Work prosthesis with which certain production or household processes are performed. (displaying slides of different types of prostheses).

Output - sum of measures from the moment of injury to complete restoration of function. The role of general practitioner in the treatment of victims at the prehospital stage, and their extra-hospital rehabilitation.

4. Illustrative material:

5. Literature:

6. Control questions:

1. The importance of studying fracture relief.
2. Modern possibilities of fracture treatment.
3. Clear knowledge of treatment principles will help to eliminate errors in fracture treatment and avoid early and late complications.
4. Early diagnostics, good transport immobilization, early hospitalization promotes enhanced fracture treatment
5. General idea about fracture treatment in a surgical (traumatological hospital) - for non-surgical doctors.
6. Selection of the optimal treatment method for surgeons (traumatologists).
7. The importance of functional treatment of fractures in conditions of limb fixation.
8. Treatment and rehabilitation are inseparable from each other. Rehabilitation immediately or at the moment of treatment of the patient, and continues until the restoration of function. Importance of medical examination of patients. Rehabilitation is possible at all medical stages in rural areas. Complexity of rehabilitation measures. Special attention should be paid to restoration of working capacity of disabled people.


Class #3

1. Theme: Closed and open fractures of bones and joints. Classification. Diagnostics. Chronic post-traumatic and haematogenic osteomyelitis. Prophylaxis and modern principles of treatment.

2. Objectives: to draw students' attention to the importance of the studied problem, peculiarities of diagnostics, treatment of closed fractures, rules of assistance.

3. Thesis of the lecture:

CLOSED FRACTURES

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The fracture of a bone (fractura ossis) is caused by the disturbance of its integrity caused by external violence. With closed fractures, there is no damage to the bone or other soft tissue above the fracture.

Closed fractures may be complete and incomplete. In case of incomplete fractures, the integrity of the entire bone is not compromised. These are edge fractures, tears of bone bumps.

They can be distinguished by localization: **diaphyseal, metaphyseal and epiphysal.**

Epiphysaric fractures are usually intraarticular.

Metaphyseal fractures are peri-articular fractures. Depending on the height of the location, fractures in the lower third of the bone, middle and upper third are distinguished.

Transverse, oblique, spiral and longitudinal fractures are distinguished in the direction of the fracture plane.

Fractures occur without displacement and with displacement of fragments. Displacement can be primary: it occurs at the moment of fracture under the influence of traumatic force, and secondary: it occurs under the influence of muscle contraction (retraction): X-ray usually shows secondary displacement of fragments.

A distinction is made between fracture displacements by length, width, axis angle and rotation. Angular displacements of bone * with two long bones (forearm, tibia) are also called mixed. In contrast to the angular one, it is difficult to eliminate when the reposition is closed.

Fractures can be injected when the end or sharp edge of one fragment is inserted into the end of the other fragment. In older and older persons, these are injected and should not be removed as this promotes faster fracture closure.

Compression fractures occur when the fracture is exposed to damaging forces in the longitudinal axis of the bone. Often these are fractures of the vertebral bodies when falling from height, fractures of heel bones of the radius when falling on a bent or curved hand.

There should also be a distinction between fractures of "fracture-dislocation", "dislocation and fracture within one segment". Fracture-dislocations occur in joints when there is a fracture of the bone that forms the joint next to the dislocation. Fracture-dislocation occurs when the injured force breaks the bone diaphysis and dislodges one of the joint ends of the bone.

1. CLOSED FRACTURE DIAGNOSTICS

Typical fractures are complaints of pain at the fracture site and inability to use the damaged limb. Pain as a symptom of a fracture may not be present in a victim with severe combined or multiple fractures when the severity of the condition is due to other more severe injuries or complications of the injury: bleeding, pneumothorax, shock, damage to hollow abdominal organs. Therefore, often diagnosed with delayed fractures that do not have bright clinical manifestations: spinal fractures, injected fractures of the neck humerus.


A history of injury is essential in the diagnosis of a fracture. It is necessary to find out the circumstances of the injury and, if possible, the mechanism of the injury, which will make it possible to determine the specific type of fracture.

Loss of consciousness at the time of trauma indicates brain damage, etc. Information about past diseases, instructions about bone diseases (osteomyelitis, tumour, etc.) for determining pathological fractures are of great importance.

Clinical signs of fractures should be divided into reliable and probable.

Reliable signs include shortening of the damaged segment, pathological mobility and fixation of bone fragments. These signs are more often identified with fractures of long tubular bones, clavicle and ribs.

Probable signs of fractures include deformation at the fracture site, local pallor at palpation, pain at the fracture site under axial loading, characteristic position of the limb. For example, a noticeable shortening of the leg to the eye and external rotation of the foot make a fracture of the neck or vertebral region of the femur suspect.

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The symptom of functional impairment is particularly important in the diagnosis of neural trunk injuries associated with fractures. A subheaded fracture of the fibula is accompanied by damage to the fibula nerve, which passes in the immediate vicinity of this bone, behind the head and neck. The hanging of the foot, the impossibility of rear bending of the foot, the lack of sensitivity at the back of the foot and at the first interfinger spacing are typical.

With most closed fractures, X-ray diagnosis is of leading importance. This examination is necessary not only to confirm the fracture and document it, but also to determine the treatment tactics, the choice of osteosynthesis type. The surgeon and traumatologist must follow the rules of the X-ray at fractures:

1. Take a picture of the entire injury segment, not just the place of an apparent fracture.
2. The picture must be taken in 2 projections.
3. Radiographs should record the main periods of fracture treatment.

Images should be taken immediately after reposition and dressing; 8-1 days after swelling; 30 days after reposition; after removal of the plaster bandage and further as needed to control the completeness of rotation.

CONTENTS

One of the complications of a closed fracture is blood loss. Bleeding from the broken bone lasts up to 3-5 days. Bleeding always occurs when the fracture is closed. According to research by Clarc (1951), V.P. Pozharisky (1972), blood loss at a femur fracture can reach 0.5-2.5 l., shins 0.5-1.0 l.

Fat embolism is a rare but severe complication of fractures. Burning is more frequent in those victims who have not been diagnosed with shock, and therefore no anti-shock therapy was carried out. Fat embolism is thought to develop due to tissue circulation disorders in shock.

In addition to general complications of closed fractures, there may be local complications. These include, to the left, an internal bedsore, which often occurs when there is a complete displacement of tibial bone fragments. The internal bedsore makes it very difficult to use many treatments.


I. OPEN FRACTURES

- 1). Definition of an open fracture. "Primary", "secondary" open fracture.
- 2). Classification of open fractures.
- 3). Diagnosis of open fracture complications.
- 4). Features of PCBs at open fractures.
- 5). Types of osteosynthesis at open fractures.
- 6). Conducting patients after open fractures. Stage treatment at open fractures.

II. TRAUMATIC OSTEOMYELITIS

1. Determination of traumatic osteomyelitis.
2. Classification.
3. Characteristic pathogens.
4. Diagnostics.
5. Clinic.
6. Principles of general and local treatment of traumatic osteomyelitis.
7. Conservative treatment.
8. Indications and methods of surgical treatment.
9. The place of stable extra-focal osteosynthesis in treatment of traumatic osteomyelitis.
10. Peculiarities of osteomyelitis flow.

MOTIVATION: Annually in our country there are about 100 major disasters. Events in Armenia have shown that about 50% of the victims had long-term crush syndrome combined with open fractures against the background of severe condition of the victims.

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Road injuries have become a scourge of peacetime. Most victims of road accidents have open fractures accompanied by shock and blood loss.

The further fate of the victims depends on the right assistance provided to them at the scene of the accident, in the medical, rural outpatient clinic, district hospital and proper transportation to the surgical departments.

Consequently, every doctor, regardless of his or her specialty, must be aware of the diagnosis and treatment of the victims and the prevention of complications.

OBJECTIVE OF THE LECTURE: To draw students' attention to the importance of the studied problem of all doctors regardless of their specialty, the peculiarities of diagnosis of open fractures and their complications, the correct provision of care in the pre-hospital stage. To give an idea about modern methods of treatment of open fractures and post-traumatic osteomyelitis.

OPEN FRACTURE DETECTION

Open" includes such fractures, at which over the "bone fracture zone" there is a wound penetrating or not penetrating to bone fragments (A.V.Kaplan, O.N.Markova, 1975).

The wound at open fractures is distinguished by time and mechanism of occurrence:

- **Primary open fractures** at which the integrity of the skin and the soft tissues subject to it is disturbed under the influence of the external force causing the fracture, at that the wound of tissues and the fracture of a bone arise at once;

- **secondary open fractures** resulting from a puncture in the soft tissues and skin with the end of the bone fragment from the inside or from gradual necrosis in the area of the closed fracture and exposure of the bone fragment;

- **gunshot fractures**, are a specific type of fracture that will be considered in the course of military field surgery.

Modern primary open fractures (usually those resulting from car accidents) are characterized by significant soft tissue defrosting with the formation of secondary skin necrosis. Open fractures at catastrophes in Armenia, as a rule, are characterized by massive crushing of tissues, which led to the development of severe traumatic toxicosis.

With open fractures resulting from a puncture or sharp bone breakage from the inside, soft tissues are less damaged than with open fractures resulting from direct external trauma.

The general practitioner, as well as a novice surgeon, should be aware that damage to a closed fracture in an open fracture can occur in the case of careless and unskilled attempts to repair the fractures.

OPEN FRACTURE CLASSIFICATION

At present, a classification of CITO has been adopted, in which all open fractures are divided into four degrees by the size of the wound and the degree of tissue damage.

There are four degrees:

1. Open fracture of I A, I B degree - wound size of 1.5 cm, but there is a crush, crush of soft tissue wound (observed in the earthquake in Armenia).

2. IV degree - special, extremely severe, with loss of limb vitality (bone crushing and crushing of soft tissues over a wide range, damage to large main arterial vessels). Students get acquainted with the classification in detail in practical classes.

COMPLICATIONS OF OPEN FRACTURES


The complications of open fractures are divided into **general and local, early and late**.

General complications include shock and blood loss.

Early local complications include blood vessel and nerve damage.

Late local complications include wound purulent infection, erosive bleeding and osteomyelitis. In case of purulent complications there is also a general complication - toxicoresorption fever and sepsis.

STAGE TREATMENT FOR OPEN FRACTURES

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The future fate of the open fracture depends on the correct provision of first aid on site.

POD of a medical staff at the place of an accident

1. To visually assess the severity of the victim.
2. When bleeding from the main arterial vessels - apply a tourniquet.
3. Apply an aseptic bandage. Introduce drugs.
4. Carry out transport immobilization.
5. If necessary, prescribe infusion therapy.
6. At isolated open fractures, the patient is transported from the scene to the surgical department of the district hospital.
7. In case of isolated open fracture accompanied by shock and acute anemia, as well as in case of multiple combined injuries, the patient is transported to the nearest medical outpatient clinic, where he is undergoing intensive therapy (the volume will be considered in the section - polytrauma).

PREVENTION OF PURULENT INFECTION IN OPEN FRACTURES

1. Early administration of broad spectrum antibiotics to the intramuscular or wound circumference.
2. The only reliable prevention method is thorough primary surgical treatment of the wound. (A brief description of PCBs is given).

It is the dream of all surgeons to kill the microbe in the wound. Close to this dream is a comprehensive treatment of open fractures, where traditional primary wound surgery is combined with physical methods:

1. Jet washing with aseptic solutions.
2. Intracostal washing using the Syzganov-Tkachenko method.
3. Ultrasonic cavitation.
2. Intravenous washing according to Syzganov-Tkachenko method.
3. Irrigation and aspiration drainage in layers.
5. Laser therapy.
6. Intraarterial injection through a catheter of a mixture of antibiotics with antiseptics.
7. Isolation in controlled abacterial environment.
8. Hyperbolic oxygenation.
9. Antibiotic therapy.

THERAPEUTIC IMMOBILIZATION IN OPEN FRACTURES

Despite the existing numerous methods of fracture fixation, as observations in Armenia have shown, the most acceptable methods are currently:

- plaster bandage;
- skeletal traction;
- out-of-focus hardware osteosynthesis using the method of Professor Ilizarov, or fixation with rods;
- metal osteosynthesis for open fractures - contraindicated! Because its use increases tissue trauma, which contributes to the development of suppuration.

However, the main condition for preventing suppuration is a stable fixation of fragments, which can be achieved with the help of devices.

MANAGEMENT OF PATIENTS AFTER OPEN FRACTURES

The main focus of further treatment of patients with open fractures, along with general treatment, should be given special attention to the local pathological process. Patients with open fractures in the first 5-10 days after the trauma, when there is a threat of anaerobic infection, should be especially closely monitored.

Complaints of increased pain, high fever, swelling and, most importantly, redness in the wound area indicate the beginning of the infection. Antibiotics should be administered when such sad signs of festering appear at the fracture site.

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In patients with more pronounced signs of inflammation, sutures should be immediately removed and the wound edges should be moved apart. Targeted antibiotic therapy should be performed based on microflora and microbial sensitivity to antibiotics.

Modern methods of treatment of the suppurative process will be studied in more detail in the sections of military field surgery.

When infectious fractures are open and especially closed, they should not be limited to local treatment only. General treatment (blood transfusion, introduction of therapeutic sera, antibiotic therapy, vitamin therapy, rational nutrition, etc.) is of great importance for the outcome.

4. Illustrative material:

5. Literature:

6. Control questions:

1. Determination of a closed fracture
2. Classification of a closed fracture
 - a) By localization;
 - b) by the nature of the fracture;
 - c) By type of displacement.
3. Diagnostics of closed fractures.
4. Treatment methods for closed fractures
 - a) Conservative evidence;
 - b) Operative testimony.
5. Notions of stable osteosynthesis, its variants.
6. Reconstructive regeneration after closed fracture.
7. Complications:
 - a) Delayed consolidation
 - b) False joints
8. Definition of an open fracture. "Primary", "secondary" open fracture.
9. Classification of open fractures.
10. Diagnosis of open fracture complications.
11. Features of PCBs at open fractures.
12. Types of osteosynthesis at open fractures.
13. Management of patients after open fractures. Stage treatment at open fractures.

Class #4

1. Theme: Modern principles of the surgical method of fracture treatment. Compression-distraction methods of treatment. Errors and complications in fracture treatment (secondary dislocations, non-conversions, slow consolidation, false joints and ways of their elimination).

2. Objective: to draw students' attention to the importance of the studied problem, peculiarities of diagnostics, treatment of closed fractures, rules of care.

3. Thesis of the lecture:

FRACTURE TREATMENT

According to the time of application of fracture treatment can be divided into two periods: anatomical and functional.

Anatomical period - is divided from the moment of injury to the formation of bone callus. The purpose of this period is to restore the anatomical integrity of the damaged limb structures.

Functional period - starts from the time of bone callus formation (removal of immobilization) and ends with restoration of the patient's ability to work. The purpose of the period is to restore the functionality of the bone, tendons, muscles and joints of the limb.

In the anatomical period, all measures are aimed at creating conditions for complete reparative regeneration, they are divided into two types: local and general.

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Local treatment involves the repositioning and fixation of fragments as well as activation of reparative regeneration.

Comparison and retention of bone fragments in the position required for fusion can be ensured by conservative, surgical methods as well as by compression-distraction osteosynthesis.

Conservative method - used in closed, uncomplicated injuries or when complications do not require urgent surgical aids.

In the fracture site is injected 20-40 ml. 1% p-ra of novocaine. The blockage is made if the rules of asepsis are observed, and only after finding out the tolerance of analgesics to the patients.

After anesthesia, the patient is put on a plaster bandage in a functionally advantageous position for the immobilized limb.

Reposition is made by the hands of surgeons, or with the help of special devices. When comparing fragments, the basic rules of reposition should be observed:

1. Remove muscle spasm by full anesthesia.
2. Reposition is carried out back to the mechanism of injury and displacement of fragments; first, remove the displacement along the length, then wider, finally, angular and rotational.
3. Peripheral fragment is placed on the central one.
4. The extremities give a functionally advantageous position.
5. Finish the manipulation by placing a plaster tire or other immobilizing bandage.

When correcting the bone of the single-step manual repositioning resort to skeletal traction.

Permanent skeletal traction is one method of fracture treatment. Pulling is shown in closed and open diaphyseal, near- and intraarticular fractures as an independent treatment method and in preparation for osteosynthesis. It is difficult to draw a line between indications for permanent traction and surgical treatment. The main thing in determining the indications - should not be opposed conservative and surgical treatment methods. They should complement each other in the patient's interest.

The method of permanent skeletal traction has both positive aspects, which should include ease of performance, training and equipment, and other shortcomings. These are infection of tissues around the spokes, trophic skin disorders, incomplete immobilization of fragments, hemodynamics and hypokinesia of the patient, etc.

Skeletal traction is contraindicated in cases of severe combined and multiple lesions requiring anti-shock and resuscitation measures, not critical behavior of the patient, inflammation in the area of the spokes, diseases that lead to sudden changes in muscle tone, fat embolism.

The process of treatment by skeletal traction can be divided into 3 stages:

1. **The first** stage lasts 1-10 days. Its purpose is repositioning.
2. **The second** - 4-6 weeks from the moment of reposition. The aim is to keep the fragments in the right position and to stimulate osteogenesis.
3. **The third** - replacement of skeletal extension with a cuff or plaster bandage until full consolidation (2-4 months).

OPERATIVE METHOD


Absolute indications for surgical treatment are damage to the vascular nerve bundle, soft tissue interposition, open fractures.

Relative indications are - the threat of perforation of the skin with sharp fragments, some types of fractures due to difficulties in treatment and retention of fragments, poor consolidation (transverse fracture of the femur, oblique fractures of the forearm bones, varus fractures of the femoral neck, etc.).

Surgical treatment consists of primary surgical treatment of the wound, open reposition and fixation of fragments.

Fracture fixation maybe:

- Intramedullary (intramedullary) with the help of Bogdanov's rods, CITO, Küncher, etc.;
- Nakostnoy (extramedullary) is carried out with the help of wire, and all kinds of records;

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- Combined (extraintramedullary), with the help of beams, bolts, when part of the holding device is immersed in the bone, and part is fixed from the outside.

Other types of bonding of fragments in open reposition, such as bonding and ultrasonic welding of bone are in experimental development and have limited application.

Compression osteosynthesis is carried out with the help of devices that create one-stage compression of the fragments: the Greifensteiner method, the Jusupov-Voronovich-Chaklin method, etc.

One of the modern progressive and promising methods of treatment is out-of-focus compression-distraction osteosynthesis, which is carried out with the help of devices. The most famous devices are Volkov-Oganessian, Gudushauri, Ilizarov, Kalnberz, Sivash, Hoffman and others. The principle of assignment of the apparatuses is the same. Reparative regeneration is a response of an organism to an injury and represents a complicated process. Bone healing occurs through the formation of bone calluses.

4. Illustrative material:

5. Literature: 5:

6. Control questions:

1. Methods of treatment of closed fractures
2. Operative readings.
3. Notions of stable osteosynthesis, his options.
4. Surgical methods of false joints treatment.
5. Types of osteosynthesis in open fractures.

Class #5

1. Subject: Pelvic damage. The basic principles of conservative, surgical treatment of pelvic fractures.

2. Objective: Pelvic lesions are among the most severe injuries. They make up 3-18% of the total number of injuries, and among them 20-30% are combined injuries. These injuries often show shock of varying degrees, mainly due to massive internal bleeding. Even in specialized trauma departments the frequency of unsatisfactory outcomes of such injuries reaches 20-25% and has no particular tendency to decrease.

3. Thesis of the lecture: Pelvic bone fractures account for 3 to 7% of all musculoskeletal injuries. They are the result of direct and indirect injury mechanisms. In the first case, it is a blow to the pelvis or a blow from the pelvis to a foreign object on falling, moving or other circumstances. The most common indirect injury mechanism is compression of the pelvis in sagittal or frontal projection. Since the pelvis is a bone ring, compression causes excessive tension at the opposite poles, in the weak points of which the fracture occurs. Another example of an indirect mechanism is the overload on the acetabulums and the refraction of the acetabulums when they fall from height. Bone fractures are also possible when the muscles attached to them are abruptly reduced, so-called tear-off fractures.


Classification of damage to the pelvis and pelvic organs

Pelvic and pelvic organ injuries are divided into five clinical groups.

Group I. Fractures of bones not included in the pelvic ring - edge fractures (iliac crest wings, coccyx and sacrum below the iliac joint, hillocks and bumps of sciatic, pubic and iliac bones).

Group II. Fractures of bones that are part of a pelvic ring, but without disturbing its continuity (isolated fractures of one branch of pubic or sciatic bones, but in different halves of the pelvis).

Group III. Damages (fractures, ruptures) with disturbance of pelvic continuity: (a) In the anterior region, fractures of both branches of the pubic or pubic and sciatic bones on one or both sides of the pelvis, rupture of a bosom symphysis; (b) In the posterior region, vertical fracture of the iliac bone, rupture of the sacrum-iliac joint, fracture of the sacrum along the line of the pelvic apertures, vertical fractures of the sacrum; (c) In both sections, a simultaneous one-sided fracture of the front and rear half-rings - fracture of Malguin, analogous to the fracture but on both sides; fracture of the rear half-rings on one side and diagonal fractures of Voillemieu on the other and vice versa.

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Group IV. Fractures in the acetabulum: a) roof fracture; b) bottom; c) central dislocation.

Group V. Fractures of pelvic bones with damage (contusion, complete and incomplete rupture) of pelvic organs (bladder, urethra, rectum, internal genital organs).

Clinic and diagnosis of the pelvis and pelvic organs damage

Complaints of injury with a characteristic mechanism and pain in the area of injury, which often cause the victim to lose the ability to move independently. Sometimes, especially with fractures of the sciatic hump and front axils of the iliac bone, patients take a forced position: lying on their back with legs bent in the knee and hip joints, the knee joints are divorced, in this condition ("frog position") balances out the tone of antagonist muscles attached to the pelvic bones, and decreases the pain syndrome.

If the patient retains the ability to move, then when the upper frontal aisle of the iliac bone is torn off, a strange gait may be detected and the patient feels more comfortable walking backwards. It's a symptom of L.I. Lozinski or "backwards". This way of walking relieves muscle tone that strains a wide thigh fascia and reduces pain.

During an external examination, you can see signs of a direct injury mechanism (abrasions, swelling, bruising) and very often a deformation of the pelvis. True deformation should be distinguished between true deformation due to bone deformation and false deformation when the deformation depends on an increase in pelvic soft tissue due to edema, extensive hematoma, etc.

Clinically true deformation can be determined by measuring the distance from the sword-shaped sprout or from the navel to the upper anterior iliac axis on the right and left, the distances should be the same. In addition, the distance from the pubic symphysis to these same axes is measured, and it too must be equal. They check the line of the Roser-Nelaton on both sides. This line connects the upper front iliac to the large spiral and the sciatic bump and should be straight. The deformation of the pelvic bones is finally determined by X-ray or CT.

Palpation reveals sharp painfulness at the fracture site, and in accessible places (iliac crest wing, sciatic tuber, bone bones) it is possible to determine the fixation of fragments, especially with shrapnel fractures. Painful palpation of the sacrum and coccyx can be obtained both in external examination and mandatory examination through the rectum for these injuries. The internal finger examination should be done as gently as possible in order not to disturb the soft tissue integrity.

Victims with group II and III fractures (without displacement of fragments) are almost always unable to move due to pain syndrome. When trying to change their position in bed or on a gurney, they always gentle the lower limb on the side of the pelvic injury, picking it up with the foot of a healthy leg. This compensatory device is called a symptom of A.V. Gabay.


Another symptom is the "sticky heel", which is a constant companion to an upper bone fracture. When trying to lift a leg that has been bent in the knee joint, the iliac-lumbar muscle is strained and pressed against the damaged bone, causing pain. The injured person, bending the leg in the knee and hip joints, drags the heel across the bed.

Fractures of the bones that make up the pelvic ring are a positive sign of axial loading. It is concluded in compression of the pelvis in the frontal and saggittal planes - there is pain in the area of the fracture, not in the pressure point.

There are two ways to check the frontal axial load symptom: the pain at the fracture site occurs when the wings of the iliac bones are compressed (Verneuil's symptom) or when they are diluted (Larry's symptom).

Load in the saggital plane is checked by pressing the pelvis between the hands of the examiner, pressing on the pubic symphysis and the sacrum, or pressure on the longitudinal articulation, pressing the patient's pelvis to a rigid base (shield, couch).

The clinical picture of group III fractures, which constitute half of all pelvic integrity disorders, is based on traumatic shock, complicated by retroperitoneal bleeding from damaged bones and vessels. Blood loss may reach 1-2 liters or more, which in itself is a threat to the life of the patient.

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Clinical symptoms characteristic of pelvic fractures are more pronounced due to the displacement of fragments. Visible deformation of the pelvis with the limb upward can be detected. Defect between long bones at the rupture of pubic symphysis and other obvious signs can be easily detected. It should be noted that in this category of patients should not zealously search for all clinical symptoms of pelvic injury. It is never too late to do so after the blood loss has been replenished and the victim has been escaped from shock. All the more so because during an acute period of trauma another essential issue arises - damage to internal organs accompanied by internal bleeding must be excluded. And this is extremely difficult to solve.

Fracture of the pelvic bones runs with the pain syndrome and tension of the muscles attached to it, including abdominal muscles. Blood poured into the retroperitoneal space irritates the dorsal surface of the peritoneum, causing the phenomena of peritonism (false peritonitis). The patient's severe condition, low blood pressure figures may force the surgeon to resort to laparotomy. According to the literature, the number of "vain" laparatomii performed at pelvic fractures reaches 30%.

Distinctive signs of retroperitoneal from internal bleeding are stable blood pressure, lack of free fluid in the abdominal cavity according to auscultation, percussion, rectal examination and puncture, a positive symptom of Joyce. The latter consists in a shortening of percussion sound in the abdominal cavity with unchanged boundaries when the body position changes, which indicates an intra-abdominal blood imbibulation.

Group IV - fractures of the acetabulum arise as a result of an indirect injury mechanism: a fall from height on the legs, impact in the area of a large spit when falling or some object of significant mass. These fractures, as well as injuries in group III, can be accompanied by shock and bleeding into the retroperitoneal tissue.

Clinical signs, typical for the acetabulum fracture, are pain in the hip joint, limitation of movement in it due to pain, and in case of central dislocation due to a mechanical obstacle. In this case, you can also detect a shortening of the limb, a large spit is located above the line of Roser-Nelaton and as if in the depth of tissues in comparison with a healthy leg.

Group V. The clinic of pelvic fractures is illuminated in the description of lesions of I-IV groups. The diagnosis is confirmed by X-ray examination. Distinctive for Group V is that against the background of signs of pelvic fractures there are symptoms that indicate a disturbance of pelvic integrity. The bladder, urethra, rectum and much less frequently the internal genital organs suffer most frequently. To avoid repetition, pelvic damage will be discussed later and less attention will be paid to the fractures.

Urinary bladder damage. Urinary bladder damage is quite common and accounts for 4 to 12% of all internal injuries. With pelvic fractures, they occur in the range of 3-10%.

The mechanism of bladder damage is mainly indirect and has several varieties: the first is the perforation of the bladder wall by sharp bone fragment; the second is the rupture, or rather the rupture of a part of its wall in the place of ligament or muscle attachment in case of their tension, for example, due to the sharp deviation of an overflowed bladder; the third is the rupture of a filled bladder as a result of a sharp increase in hydrostatic pressure in case of injury.


A distinction is made between *non-penetrating* and *penetrating* bladder ruptures.

Non-penetrating tears are divided into external ones when the mucous membrane remains intact, and internal ones when, on the contrary, the mucous membrane suffers, while other membranes keep it tight.

Peritoneal penetrators are divided into extraperitoneal and intraperitoneal, depending on the integrity of the peritoneal cover.

Peritoneal ruptures are more common with pelvic fractures. Damage to the anterior, lateral and posterior walls and even complete bladder tears may occur.

The clinic and the diagnosis of extraperitoneal tears in the bladder present known difficulties as it is obscured by pelvic fractures. Injury in the anamnesis with a mechanism that predicts damage (most commonly) to the anterior pelvic semicircle. Complaints of lower abdominal pain irradiating the

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crotch, sacrum, rectum and frequent urination calls. Often the urges remain barren or little urine is excreted (20-30 ml), sometimes more, but a weak jet. Urine is usually stained with blood. Palpation and percussion of the bladder are complicated by associated pelvic fractures. In later hours after the injury, a burning sensation above the bosom, in the pelvis and in the crotch joins the pain. Examination of the patient in these areas reveals extensive bruising from the pelvis to the thighs, which rise above the surface of the skin. On palpation, these areas have a dough consistency, pressure leaves a deep, long-lasting mark. When the bruises are not so extensive, the swelling areas have a whitish color - this is the result of urinary infiltration, the so-called urinary congestion. The latter spread through natural holes in the fascia, along the flow of blood vessels and nerves.

Urinary infiltration causes inflammatory and necrotic changes in tissues, and the addition of infection leads to the formation of urinary phlegmone with a transition to sepsis, urosepsis. Clinically, in the initial stages it is manifested by an increase in body temperature, signs of intoxication, followed by a picture of severe sepsis. At palpation of the area of urinary congestion sometimes reveals pelvic fixation, formed by the decomposition of subcutaneous fat tissue.

Intraperitoneal tears. Can be combined with pelvic fractures, but are often isolated. Anamnesis includes an injury that causes the most severe pain and even short-term shock at the time of application. By the time you see a doctor, the patient complains of moderate pain in the lower abdomen, delay in urination. Attempts to urinate on their own do not lead to success. Palpator and percutaneous bladder can not be determined.


After many hours (10-12 or more), dysuric disorders remain the same, but abdominal symptoms can be detected. The Shchetkin-Bloomberg symptom is usually dubious and the intestinal peristalsis is sluggish. In the abdominal cavity, percussion can detect the presence of free fluid, the boundaries of which are shifted when the patient's body changes. Finger examination of the rectum determines the overhang of the rectum-bubble dent of the abdomen. It is suspected that free fluid of the abdominal cavity is urine flowing through the intraperitoneal tear.

Additional research methods are used to confirm the diagnosis. The most common of these is bladder catheterisation. Manipulation is simple but not reliable, and according to old authors, it can lead to infection in the wound of the bladder or in the abdomen. Therefore, the catheterization should be carried out in conditions where, after confirmation of the diagnosis of the bladder, the patient can be taken to the operating table in a matter of minutes.

The result of the bladder catheterization at an extraperitoneal rupture is a small amount of urine, stained with blood to varying degrees. Manipulation does not make the diagnosis reliable. Catheterization of the bladder at intraperitoneal ruptures is often more informative, because the beak of the catheter penetrates through the wound into the abdominal cavity and as a result get a lot of fluid, much larger than the capacity of the bladder. In addition to the fact that the volume of excudated fluid is calculated in liters (1-6 liters), it is also a mixture of exudate urine with large amounts of protein, up to 1-2%. This characteristic for intraperitoneal rupture of the bladder is called a symptom of Y.B. Zeldovich.

The most reliable, simple and safe diagnostic technique in recognition of penetrating bladder ruptures is retrograde cystography. Normal bladder catheterization is performed in compliance with all the rules of aseptics and antiseptics and after emptying it is injected at least 150-200 ml 10-20% sergozine solution. It can be replaced by the same amount of 30% solution of triombrast (urostrast) or other substance used to contrast blood vessels. The main thing is that the volume of injected solution is not less, otherwise there will be no complete correction of the bladder and small breaks will remain unrecognized.

After filling the bladder, the catheter is squeezed and X-rays are made, then the bladder is emptied and the X-ray is taken again. The second picture is taken to avoid viewing the accumulation of contrast solution at the front or back of the bladder.

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Other methods of bladder examination (cystoscopy, intravenous urography) are ineffective, because there is not enough filling in the expansion of the bladder, and the introduction of air into its cavity can introduce infection and even injury to the bladder.

Damage of the urethra. Urethral ruptures in 51% of cases are combined with fractures of pelvic bones. The mechanism of injury is varied in impact and complexity. It is injury of the urinary tract by sharp bone fragments, it is compression between the fragments or between the pelvic bones and a wounding object, overstrain, etc. The most commonly affected part of the urethra is the membrane.

The clinic of complete ruptures of the urinary tract is relatively uncomplicated and is characterized by the presence of trauma in the history, which makes it possible to assume pelvic damage in the area of the anterior semi ring. More often it is a blow to the crotch, the region of the frontal or sciatic bones.

Victims complain of crotch pain, urinary retention and carving when attempting to urinate.

An external examination reveals a large hematoma in the root area of the penis, scrotum and crotch. At a later stage, when urinary congestion occurs, there is a whitish swelling of the dough consistency, painful. Later, urinary infiltration occurs as in the extraperitoneal rupture of the bladder, goes into the urinary phlegmon, sepsis. Sometimes a gas infection joins in.

A drop of coagulated blood is found in the outer opening of the urethra. If the anterior portion of the urethra is damaged, blood can be found to be released from the urinary tract, but more often the doctor sees dried blood around the outer opening of the urethra, on the patient's underwear, which may lead to the idea of urethrogy. Urination is not possible because of the rubber that starts when he tries. Palpator and percutaneous determine an overgrown bladder. Thus, the triad of delayed urination, urethrorrhagia and perineal hematoma are the characteristic signs of urethral damage.

Of the additional methods of investigation, the most "simple" is urethral catheterization. It aims to establish the permeability of the urethra, to detect blood in the urine, emptying the bladder. The catheterization does not give an answer to any of the questions asked, because in case of partial (incomplete) ruptures of the urinary tract, the instrument can pass into the bladder and emptying of the bladder will occur. Urine can be obtained from the urinary tract. An admixture of blood in the urine is also not a reliable symptom, as it may be from a kidney, bladder or urethra that has been damaged during catheterization.

Catheterisation of the urethra to diagnose its rupture is therefore pointless and unsafe. It inflicts additional trauma, promotes infection and if it does succeed, the diagnosis is not specified.


In order to clarify the diagnosis of a ruptured urinary tract, it is best to perform a urethrography. To do this, place the patient on his side at an angle of 30 ° to the plane of the table. In case of fractures of the pelvic bones, urethrography is performed in the position of the patient on the back with one leg bent and removed or in the position given to the patient in accordance with the localization of pelvic fractures.

On the side deviated from the table, the leg is stretched out, on the side adjacent to the table - bent in the hip and knee joints, until it touches the plane of the table, set aside outside. The penis is placed parallel to the thigh of the bent leg, lightly stretched until the course of the urethra is leveled, in its mouth is injected a syringe tip and the urinary tract is filled with 10% solution of sergozine or other contrasting substances and then an X-ray is taken. The X-ray shows the intricacies of the contrast agent outside the urethra and the absence of bladder contours.

Damage of the rectum. Pelvic injury combined with rectal damage is usually accompanied by shock.

A distinction is made between intraperitoneal and extraperitoneal rectal injuries.

The history shows that, at the time of the injury, there was severe pain in the lower abdomen and anus, accompanied by short-term loss of consciousness, followed by nausea and vomiting. In intraperitoneal ruptures, blood may have been released and internal organs (bowel loops, uterus, etc.) may have fallen out of the gaping anal opening.

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If there is no prolaboration of internal organs, the subsequent clinical picture is typical for progressive peritonitis: abdominal pain, more in the lower parts, stool and gas retention, peristaltic disorder of the intestine. In 10-12 hours after the injury the patient's condition progressively worsens: facial features are sharpened. Tongue is dry. The anterior abdominal wall is not involved in the act of breathing, tense. Palpation is painful, signs of peritoneal irritation are determined. Peristalsis of the intestine is absent. Pulse is weak, frequent, 140 beats per minute or more. Body temperature 39-40°C. Percutaneous can detect disappearance of hepatic dullness, which indicates free gas in abdominal cavity.

Finger examination of the rectum reveals the presence of blood, and sometimes a loop of intestine. The abdominal X-ray shows the gas under the dome of a sickle-shaped diaphragm.

Diagnosis of extraperitoneal rectal ruptures is a bit more complicated because of the scarcity of clinical manifestations. The main sign of trauma is an anal haemorrhage or blood on the finger during rectal examination. Bearing in mind that combined pelvic injuries are accompanied by shock, the symptoms of which in the first 4-6 hours obscure other clinical manifestations, it is necessary to emphasize the necessity of rectal examination in this category of victims.

Treatment of pelvic and pelvic injuries

Assistance in the pre-hospital stage consists in stopping the bleeding by one of the methods (tamponade, clamp) and applying aseptic bandages. At the same time, analgesic drugs are administered to the patient, if there are no contraindications, then drugs are better. The patient is placed on a flat rigid surface (shield, boards, stretcher) in the Volkovic position: a slight bending in the knee and hip joints with the breeding of lower limbs.

If the situation and conditions allow (the victim is in a medical station or ambulance) make a blockade on Shkolnikov-Selivanov, and in case of bladder overflow empty it by catheterization or capillary puncture. Immediately transport the victim to a hospital.

Blockage technique for Shkolnikov-Selivanov consists in the following: preliminary determine the individual tolerance of novocaine to the patient. Then the victim is placed on the back and determine the point of needle injection: 1.5 cm from the upper anterior iliac axis. The skin is treated with iodine infusion. At the injection point through a thin needle injected 0.25% solution of novocaine, creating a "lemon crust". A puncture with a long needle (12-14 cm), sliding along the inner edge of the wing of the iliac bone, reaches the bottom of the iliac fossa, causing the needle to move a portion of novocaine. 400-500 ml of 0.25% solution of novocaine is injected. The needle is removed, the skin is treated with an infusion of iodine and make an aseptic sticker. At bilateral blockage injected 250-300 ml 0.25% solution of novocaine on each side.


When performing novocaine blocks should be sure to control the location of the needle by pulling the piston on itself and assess the incoming content.

Capillary puncture of the bladder is made along the white line of the abdomen at 2-3 cm above the bosom symphysis. Hair in this place is shaved off, the skin is treated with iodine infusion. Puncture place is anesthetized 3-5 ml 0.25% solution of novocaine, the skin is treated with iodine infusion. Thick long needle with a rubber tube put on her cannula, pierce the front abdominal wall and bladder. The needle should be directed strictly perpendicular. The end of the tube is to be lowered into the urine collection vessel. After emptying the bladder, the needle is removed. Puncture place is treated with iodine solution and glued with aseptic material.

Treatment of lesions of the pelvis and pelvic organs at the hospital stage can be conservative and surgical.

Conservative methods treat patients with all kinds of fractures of pelvic bones, ruptures of the bosom and sacroiliac joint, with impenetrable ruptures of the bladder and urethra.

Surgical methods of treatment are used when it is impossible to compare fragments of pelvic bones in a conservative way, in case of elderly ruptures of symphysis and sacroiliac joint, in case of penetrating ruptures of bladder, urethra and rectum.

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Treatment of pelvic bone fractures of groups I, II and III without displacement of fragments. These three groups are brought together as they are all subject to the same type of conservative treatment and the only difference is the length of bed rest.

The fractures of group I can be either with or without fracture displacement, group II - as a rule, there are no or very little shifts, which does not play a practical role. Fractures of group III without displacement of fragments. These are mainly fractures of the front half ring, less often of the rear half ring. Fractures without displacement of the anterior and posterior hemispherical rings are excluded simultaneously as damage in which the fragments will inevitably shift unless special treatment is applied.

Patients of groups I, II and III are subject to a blockade on Shkolnikov-Selivanov if it is not made at the previous stage. The patient is placed on the shield in the position according to N.M. Volkovich (position of "frog") - the legs are bent in the hip and knee joints, with the ankle joints are closer and the knee is divorced. In order to maintain the specified position of the limbs, a roller from a rolled up small mattress is placed in the knee areas. The height of the roller should be such that the patient's heels reach the surface of the bed, but not resting on it.

Then prescribe analgesic drugs, first drugs, and from day 4-5 non drugs. From the third day, begin LFK classes for intact body parts, prescribe UHF to the fracture area. Therapeutic gymnastics complex is gradually expanded, increasing the load and time of classes, including at the end of it and exercises for the pelvic belt. UHF is replaced by Novocaine electrophoresis, and from day 18-21, calcium and phosphorus electrophoresis is applied to the fractured area.


The term of bed regime for fractures of group I is 4 weeks, group II - 6 weeks, and for fractures of group III without displacement of fragments - 8 weeks.

Treatment of fractures of sacrum and coccyx. Fractures of the sacrum below the iliac joint and coccyx are mainly treated in a conservative manner. At intake, the patients are blocked by the fracture site 10-20 ml 1% solution of novocaine, which is injected through a puncture of the back or pre-sacral. In the latter case, the patient is placed on the side with the knees reduced to the abdomen. The needle is injected between the coccyx and anal opening and is promoted parallel to the sacrum, constantly injecting portions of newocaine. In order to avoid trauma to the rectum, the needle is injected with a finger and, under palpation control, the needle is moved between the rectum and the sacrum, keeping close to the sacrum.

Place the patient on a shield. Place a rubber circle under the pelvis so that the fracture area is not stressed, and as if hangs over the bed. The same can be done by placing cotton and brass rolls above and below the fracture area. Assign painkillers, UHF to the fracture area from day 3. Bed rest when the sacrum fracture in the area not included in the pelvic ring, 3-4 weeks, when the coccyx fracture - 2-3 weeks. Patients are allowed to sit in 4-8 weeks after the injury. Work capacity is restored in case of coccyx fractures after 3-4 weeks, sacrum - after 8-10 weeks.

Treatment of group III fractures. Particularly dangerous are group III fractures, when there is damage to the anterior and posterior pelvic semi-circle at the same time. These are one-sided vertical fractures of the Malgema type, when both branches of the frontal bone break on the same side and the iliac crest is damaged on the same side. If a patient with such a fracture has no displacement of the fragments, it should not be seduced anyway, it will come after a few days - half of the pelvis together with the lower limb will move upwards.

To hold and compare the fragments, the skeletal extension behind the femoral epicondyle and the heel bone on the defeat side should be applied, weight 9 and 3 kg respectively. To avoid distortion of the pelvis, on the healthy side of the cuff pull is applied to the lower leg, the weight of the load is 1-2 kg. The lower limbs are slightly stretched out and placed on the functional rails. Comparison of fragments comes on 8-12 days. After repositioning, confirmed by X-ray, the size of the cargo is reduced by 1/3. After 6-8 weeks, remove the skeletal extension and cuff from a healthy limb, leaving only the skeletal extension on the side of the lesion for another 4 weeks (the total duration of extension should be at least 10-12 weeks). After that, patients are allowed to walk with crutches for 1-3 weeks,

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gradually loading the leg on the side of the fracture, and then switched to normal mode. An exception is the prohibition to sit for up to 12-18 weeks after the injury. Work capacity is restored after 14-20 weeks.

Treatment of pubic symphysis rupture. Ruptures of pubic symphysis with a cleavage of the frontal bones are almost never isolated, but combined with damage to the anterior ligaments of the sacroiliac joint. However, since the posterior ligaments retain the integrity of the sacroiliac joint, such trauma is considered isolated.

The patient is placed in a cloth hammock covering the pelvic area. The hammock is hung on Balkan frames, following the following rules: a) the width between the parallel bars of the frame should be less than the width of the patient's pelvis, about 1/2, 1/3; b) the distance between the patient's pelvis and bed mattress - at least 7-10 cm.

If it is necessary to increase the force of compression of the pelvis in a hammock, its straps do not fix, and throw through the opposite bars Balkan frames and hang loads weighing 3-5 kg to them. The period of immobilization in the hammock is 6-8 weeks. During this time the patient receives physiotherapeutic treatment (UHF, calcium electrophoresis, phosphorus, ultrasound) on the area of pubic symphysis and LFK for pelvic belt muscles and general tonic type. After lifting, patients should wear a soft bandage for 1-2 months. Work capacity is restored after 2.5-3 months from the injury.

If conservative treatment is unsuccessful, surgical methods are used. Surgical treatment consists of osteosynthesis of pubic bones with metal plates, wire, etc. Synthetic materials (kapron, lavsan, dacron) are also used to bond the pubic bones.

Treatment of pelvic bone fractures of group IV. In case of fractures of the bottom and edges of the acetabulum without displacement of fragments the aim of treatment is to unload the hip joint and restore its function as early as possible.

The patient is placed on a rigid bed with the leg end of the bed raised. Front or outside the hip joint is punctured and 20 ml 1% solution of novocaine is injected into it. Limb on the side of the lesion is placed on the functional splint and set the cuff or glue pull behind the hip and shin on the axis of the limb with a weight of 2-3 kg. In addition, mount the side traction for the hip with a cotton-marl loop, load of 1-2 kg. The traction lasts 2-2,5 months. Appoint painkillers, physiotherapy and LFK general tonic type. After 2-3 weeks, without removing the traction, begin to move in the hip joint. Subsequently, the cargo for the duration of gymnastics is removed. Early LFC prevents the growth of excess bone callus and helps to normalize the architectonics of generating tissues.

In the future, the patient is allowed to walk on crutches without reliance on the limb on the side of the lesion for 4 months. Continue therapeutic gymnastics, physiotherapy, balneotherapy. Ability to work is restored in 6-7 months.

At the central hip dislocation, when the femur's head breaks the bottom of the acetabulum and enters the cavity of the small pelvis, treatment begins with anti-shock measures and intensive therapy.

If the patient's condition allows, under general anesthesia, an attempt is made to adjust the hip manually in a closed manner using a corkscrew or spokes with thrust pads inserted into a large spit. In case of failure, skeletal traction is used. One knitting needle is carried out through the hip armpits, the extension is adjusted along the axis of the limb, complementing it with cuffs at the lower leg. Cargo 8-10 kg, 7-8 of which fall on the hip, the rest on the shin. In addition, it is pulled along the axis of the femur neck behind a large spit, through which the needle is carried out in the front-back direction and fixed in a bracket. Sometimes, with a large volume of soft tissue of the femur (especially since with a central dislocation of the femur goes deep into the tissue), skeletal traction with a needle for a large spit it is impossible to apply - there is not enough length of the needle and the size of the bracket. In such cases, use a special corkscrew wrapped in a large spit, and with subluxations can be used flannel or cotton-grass loop, superimposed in the upper third of the thigh on the axis of the neck. The weight for lateral pull at skeleton pulling should be 7-12 kg. In 2-3 days, the hip head is corrected, which is confirmed by X-ray, after which the loads are gradually reduced and leave the traction on the limb axis

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with the load of 5-7 kg, per spit - 3-4 kg. Skeletal traction in 6 weeks is replaced by cuff for another 4 weeks.

During the whole period of traction physiotherapeutic procedures and therapeutic gymnastics for the damaged joint are applied, starting from 18-21 days from the moment of restoration of congruence of articulating surfaces. Early joint movements are mandatory! They prevent excessive growth of bone calluses, form an acetabulum by "rubbing" it on the head of the femur bone.

After removal of the traction, the patient is allowed to walk on crutches, without loading the limb on the side of the lesion for 6 months. Work capacity is restored after 6-7 months.

Surgical treatment of pelvic bone fractures is used quite rarely. Indication for it is a prognosis of failure of conservative treatment or its failure.

In the first case, the most common indications for surgical treatment are the so-called - otryvnye fractures, when the overextension of the muscle is detached apophysis at the site of its attachment. For example, tear-off of the sharp iliac bone, sciatic hump, etc. There is a significant diastasis between the fragments and the prospect of closed comparisons of fragments becomes problematic.

The failure of conservative treatment is an indication for surgical restoration of the lost normal pelvic skeleton relations. Unsatisfactory results of conservative treatment mostly arise not because of the low qualification of doctors, but because of the severity of the patient's condition, which forces to conduct therapy aimed at saving the life of the victim. Restoration of pelvic shape and function is delayed.

When the apophysis is detached and the edges of the acetabulum are fractured (the posterior edge breaks most often), osteosynthesis is performed with 2-3 screws or small plates.

When the pubic symphysis and sacroiliac joint are broken, the intervention always starts with the front half ring. Osteosynthesis of pubic bones is performed using one of the methods, and then it is transferred to the posterior region. The osteotomies slightly disrupt the surface of the iliac sacrum and firmly connect the iliac bones to each other. In our opinion, the best way to fix it is to tie the bones together with a metal screw.

The timing of bed rest is the same as for conservative methods of treatment. In case of elderly injuries, the terms of bed regime and restoration of working capacity are increased by 4-6 weeks. During the whole stay of the patient in the hospital, physio-functional treatment is obligatory.

Treatment of group V pelvic lesions. The treatment of bladder damage depends on where the bladder is torn and the depth of the wall wound.

In case of non-intrusive (incomplete) bladder ruptures, patients are treated conservatively. Appoint antibacterial therapy (antibiotics, urotropin, furadonin), a solution of 10% calcium chloride intravenously in 10 ml. When delaying urine - careful (not to increase the depth of the wound) catheterization of the bladder with subsequent washing with antiseptic solutions (fuccilin, rivanol). Catheterization is performed 2-3 times a day until the restoration of arbitrary urination. If independent urination after injury persists, there is no need for catheterization.

Treatment of penetrating bladder damage is only surgical.


Treatment of urethral injuries. Non-permeating urethral lacerations are well treated by a conservative approach. It consists of bed rest, heavy drinking, cold application to the perineum, prescription of antibiotics, sulfonamides, mainly nitrofurantoin, hemostatic agents (vicasol, calcium chloride).

With a delay in urination resort to repeated catheterizations or 5-7 days to introduce a permanent catheter. It will be useful to remind that the catheterization should be performed very sparingly and with strict adherence to asepsis and antiseptics.

If there are signs of urethral contraction, you can start buzzing 2-4 weeks after the injury.

Penetrating ruptures in the urethra are only treated promptly.

Treatment of rectal injuries. Patients with rectal injuries are treated operatively. In case of intraperitoneal wounds laparotomy is performed, rectal wall defect is found and sutured with a double-

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row suture. Peritoneal cavity sutures tightly. Extensive damage to the rectum, uncertainty about the tightness of the suture, belated intervention force the surgeon to leave in the abdominal cavity blocking tampons and drains and must be applied to the sigmoid colon unloading colostomy or unnatural passage.

At extraperitoneal ruptures of the rectum one of the selected accesses widely open the pararectal space. The wound of the intestine wall is found and, if possible, sutured. Pararectal space is necessarily drained to avoid the development of fecal phlegmons and fistulas. An unloading colostoma or an unnatural back passage must also be applied to the sigmoid intestine.

4. Illustrative material:

5. Literature:

6. Control questions:

1. Classification of pelvic lesions;
2. Injury mechanism causing pelvic fractures;
3. Reliable and likely symptoms of pelvic injuries;
4. Peculiarities of shock flow at pelvic fractures;
5. Medical emergency interventions for pelvic fractures;
6. Volume of anti-shock measures for pelvic fractures at the stages of medical care;
7. Principles of differential diagnostics of cavity bleeding and retroperitoneal hematoma;
8. Signs of damage of bladder and genitourinary system;
9. Peculiarities of damage to pelvic joints in case of pathology of childbirth;
10. Main methods of treatment of typical fractures of pelvic bones;
11. Peculiarities of pelvic injury treatment by skeletal traction;
12. Probable orthopedic complications after pelvic fractures and methods of their prevention;
13. Terms of pelvic bone fractures fusion, restoration of working capacity;
14. Principles of treatment of patients in outpatient conditions.

Class #6

1. Theme: Polytrauma. Multiple and combined injuries. Issues of diagnosis and surgical tactics.

2. Objective: To familiarize students with the modern definition of polytrauma, diagnosis and stage treatment of victims. To create motivation, and pay attention to the importance of the topic under study. 2. Identify the socio-economic significance and losses due to polytrauma. Highlight the importance of the topic of study and the need for clear organization of assistance. 3. Know to navigate in an extreme situation. 4. Be able to provide first aid, determine the tactics to be followed up, prioritize the injury and the need to call specialists and get them to a specialized facility. 5. Determine the dominant pathology, outline the plan of treatment measures, their priority, the need for surgical interventions, and their priority. 6. Determine the sequence of all therapeutic and rehabilitative measures. To be able to provide qualified medical care.


3. Thesis of the lecture:

POLYTRAUMA - a collective concept that includes the following types of mechanical injuries: multiple, combined, combined.

II. MOTIVATION

Recent decades have been characterized by a continuous increase in the frequency and severity of multiple injuries, which nowadays occur up to 20% of all injuries:

- 80% of victims are admitted to treatment facilities in a state of shock of varying degrees, of which 25% of injuries are accompanied by massive blood loss, and 8% have deep central nervous system disorders;

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- about two thirds of victims with severe multiple and concomitant injuries are admitted to the hospital stage in an extremely severe condition and almost one third in a terminal condition. This is particularly true for the group of casualties delivered by random transport (10-8%);

- Diagnostic difficulties, especially if skull and brain injuries with blackout or loss of consciousness have been reported;

- difficulties in determining the dominant (main factor) of the injury;

- Difficulty in determining therapeutic tactics, especially at the scene of an accident, in the conditions of a medical outpatient clinic or a district hospital;

- Significant lethality;

- High percentage of disability.

The increased severity of injuries during agricultural work and, especially, road traffic accidents, the increase in the number of injuries in rural areas and the resulting socio-economic problems associated with the preservation of the working capacity and sometimes life of people employed in the production sector pose two main challenges for medical workers:

1. Effective, based on careful consideration and analysis of the circumstances and causes of injury, and injury prevention.

2. The accurate organization of the help to victims from the moment of accident up to a hospital stage.

Anti-alcoholic propaganda should be given considerable attention in the prevention of road traffic injuries, as alcohol intoxication of drivers is increasingly causing a significant number of injuries, and usually very serious. For example, 60% of victims are shocked, and lethality ranges from 15 to 40%.

III. DAMAGE CLASSIFICATION

1. MONOTRAVMA - isolated damage within one anatomical functional element (bones, joints of one cavity, etc.).

2. POLIFOCAI APPLICATIONS - damage to one bone in several places.

3. CONTRAINDING GRAVE - damage to the musculoskeletal system, accompanied by damage to the main vessels and nerve shafts.

4. POLITRAVMA - a collective term that includes the following types of mechanical damage; multiple, combined, combined.

5. POLITRAVMA - damage to two or more anatomical-functional formations (segments) of the musculoskeletal system (thigh, shin, liver, intestines).

6. TOTAL INVESTMENTS - simultaneous damage to the musculoskeletal system and internal organs, damage to internal organs in two or more places.

7. COMBINISHED WARNING - Injury caused by various traumatic factors.

IV. DIAGNOSTIC PROBLEMS

1. The principle of mutual encumbrance

2. Disguise of symptoms

3. Layering and perverting signs

4. Dominance of the dominant damage

5. Showing signs early and late.

The organizational basis for the provision of assistance is the examination system:

The organizational basis of the assistance is the examination system:

1. Control of respiration, pulse, blood pressure.

2. Collection of blood to determine the group.

3. Venous catheterization.

4. Inhalation of oxygen.

THE FIRST 30 MINUTES:

1. Anesthesia

2. Transfusion of blood substitutes

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3. Hemotransfusion

4. Respiratory and cardiac analeptics

NEXT 30 - 60 MINUTES

1. Venous pressure measurement (VPC).

2. Bladder catheterization.

3. Clinical and radiological examination.

4. Gentle immobilization, elimination of gross displacements.

AFTER 1 HOUR

1. Treatment of injuries.

2. Repeated and thorough inspection in a defined sequence:

a) Breathing, pulse;

b) head - pupils;

c) chest, abdomen - centez, puncture;

d) spine, pelvis, extremities.

V. TREATMENT TAXICA - depends on the period of polytrauma:

1. Period of general phenomena (acute): 1.

2. Period of local phenomena

3. The period of consequences

The organizational basis of the assistance is STABILITY:

1. At the scene of the accident.

2. Period of transportation

3. The hospital period is special:

- the problem of transport immobilization in polytrauma;

- priority in specialists' service:

a) Surgeon;

b) neurosurgeon;

c) traumatologist;

- The phenomenon of "Conflict" - incompatibility of means and methods of treatment;

- prevalence of combined methods of treatment.

TREATMENT PERIODS

1. Resuscitation

2. Therapeutic.

3. Rehabilitation .

TRAUMA CARE

PRENATAL

The organizational basis for the provision of modern care to traumatological patients is the stage of treatment.

medical stages of providing assistance to traumatological and orthopedic patients

First aid is at the scene.

Pre-medical care - **provided by nurses at medical stations on the FAP.**

First aid - **is provided at the district hospital, usually by doctors of non-surgical specialties.**

Skilled care - **is provided by surgeons in some district and regional hospitals, as well as in general surgery departments of other hospitals.**

Specialized care - **is provided by trauma surgeons, orthopedists in specialized departments (interdistrict trauma departments, city departments).**

Highly specialized orthopedic care - **provided by individual highly qualified doctors.**

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Organization of pre-hospital care at the scene of the accident and the FAP entirely depends on the training of members of sanitary posts, all mechanics, drivers, traffic police officers (training in practical skills) of first aid to victims.

MAIN COMPONENTS OF THERAPEUTIC ACTIONS TO HELP THE INJURED

1. Be able to help patients who are in a critical or disastrous state.
2. Be able to determine indications for evacuation of traumatic patients who need treatment at other stages.

A doctor at an outpatient clinic often has to provide care at the scene of an accident and mainly directly at the outpatient clinic, a district hospital.

Due to the fact that today's injuries are becoming multiple, increasingly accompanied by massive blood loss, acute circulatory, respiratory and metabolic disorders. The success of the struggle for life is decided by the minutes. The district doctor should always be ready, in anticipation of the departure to provide assistance at the scene, have the necessary set of tools to help the injured.

A SET OF TIRES TO HELP ON SITE GARMENTS

In order to provide on-site assistance, 2 sets of stairs consisting of 3 large and 3 smaller (length) tyres are required. The tyres must be wrapped with cotton wool and gauze. For ease of transportation, the tyres must be placed in a riveted bag. One set of tyres must be kept in the sanitation machine at all times! It is desirable that the sanitation machine also has a Dieterichs tyre, also in a riveted bag.

If your hip is fractured, the best way to immobilise yourself is with a Dieterichs tire and applying it with good skill saves time and is less traumatic for the victim. In addition, the emergency physician's bag should contain a pink system for infusion and 1-2 vials of polyglucinum.

The doctor who arrived at the scene of the accident should keep cool, sober mind based on solid knowledge, act quickly, skillfully and decisively.

LIST OF ACTIONS OF THE DOCTOR AT THE PLACE OF THE ACCIDENT

1. The doctor providing care must first make sure that the victim is alive or dead:

As long as there is no complete certainty of the victim's death, the doctor must provide full assistance:

1. To stop further exposure to traumatic factors;
2. Finger examination of the oral cavity for foreign masses and bodies, food, removable prosthesis should be removed;
3. To apply mouth-to-mouth (mouth-to-noses) breathing;
4. To perform an indirect heart massage.


2. In cases where there is no doubt that the victim is alive, the severity of the victim must first be determined by external examination alone:

1. Determine the state of shock by examination, palpitation of the pulse.
2. Immediately determine the dominant injury.
3. Determine the external blood loss by examination and the intra-cavity blood loss by assuming the severity of the victim:

A) In case of arterial bleeding from the main vessels, immediately make a finger press of the artery, then this press to the assistant, apply a tourniquet;

B) In case of capillary and venous bleeding, a pressure bandage is sufficient;

C) In case of an open fracture, first apply a pressure bandage, and in case of significant bleeding, apply a tourniquet.

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REMEMBER! The death of the patient from an unstoppable external bleeding in case of damage to the extremities in the prehospital stage is on the doctor's conscience, even if the doctor did not help at the scene. Educate the entire population at your bleeding stop site, not formally, but with compulsory training in practical skills (palpating for pulse, pressing arteries and bundling each other under the control of disappearing pulse!).

4. In case of damage to the chest:

1. In case of open pneumothorax wounds, apply a hermetic bandage.

2. In case of multiple rib fractures, especially in case of multiple double (final) fractures, put a tight bandage with a pilot on the chest.

REMEMBER! The first priority in providing assistance is to stop the bleeding from the main vessels and the application of a sealant bandage with an open pneumothorax! However, the principle of determining the dominant damage must also be taken into account.

After the above measures have been taken, the patient should be given painkillers.

In case of isolated injuries -1% of the p-p-period, in case of an injury accompanied by the development of a shock condition - the p-period with dimedrol.

KNOW! In case of craniocerebral trauma and if there is a suspicion of damage to the internal organs of the abdomen, it is better not to administer drugs.

The next treatment is to apply bandages to the wounds.

Then proceed to immobilize the existing fracture. Pay special attention to careful immobilization at hip fractures, as they always lead to the development of shock.

The indication for the intravenous infusion at the scene of the accident and further on the way is a severe life-threatening condition of the victim at critical BP level.

Determine the direction of evacuation to the treatment facility depending on the nature of the injury, the severity of the victim, and the type of transport (by road or sanitary transport).

1. In case of isolated extremity fractures (except for a hip fracture) or wounds in case of satisfactory condition of the victim it is allowed to transport the victim by concurrent transport. In the case of partially provided first aid, accompanied by a medical worker, the victim may be taken directly to the surgical department of the district hospital.

2. In the event of a hip fracture and other serious injuries, it is necessary to call for sanitary transport (by car, radio or telephone).

3. If it is not possible to transport the victims of this group of patients by sanitary transport, patients are transported by concurrent transport to the nearest district hospital, where they will not be fully treated.

In each case, the issue is resolved individually, depending on the location of the district hospital and the district road condition. For example: if the district hospital is at a longer distance, but it is possible to transport the patient on an asphalt road, it is better to refer the patient to the district hospital.

Depending on the nature of the injury, rules for transporting victims should be envisaged and strictly enforced.


FIRST MEDICAL AID IN THE RURAL MEDICAL OUTPATIENT CLINIC, DISTRICT HOSPITALS.

The possibility of providing first aid to patients with injuries in the outpatient department and especially in the district hospital is significantly increased. At the same time, the requirements for the quality of first aid are also increasing significantly.

In order to provide clear information on the scope of medical care in the district hospital, it is advisable to divide incoming patients with an injury by the severity of their condition into three groups.

Group I - victims who require intensive care due to respiratory distress, blood loss or shock.

Group II - victims of medium severity who are not in shock but require special measures to prevent shock.

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Group III - victims not in need of special treatment measures, which can be immediately evacuated to the district hospital.

In the conditions of the district hospital it is possible to distinguish the fourth group of victims with light injuries which after rendering necessary medical aid can be left under supervision in the hospital of the district hospital.

A thorough examination of the victim can only be carried out in an inpatient department (outpatient department). However, the doctor must remember that before moving the victim to the premises, he or she must be examined immediately in the transport that delivered him or her in order to begin emergency resuscitation and anti-shock measures. For example: the application of a tourniquet in case of massive arterial bleeding, splinting, if the victim is delivered without transport immobilization.

The tasks of examining the victim and providing medical care are carried out in the same sequence as those performed at the scene.

However, there is a significant increase in the scope of care at the outpatient clinic of the district hospital.

Thorough and prompt examination must be combined with therapeutic and, above all, resuscitation activities, which must be carried out in the following order:

1. If the arterial bleeding is not stopped, a tourniquet should be immediately applied. In case of incorrectly placed tourniquet and continued arterial bleeding, the presence of a pulse of blood vessels distally from the place of injury, make a finger pressed vessels and fracture the tourniquet.

2. In case of asphyxiation with acute respiratory failure, perform a finger examination of the oral cavity, remove mucus, vomiting masses, jaw prostheses, enter the airway, in case of respiratory failure immediately begin artificial respiration by the apparatus. Bring oxygen through the nasal catheter.

3. In case of shock II-III degree, determined by the appearance of the patient, pulse and blood pressure, immediately begin intravenous administration of polyglucinum. If the pressure is below the critical (75 mm Hg) polyuglyukin is injected in a jet stream. In case of vein recession and failure, venous insufficiency is performed, then:

4. In case of severe external breathing disorders tracheostomy is performed.

5. In case of open pneumothorax an occlusal bandage is applied.

6. When the valve pneumothorax is closed, accompanied by rapidly growing subcutaneous emphysema, several short IZA of large diameter are inserted into the subcutaneous tissue.

7. At the growing closed valve pneumothorax puncture of the pleural cavity is performed with a thick needle in the II intercostal along the median key line. The needle should be fixed to the skin with a sticky plaster and through an adapter connect it to a rubber tube, at the end of which tie a finger from a rubber glove with a small hole made at the end (Fig. 3). If the puncture is ineffective, active drainage should be performed (Fig. 4).

8. With rapidly growing hemathorax, puncture the pleural cavity in the UP intercostal along the posterior armpit line and suction of blood.


9. In case of urethral rupture and acute urinary retention, perform a supraclavicular bladder puncture (if catheterization is not possible).

10. After elimination of life-threatening violations, when the blood pressure is not lower than 75 mm Hg, Novocaine blockages are made.

PLEASE NOTE: The most urgent treatment measures must be carried out simultaneously.

For example: infusion therapy and oxygen inhalation or the application of an occlusion bandage and intravenous infusion, etc. Therefore, the physician must be well prepared for intravenous infusion, oxygenation and other monitorings.

REMEMBER! Introduction of cardiovascular and respiratory analeptics and analgesics and other medications (novocaine) at low pressure should not be performed! Start with intravenous

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injection of polyglucin and other blood substitutes and conduct medication when the blood pressure is raised to at least 75 mm Hg.

II. At the same time, the issue of the possibility to transport the victim to the surgical department (traumatology) of the district hospital is being solved (it is better to coordinate the tactics of treatment with the district surgeon).

I. In case of I-II partial shock of III degree, rapid improvement of the general condition of the victim, raising of BP up to 100 mm Hg and its stabilization in the process of observation, after the transport immobilization of the victim accompanied by a doctor on the sanitary transport is transported to the district hospital.

2. In case of continuous bleeding into the chest and abdomen, the patient should be immediately referred to the district hospital. If the condition of the victim is extremely serious - call a surgical team on themselves, while preparing an improvised operation.

3. In case of intestinal damage, intra-abdominal bladder rupture and severe condition of the patient, conduct a short anti-shock therapy and immediately refer the victim to the surgical department of the district hospital.

4. In case of severe shock, a surgical team from the district hospital is immediately called in as well as forced anti-shock measures, because more intensive therapy by the surgical team is required.

At the same time, it should be borne in mind that patients in severe shock are not transportable until they are completely discharged from shock and will stay for 2-3 days in a district hospital (medical outpatient department). Prolonged stay of the patient in Kramer or Dieterichs tires is undesirable, as they do not provide complete stabilization of fragments and pressure on bone protrusions. This category of affected transport tires should be replaced with side plaster lobes. In the event of a hip fracture, it is advisable to apply skeletal pull behind the bumpiness of the tibia.

The surgeon of the surgical profile should bear in mind that nowadays, due to the correct provision of assistance at the site of the accident and in subsequent stages, victims are increasingly being brought to the hospital not in torpid but in the erectile phase of traumatic shock, which is characterized by normal or even increased blood pressure. Therefore, if a doctor judges the presence of the severity of traumatic shock only by blood pressure, he falls into a fatal error. In determining shock, not only the blood pressure, but also the heart rate, the severity of the injury, the general appearance of the patient, his or her behaviour, etc. must be taken into account.

REMEMBER! In case of shock, absorption from the tissues is slow and in case of severe shock there is no absorption, so all medicines should be administered only intravenously (antibiotics can be administered intramuscularly). Particular attention is paid to intravenous injection of blood substitutes to increase the mass of circulating fluid in the vascular channel and solutions to compensate for metabolic disorders.

KNOW! The intensity of intravenous infusion and the amount of fluid transferred depends on the severity of the shock! In case of severe shock, approximately 2 litres of blood substitutes should be injected within 20-30 minutes!


REMEMBER! Before injecting the blood substitutes should be heated to body temperature, otherwise the heart may stop cold.

In order to inject a large amount of fluid at once, it is necessary to transfuse in two veins from two systems.

In the treatment of shock of I degree, the total volume of liquids in the first 24 hours is about 1 liter, with shock of II degree -2-3 liters, III degree -5-6 liters or more.

Intravenous infusion should be performed in the following order:

1. For a rapid rise in blood pressure start intravenous jet injection of polyglucin 400 ml.
2. Simultaneously intravenously, through the system, 1% p-r resp. intermediol or morpheus 1-2 ml, 1% p-r dimedrol -2 ml, 10% p-r resp. calcium chloride 10 ml, vitamins B and C, corglucon 0.06% -1.0 ml. strophanthin 0.05% - 0.25 ml, for glucose 20 ml.
3. At the same time, the second vein is also poured with rheopoliglyukin - 400 ml.

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4. In extremely severe condition, if the treatment measures do not lead to blood pressure stabilization, it is necessary to administer intravenously 60-180 mg of prednisolone or dexamethasone 8-12 mg.

5. After polyglucin and rheopoliglucin administration, if hemodynamics is not stabilized, continue intravenous infusion. Gelatinol - 450 ml. is injected into one system and polyferol - 450 ml. into the second system.

6. In the process of anti-shock infusion therapy, single-group blood is withdrawn (rhesis factor ot.) from reserve donors and the effect obtained from blood transfusions is supported by blood transfusions depending on the amount of blood loss.

7. Simultaneously, correction of water-salt metabolism and acid-alkaline balance disorders is performed: lactasol 400 ml, saline solution 400.0, 40% glucose template -100 ml with 10 units of insulin, 10% calcium chloride -10 ml.

8. Against the background of massive infusion therapy to prevent hepatic renal failure: p-r glucose 5%-500.0, mannitol-500 ml. or Lasex -40-120 mg. depending on the diuresis (normal hourly diuresis is 25-30 ml.).

9. The following indicators can be used as criteria for the effectiveness of anti-shock therapy:

1. Improvement of the general condition of the victim;
2. Recovery of blood pressure;
3. Pulse reduction;
4. Normalization of nail plate coloring;
5. The question of transportation of the victim to the surgical department of the regional hospital is decided by the surgeon who arrived at the consultation.

THE TASKS OF THE IN CHARGE DOCTOR OF NON-SURGICAL PROFILE OF THE DISTRICT HOSPITAL TO ASSIST THE INJURED PATIENTS.

In the conditions of a rural district hospital, the doctor on duty of any specialty must, before the arrival of a surgeon or traumatologist, begin to provide immediate assistance to the victim directly in the reception room of the hospital, in the amount of the above, for non-surgical doctors of the rural district hospitals.

HOSPITAL PERIOD.

Groups of measures for urgency:

1. Internal bleeding;
2. Respiratory failure;
3. Active surgical tactics;
4. Selection of determining means.

REHABILITATION PERIOD.

I. Types of rehabilitation:

1. Medical .
2. Social .
3. Professional .

II. Means of rehabilitation:

1. Physiotherapy
2. Therapeutic gymnastics
3. Massage
4. Breathing and isometric gymnastics
5. Mechanotherapy
6. Sanatorium and spa treatment

4. Illustrative material:

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5.Literature:

6. Control questions:

1. Definition
2. Motivation, statistics.
3. Classification
4. Diagnostic problems
5. Treatment tactics, periods of polytrauma
- a) Tasks
- b) Stage
- c) Treatment periods
- d) Rehabilitation

Class #7

1. Subject: Damage to the spine.

2. Objective: To provide students with information about the frequency, mechanism of damage to the spinal column and its individual elements. To give an idea of the existing modern methods of treatment of spinal cord injuries, prevention of complications and treatment of the consequences of trauma. Introduce students to modern views on the etiology, pathogenesis and prevalence of spinal osteochondrosis. Give an overview of existing methods of prevention and treatment of osteochondrosis.

3. Thesis of the lecture:

SPINAL CORD INJURIES

Spinal fractures are one of the most severe damage to the musculoskeletal system, often resulting in disability.

The frequency of spinal fractures is on average 0.4%.

A typical injury mechanism is excessive forced flexion of the torso that extends beyond the physiological mobility of the spine.

Depending on the localization of the injury is distinguished: isolated fractures of the vertebral bodies, fractures of temples and spurs (transverse, austral and joint). Often there are combined damage to the bodies, temples and spurs.

Heavier injuries are fractured dislocations, usually accompanied by more or less significant displacement of the vertebrae at the fractures.

Isolated dislocations and fracture-dislocations occur mainly in the cervical part of the spine.

Depending on the severity of the injury, two fracture groups are distinguished:


1. Fractures of the vertebrae that are not accompanied by nervous system phenomena;
2. Complicated fractures with partial or complete damage to the spinal cord or its roots.

In pronounced cases, neurological changes are reduced to movement disorders (paresis, paralysis), sensitivity disorders, impaired reflex activity and pelvic function. The most severe disorders are observed in lesions of the upper spinal cord. Damages above the fourth cervical segment often end in death due to paralysis of the vascular-motor and respiratory centre.

Very severe lesions are characterized by rapid development of bedsores, cystitis and ascending urinary tract infection. Care for patients is of great importance in the development of bedsores.

The peculiarities of neurological changes in terms of lesion topology, their further dynamics and gradually developing reactive changes are manifested in various forms: the accounting of these changes and their evaluation should be carried out systematically throughout the healing period through thorough neurological research.

Correct and timely first-aid and transportation of victims with spinal cord injuries play an important role in preventing secondary complications from the spinal cord, its shells and roots, as well as in preventing secondary displacement of fragments. The principles of first aid in various localizations of spinal cord injury, complicated and uncomplicated spinal fractures are the same. This

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is explained by the fact that in the conditions in which the injury occurred, first aid is usually provided not by qualified specialists, but by people who are at the site of the accident and cannot be required to specify the top of the injury and the nature of the injury.

Fractures of the vertebrae (uncomplicated)

Compression fractures, which are the most typical, oblique, splintered, and edge fractures of vertebral bodies, are distinguished by the shape of the injury. It should be noted that all types of fractures of the spine preserve the integrity of the anterior longitudinal ligament of the spine and rarely damage the dura mater of the spinal cord.

For compression fractures of vertebral bodies, wedge-shaped flattening of the spinal cord is typical, mainly in the anterior ventral region.

The degree of compression varies from a subtle, mild "structural" compression to a severe wedge-shaped deformation of the vertebral body causing a disturbance of the spinal axis.

Favorite localizations of compression fractures are the lower thoracic and upper lumbar spine: the most frequently damaged KP heavy, 1 lumbar, and adjacent vertebrae.

Body fractures in the thoracic part, which has a normal kyphatic bend at the back, with significant displacement cause a more pronounced deformation of the entire spine. In the lumbar and cervical part, which is normally in the state of physiological lordosis, moderate compression of bodies does not lead to defolrmentation and causes only the smoothing of the lordosis.

In the cervical section, there are fractures of the vertebrae, fracture-dislocations and isolated dislocations. More often the V-VI cervical vertebrae are damaged, less often - the upper I-II cervical vertebrae; a characteristic but rare damage is a fracture of the dental process of the P cervical vertebrae.

Sprains can be one- or two-sided: the mechanism distinguishes between bending and rotational (rotational) sprains. Fractures of bodies (more often V-VI cervical vertebrae) have the character of compression. In case of fracture-dislocation, the dislocated vertebra is overlying (in relation to the fracture area).


Symptoms. Depending on the severity of the injury, degree of compression and localization of the fracture, clinical manifestations may vary and vary widely. In pronounced cases, acute painfulness of the corresponding austeid process, deformation in the form of a distinct hump of a noticeable standing of the austeid process, spinal muscular tension and impairment of function in the form of more or less complete loss of movement, inability to stand, even sitting, are noted.

A number of common clinical symptoms - crepitation, motion in the fracture area - are absent. Hemorrhage is not pronounced, as the hemorrhage spreads from the front of the vertebral bodies - in the area of the anterior longitudinal ligament. However, it should be noted that sometimes extensive retroperitoneal hematomas seen at vertebral fractures may cause an acute abdominal picture with a temporary bowel paresis, which in some cases leads to unnecessary and harmful laparotomy.

In cases of damage to the cervical spine, the degree of severity of clinical phenomena varies depending on the nature of the injury. In case of a rotary dislocation, the tilt and rotation of the head are typical. Pain and muscle fixation with restricted mobility are noted. Flexural dislocation or compression fracture-dislocation is also characterized by deformation in the cervical part of the spine with a head shift most often forward.

To clarify the diagnosis, a thorough X-ray examination of the spine is recommended, and it is obligatory in two or, if necessary, three or four projections. In difficult cases, especially in disorders in the cervical, upper thoracic region, it is important to use a tomographic method.

The most typical radiological sign is a decrease in the height of the vertebral body, especially in the ventral region. The presence of the anterior wedge-shaped fragment is often noted. The condition of posterior vertebral elements requires special attention, as fracture of arches and australges is possible. Consideration should also be given to the degree of displacement in the form of wedge-shaped body subsidence, changes in the axis of the spine and displacement in the anterior posterior direction. The anteroposterior image reveals a narrowing or absence of the intervertebral space, a

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decrease in the height of the body of the flattened vertebrae, and the width of the body may be increased with greater fragmentation.

In the course of a comprehensive examination of a patient with spinal cord injury, changes in the nervous system should be considered. In uncomplicated fractures, radiculitis is often detected. They are manifested by persistent pain in the chest area, which is banding or irradiation to the lumbosacral area or lower extremities. In the case of more severe damage to the spine, damage to the spinal cord and its formations is possible, so careful examination of the patient by a neurologist is mandatory.

First aid and transport. In first aid, it is important to place the patient carefully on a rigid stretcher with an unbending lie while gently turning the patient over his shoulders, torso and lower extremities. A reclining position on the abdomen is mandatory.

The most perfect stretcher to provide the right assistance to victims in mines and mines is the stretcher of the Ukrainian Scientific Research Institute of Orthopedics and Traumatology named after M.V. Lenin. M.I. Sitenko, designed by N.P. Novachenko in the form of skids with a number of devices for strong fixation of the patient's body to the stretcher. Repeatedly tested in the mines of the Donetsk Basin, these stretchers provide a firm fixation, and reliably prevent complications.

Transportation of patients with spinal cord injuries should be carried out in accordance with all safety rules to avoid the development of secondary displacement of fragments and spinal cord compression. It is strictly forbidden to transport the patient in a sitting position and any kind of turning of the patient.

Patients with cervical spine fractures should be transported with extreme care. Placement of such patients on a stretcher is as follows: One orderly becomes behind the lying patient, grabs his head with his hands and produces a traction along the length of the patient. At this time, another nurse gently lifts the patient and places a stretcher under him. The neck is fixed with a cotton collar or Kramer's tire, which is curved in the shape of the head and goes down on the patient's forearm.

The delivery of the patient to the treatment facility as well as his examination (X-ray, etc.) should be done carefully and in the most gentle way to avoid complications.

Control and prevention of shock is carried out according to the general rules of surgery.


Treatment. The main task of the treatment of compression fractures of the vertebral bodies is to create the most favorable conditions for healing in the area of the fracture and to restore the patient's functionality as quickly as possible. It is important to combat the threat of kyphatic deformation of the spine in the fractured area, usually involving a very long transformation of the entire spine (paragibbar lordosis). Since even isolated compression fractures of the vertebral bodies affect the entire spine and drastically disrupt its normal static and dynamic functions, maximum care for the possible early and late functional recovery of the spine is necessary in the treatment of the patient. In this case, it is necessary to take into account the significantly limited opportunities for anatomical recovery with damage to the spine compared with damage to the bone and joint apparatus of the extremities.

In practical terms, two subgroups of compression fractures should be distinguished:

- Fractures with moderate body compression without disturbance of the normal axis and physiological bending, i.e., fractures without displacement;
- more compressed fractures with displacement, which causes primary kyphatic deformation and subsequent secondary changes in the shape of the spine in various parts of the spine.

In the treatment of patients with fractures of the first group, the main treatment is spine reclimbing in order to relieve as much as possible the front or ventral parts of the vertebral bodies, and prevents the development of secondary deformities and various complications of the nervous system. The most rational position to securely recuperate the spine is to place the patient on a rigid bed with a pillow under the chest and a small pillow under the shins.

The position of the patient on the abdomen, in comparison with the often used position, unloading the spontaneous substance of the body of the vertebrae.

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In the treatment of patients with fractures of the second group (with displacement), it is necessary to take a number of measures to eliminate or reduce the existing deformation. For this purpose, two methods are used: the method of one-stage repositioning, performed under local anesthesia 10 ml. 1% p-r of novocaine (paravertebrally by spinal reclearance, and a method of gradual reposition).

For fractures of the thoracic vertebrae, reclamation is performed by placing the patient on two tables of uneven height. Under the influence of the gravity of the torso is its sagging and flattened bodies of vertebrae.

In case of fractures of lumbar vertebrae, correction is made by placing the patient on the table in the position on the abdomen and gradually pulling both lower limbs. After repositioning, fixation is performed with the help of a plaster corset or plaster bed. We also recommend a reclining position on the abdomen or back on a rigid bed with a roller placed in the fracture area.

The method of gradual repositioning is that the deformation correction is made when the patient is in the plaster bed by placing cotton pelottes under the fracture area; the thickness of the pelottes is gradually increased. Due to the moderate but increasing pressure of the pelottes, a gradual partial flattening of the flattened vertebral bodies occurs. Articular and pinnate spurs converge and the squashed intervertebral discs are also flattened. The result is a gradual flattening of the kyphatic deformation of the spine.

Careful care of the patient is of great importance, which consists in turning the patient on the stomach every day, checking the skin in the area of the fracture. Pelottes must not be pressurized excessively or cause pain in the area of the fracture; only moderate redness of the skin in the area of a standing australgesis must be present on the skin. It is necessary to avoid the formation of bedsores, remove all irregularities in the bed, folds on the bed linen. The skin of the patient's body should be wiped with alcohol or cologne daily.

Another method of gradual repositioning is pulling out the spine with the help of straws, which are brought into the armpit cavities, while correcting the deformation by placing a small pillow with linseed or sand under the fracture area. The thickness of the cushion is gradually increased.

Functional recovery is the most important task of the treatment and should start as soon as possible once the acute pain in the spine has subsided.

Exercises for both groups of fractures (without and with displacement) start on the 7th to 10th day after the injury.

Patients who are in a position on the stomach from the very beginning make movements under the supervision of a doctor or methodologist for therapeutic exercise. Therapeutic gymnastics is performed according to a certain scheme. For the first time 1.5-2 weeks, movements are prescribed for upper and lower extremities, i.e. in more distant segments from the place of injury. In the next 2-3 weeks start movements for the trunk: they are gradually complicated in volume and degree of difficulty.

The main purpose of therapeutic gymnastics is to fight muscle atrophy and tight spine mobility; it is necessary to take care of the maximum strengthening of the torso extensor muscles in the first place. At the same time, all body movements are carried out when relieving the fracture area. At the same time as gymnastic exercises, a massage of the body muscles is also prescribed.

Systematic therapeutic gymnastics prevents muscle atrophy, increases the endurance of the spine and allows you to do without fixing corsets.

Starting from week 5-6, the patient is allowed to turn to the back, and in this position also perform a series of exercises of the body and limbs.

After 8-9 weeks, the patient gets out of bed: therapeutic gymnastics and massage continue, in addition, prescribe physiotherapeutic procedures. In the future, the patient can be transferred to outpatient treatment. The regime is the same: carefully performed gymnastics, the patient must sleep on a hard bed for another 3-4 months. Sitting is allowed 4-5 months after the injury.

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Ability to work of patients who are not engaged in heavy physical labor, is restored in 6-8 months. Persons engaged in heavy physical labour are shown to be transferred to light work within 8-12 months.

Orthopaedic corset fixation can be bent only in individual patients with persistent pain.

In patients with fractures with displacement, which is assigned a plaster crib or plaster corset after a single or gradual reposition, therapeutic gymnastics, and later massage. It is also performed systematically. In the first period, limb movements are performed in the stomach position at a time when the patient is released from the crib for ½-1 hour and turned to the stomach. Starting from week 8-9, body movements are allowed when the patient is in the back position: the patient is temporarily released from the crib.

Patients of this group are treated in hospital for 3 months and then transferred to outpatient treatment.

The terms of recovery of work capacity of patients vary depending on their profession, the degree of correction achieved, the presence of complications, radiculitis, etc., on average they range from 4-6 to 12 months.

Older patients with pain syndrome, persistent radiculitis and other complications are recommended to use temporary orthopedic corsets. Mud treatment in resort conditions (Slavyansk, Saki, Odessa, etc.) gives good results.

The most common method of treatment of dislocations and fractures of cervical vertebrae is traction with the help of Gleason loop; the head end of the bed is high. Recently, skeletal traction behind the skull using a special terminal is recommended. In some cases, a one-stage correction is used, in case of lighter injuries (contusions and distortions) - a bandage in the form of a Shanz collar.

After removing the traction for more serious injuries imposed plaster corset for 2-3 months.

In the case of phenomena on the nervous system in the relevant indications (spinal cord compression, the danger of ascending myelitis, etc.) is recommended surgical treatment in the form of a laminectomy as early as possible.

Prognosis for uncomplicated spinal fractures in the majority of victims with correct and systematic treatment is more favorable; in patients of young and middle age the ability to work is restored, elderly patients often become disabled. It leads to the presence of concomitant pathology in other organs, deforming spondylosis, arthritic changes in the joints of extremities and spine, persistent radiculitis. The nature and quality of the treatment performed is of great importance in terms of restoration of work capacity.

SPINAL FRACTURES

Isolated fractures of the posterior vertebrae, temples and spines are less common: the damage mechanism is more often straight.

More frequent are transverse lumbar vertebrae (one or more). The mechanism of injury is a blow to the lumbar region or sudden muscular tension (detachment).

Clinical symptoms at the fractures of transverse spines are manifested in localized soreness at the tops of the spines, acute muscle tension, limited mobility of the spine, often in a number of patients observed radiculitis. Fractures of the asthmatic appendages are less frequently noted; clinically, localized painfulness, sometimes crepitation, occurs.

Treatment of patients with acute fractures is reduced to bed rest (patients lie on the stomach 2-3 weeks), early therapeutic gymnastics and massage.


Work capacity of patients is usually restored after 1-1,5-2 months.

4. Illustrative material:

5. Literature:

6. Control questions:

1. General characteristics of spinal cord injuries, prevalence, mechanism, types of injuries, clinical signs.

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2. Modern research and diagnostic methods.
3. Conservative and surgical treatment of uncomplicated compression fractures of the spine bodies.
4. Advantages and disadvantages of conservative and surgical treatment methods (functional treatment according to Dreving-Gorinevskaya, corset treatment, anterior and posterior operative fixation).
5. Indications and contraindications for various treatment methods. Peculiarities of treatment in children and the elderly.
6. Peculiarities of treatment and danger of posterior spine elements fractures.

Class #8

1. Subject: Congenital hip dislocation. Clinic. Diagnostics and treatment.

2. Objective: Congenital hip dislocation is one of the most severe orthopaedic diseases in children. Despite the fact that many studies have been devoted to this problem, it remains relevant for all age groups of patients.

The problem of early detection and early treatment of congenital hip dislocation is very important among the current challenges in pediatric orthopaedics. Early treatment of congenital hip dislocation is the basis for the prevention of disability in this disease, since full recovery can be achieved only in the treatment of children from the first days of life.

3. Thesis of the lecture: Congenital hip dislocation (CHD) is one of the most frequent severe orthopaedic diseases in children.

In 1925, H. Hilgenreiner introduced the term "hip dysplasia". He believed that congenital dysplasia (maldevelopment, delayed and perverse development) of the joint resulted in dislocation as a secondary phenomenon, but dysplasia was sometimes not accompanied by dislocation. If such dysplasia is pronounced, the child is born with a dislocation, and if there is a weak dysplasia, only subluxation or anticipation is formed.

According to M.V. Volkov and V.D. Dedovoy dysplasia of the hip joint (DHJ) is found in 16 per 1000 newborns, and CHD - in 5 per 1000 children. Left-handed is 1.5-2 times more common than right-handed. BMD is found in girls 5 times more often than in boys.

Etiology. The high percentage of first-born children with ICD suggests that birth trauma as an adverse factor may in some cases lead to congenital hip dislocation in the dysplastic hip joint.


V.Y. Vilensky and others believe that unfavorable intrauterine development of fetal hip joints in the atypical position of the fetus and additional trauma during childbirth adversely affect tissues of primary dysplastic hip joints.

In the 18th century, Paletta pioneered the theory of primary malformation of the embryo, the so-called teratological theory.

Lorenz considered the cause of the dislocation to be the congenital predisposition-holding in the growth of individual hip joint elements (IHJE), resulting in later dislocation. This theory of delayed hip joint development in the early stages of foetal life is widely accepted.

Thanks to the accumulation of huge clinical, experimental and static material, many teratogenic factors have been identified that can cause various malformations of primary embryo development. The latter include endogenous, physical, chemical, biological and mental factors that affect the woman during pregnancy. For this reason, it is necessary to use various means of protecting the embryo from various external harmful influences, especially in the early period of pregnancy (the first 5-6 weeks), not accidentally called the critical period.

Of these factors, it is necessary first of all to mention ionizing radiation and chemicals with mutagenic effect. The role of radiation is particularly important. Its damaging effect is not only observed in the immediate period. Often it can be transmitted to offspring, because radiation, violating the chromosome apparatus, causes changes in human hereditary properties (mutations).

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According to V.Ya. Vilenskyi, hereditary burdens are found in 7% of cases. Most often the transmission of BBB by inheritance is observed on the mother's line. The ratio of transmission on the investigative burden from the mother to the father is 4:1.

The theory of primary malformation of the embryo attracts the greatest number of supporters. According to this theory, the reason for the inferiority of TBS is that the pelvic belt of the newborn is primarily underdeveloped and preserves the embryonic structure. Later, under the influence of muscle traction and body weight, the femoral head is not retained in the dysplastic depression and is displaced outside, backwards and upward.

Pathogenesis of the CHD is caused by the previous pre-examination and dysplasia of the joint, characterized by hypoplasia of the acetabulum, small size of the femur head and its slowed ossification, turning of the upper end of the femur forward (antertia), anomalies of the neuromuscular apparatus development in the region of TBC. The head of the femur in the first months of life of the child shifts outside and upward, which is accompanied by a stretching of the joint capsule. The acetabulum is usually not only flattened, but also elongated in length; its upper posterior edge is underdeveloped, resulting in a beveled roof and from above there is no bone stop for the femoral head. In older children, the changes increase: the femoral neck is shortened, the CMW remains blunt, and the upper end of the femur turns even further forwards with the head (antertia). 24-30% of children have a change in the cartilage of the femoral head. The joint capsule is hourglass-shaped and stretched.

Volkov M.V. distinguishes between an anterior, subluxation and dislocation. If children are born with a stretched capsule TBS and they have a dislocation and the subsequent slight correction of the head in the depression (a symptom of slipping), this condition is called inflection. If the head moves to the side and upwards, but does not go beyond the limb, this condition of the joint is called subluxation. If the head loses contact with the cavity and the limb wraps itself in the cavity of the cavity, it is said to be dislocated.

BBQ clinic for children in their first year of life.


1. The symptom of slipping (clicking, Marx-Ortolani) may persist in children up to 2-4 months.
 2. Restricted hip removal is practically observed in all patients treated at the 1st year of life.
- The norm of hip removal in TBS in children of the first months of life reaches 70-80°.
3. Asymmetry of buttocks had 50° of treated children.
 4. Shortening of the lower limb, not very pronounced.
 5. External rotation of the leg.

These clinical symptoms are not very reliable. The X-ray of TBS is crucial in the diagnosis. It is convenient to make measurements of all indexes on X-ray with the help of special grid-transporter, applied on the plate of plexiglass.

Early radiological symptoms of the BBS were first determined by Bologna orthopaedist Raphael Putty. In 1927, he proposed the classic "Putty triad."

1. Increased skewness of the acetabulum roof,
 2. displacement of the proximal end of the femur to the outside and upwards of the acetabulum,
 3. late appearance and hypoplasia of the ossification nucleus.
1. the acetabular angle is formed by two lines - the line drawn through the upper contour of the socket and the horizontal Hilgenreiner line drawn towards the lower contour of the iliac bones. An angle of up to 30° in children in the first months of life is not considered a pathology.
 2. The ratio of the acetabulum to the proximal end of the femur. This is judged by the size of h, i.e. the distance from the horizontal Hilgenreiner line to the projection of the center of the femoral head. In healthy TBS, the h value ranges from 8 to 11 mm.
 3. The ossification core, its shape and location. Normally, the ossification core of the BC head appears by 3-6 months. Therefore, only a one-sided significant (up to 2-3 months) delay in the appearance of the ossification nucleus should be regarded as pathology.

BB Clinic in children over 1 year old and adolescents

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1. A child's complaints of fatigue occurred in most patients. Children over 5 often have complaints of fatigue, periodic pain in TBS, especially in the evening and at night.

2. Gait disturbance. They are manifested in the instability of walking, mild lameness, swinging of the torso, and with bilateral dislocation - in the characteristic "duck gait. Pelvic misalignment due to the convergence of the attachment points of gluteal muscles and limb shortening is of great importance for gait disturbance.

3. Shortening of the lower limb.

4. Symptom of Duchessen-Trendelenburg is a classic feature of the BBB.

5. Restriction of movement in TBS. Withdrawal at the BMP is always limited and rotational movements are increased.

6. Increased lumbar lordosis.

7. The large spit is above the Roser-Nelaton line.

8. Symptom of sliding (Dupuytren's symptom) and hip lowering.

9. Symptom of constant pulse.

Radiological diagnostics of BMD in children over 2 years old

1. The shape of the roof of the acetabulum. The worse developed is the ossipitol core, the more beveled is the projection on the radiograph. Not a single child with an Acetabulum has a normal roof shape with a formed and correct protrusion.

2. Acetabular angle. According to G.M. Ter-Yegiazarov, the acetabular angle at dislocation and subluxation is approximately the same and is 39-40°. In adults, it is almost impossible to determine it due to the complete rotation of the V-shaped cartilage.

3. Decrease in femoral head size, increase in SDE was noted in 20-25% of patients. In OVB and subluxation, the antennas of the proximal end of the femur are almost always increased and can reach 60-80°.

4. Viberg angle (degree of covering the head with a trough) at subluxation is always reduced to 10°, and sometimes approaches 0°.

5. The angle of vertical alignment in normal joints ranges from 70-90°. With age at VVB it decreases.


6. Violation of the Schenton line.

Conservative treatment of children with CHD

1. Treatment of newborns with hip dislocation. One of the most important achievements in the problem of OBC was the preventive direction in the treatment of this complex pathology of TBS. Treatment of children with hip luxation is actually the prevention of hip dislocation and subluxation. Creating conditions for free leg movements is one form of prevention of dislocation. Treatment of newborns with anticipation should start from the first days of a child's life. A Freak cushion, wide swaddling with a soft swaddling bandage for 2 weeks can be used. If the symptom of slipping disappears, the free swaddling continues for 2 more months or the CITO splint is used.

The main task of treatment for hip dislocation and subluxation in the first months of life is to establish the correct head to socket ratio as early as possible, while secondary changes in the hip joint are not clearly visible. Typical applications are tilting tires, Vinsky's tire. The hip removal is achieved gradually and painlessly. After gradual removal of the legs by 80°, the correction of the head in the socket is clinically checked. In children in the first months of life, the h value is the only criterion determining the coincidence of the head and socket centres. At hip dislocation, if good centralization is achieved, the child is left in the Lorentz position for 2-4 months, after which X-ray is made. If the centralization of the head in the socket is not disturbed, then apply the Vilensky splint (usually this period varies from 2 to 6 months), ie, almost to the complete formation of the socket and femoral head.

In cases where the hip dislocation remains undisturbed for 2 months, it is necessary to switch to another method of reduction - gradual reduction with the help of a functional plaster bandage according to the Ter-Yegiazarov-Sheptun method. The child should stay in the dressing until the hollow begins to form: usually this period is calculated as 4-10 months. After the control radiography,

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if the centralization of the head is not disturbed, the dressing for the Vilensky tire will be replaced for 4-6 months.

In case of treatment failure, it is possible to apply a gradual repositioning of the femoral head with the help of Ilizarov's apparatus embedded in the plaster bandage.

In 1963, M.V. Volkov developed a method of functional treatment of VBB in a dressing-bed made of polyethylene. Nowadays, having refused in all kinds of conservative treatment from the violent repositioning, the muscles are slowly relaxed on the usual strut with the following treatment in the polyethylene tire.

Surgical methods of CHD treatment

A big and complex problem is the treatment of children with neglected forms of PBV. In cases of late detection of the UFBD, orthopaedists have to resort to the open repositioning of the femoral head into the depression.

Most orthopaedists consider 3 years to be the best age for open repositioning of the UXB.

The following should be taken into account in the indications for the open reposition of the IAP: high femoral head displacement, flattening of the acetabulum, pathological antethorsion, narrowing of the capsule isthmus and interposition of the limb.

Initially, a simple open correction with deepening of the acetabulum according to F.R. Bogdanov (1959) was applied; with capsule arthroplasty according to Column, with amnioplasty (M.V. Volkov, 1969).

Significant improvement of results was achieved in combination of open reduction with corrective osteotomy of the femur bone to eliminate pathological antethorsion and with shortening femur bone resection (Column-Leffler operation). The fixation plate of G.M.Ter-Yegiazarov and co-authors are used for fixation of fragments in CYTO.

With residual subluxation in children under 5 years of age is most shown Salter's surgery (1961), which aims to change the inclination of the acetabulum by osteotomy of the pelvis in the area of the base of the iliac bone and insertion into the cleft between the fragments of triangular bone graft; in older children, the Chiari operation (1950), the essence of which is the horizontal complete dissection of the iliac bone above the acetabulum and the displacement of the proximal fragment outside, has become common.

Palliative surgery is aimed at creating an awning for the femur, which is achieved either by creating an awning at the level of the iliac wing (Kenig's awning) through autocostomy, or by osteotomies along the Schantz and removal of the femur.

Palliative surgery can improve gait and reduce complaints. However, a number of patients have pain, lameness and rapid fatigue later return.

Thus, it is not the operative methods of treatment that play the leading role, but only the early recognition and early treatment with the simplest, non-traumatic methods. Therefore, the systematic organization of early detection and early treatment of newborns in both urban and rural treatment facilities becomes of great social and medical importance.

4. Illustrative material:


5. Literature:

6. Control questions:

1. etiology and pathogenesis of congenital hip dislocation;
2. classification of congenital hip dislocation;
3. Clinic of hip dysplasia and hip congenital dislocation;

Class #9

1. Theme: Crystal Finger, congenital chest deformities. Clinic, diagnosis. Conservative and surgical treatment.

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2. Objective: Congenital clubfoot (pes equino-varus congenitus) occurs in one child per 1000 newborns and makes up from 11 to 38 % of all congenital deformations (T.S. Zatsepin, 1956; M.I. Kuslik, 1968; A. Emery, 1970, etc.). Often congenital clubfoot is combined with other congenital deformities: amniotic tibia, congenital amputation of fingers, non-invasive spinal arcs, etc. If the congenital clubfoot is not treated, not only permanent changes in bones and soft tissues of the foot occur, but also the above skeletal sections: tibia, thighs, pelvis and spinal column are transformed. The foot deforms to such an extent that its supporting surface becomes the external neck area on which the "corpuscle" is formed.

3. The thesis of the lecture:

Congenital clubfoot (CC)

CC is the most common development defect after DTBS. Its frequency varies from 1.2 to 3 cases per 1000 newborns. Boys have CC almost twice as many as girls and are more likely to have bilateral HC.

Cosmo podium is a congenital contracture of the joints of the foot, manifested by the sole bending of the foot in the ankle joint (equinus), prolapse of the outer edge of the foot (suppinus), and reduction of the anterior region of the foot (adduction).

In addition to these clinical signs, children with CC often have a twisting of the tibia (thorium), always external, transverse sole inflexion (inflexia) with the formation of a transverse furrow (the so-called Adams' furrow) and varicose toes.

T.S. Zachepin (1947) divides the BC into two clinical forms: typical (75%) and atypical (25%). In terms of severity, the CC divides into three forms: light, medium and heavy. The mild degree includes deformation, in which movements in the ankle joint are quite possible and can be corrected without much violence. The medium form is that of deformation in which movement is limited; when attempting to correct it there is a feeling of springiness, followed by a limit of straightening. Heavy form includes deformities that cannot be corrected by movements due to abrupt changes in the joints of the foot and the feeling of having a strong stop that prevents straightening.

In CC, all tissues of the foot have been changed. From the bones of the foot abruptly changed ram bone, heel bone, cube bone. The soft tissues and especially the sole fascia of the foot are shortened and wrinkled on the inner edge of the foot. The tendons of the fibula muscle and the long common extensor of the fingers are stretched, the rest of the muscles are counteragged.

CC treatment should be started as early as possible, as the newborn tissue is more malleable and easier to stretch and keep in a corrugated position, thus allowing the bones of the foot to grow and develop normally.

Treatment begins with corrective gymnastics, aimed at eliminating the main components of foot deformation: suppression, induction and sole flexion. It continues for 3-5 minutes and is repeated 3-4 times a day. The foot after the gymnastics is fixed in a corrugated position with a soft bandage (according to Fink-Ettingen). This method is effective only in light deformations.


In case of medium and heavy forms of deformation, treatment with stage plaster bandages is used, which should be applied from 2-3 weeks of age in the outpatient clinic. The patient is left in a plaster bandage in the hyper-correcting position of the foot for another 3-4 months.

The method of early functional treatment of CC has been developed at CITO (Vilensky V.Ya., 1971). The essence of the method is as follows: 1) directed functional (active-passive) influence on certain muscle groups for correction of deformation in the stage gypsum dressing; 2) application of stage tutors made of polymeric materials (more often - from polyvix), fixing the feet and allowing to include physiotherapy, physical therapy, baths and massage in the complex of therapeutic measures.

It is possible to judge about complete healing of HC not earlier than in 5 years.

Surgical treatment of CC is a forced method of treatment.

Due to the interventions on the tendon-ligament apparatus, the most recognized surgery is Zachepina. The essence of the operation is to lengthen the tendons on the inner and posterior surface of the ankle joint, carefully dissecting the ligaments and capsule between the tibia and the bones of the

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foot, the intraarticular ligaments between ram and heel bone. The author recommends its performance in case of failure of conservative treatment, recurrence of clubfoot after conservative treatment and in children with neglected clubfoot forms at the age of 2 years.

Among the bone operations we should mention wedge-shaped and sickle-foot resection, triple tarantula arthrodesis and removal of rambling bone. Bone surgeries are usually performed in children under 12-13 years of age, i.e. when the most intensive bone growth ends and the intervention on the bone will not lead to a significant foot shortening.

In recent years, it has become common to correct neglected bone forms with the help of special external fixation devices (Ilizarov device in various modifications, Volkov-Oganesen device).

Congenital torticollis

Congenital torticollis (torticollis, caput obstipum congenitum musculare) is a congenital deformation in which an incorrect head position is noted. A distinction is made between the muscular and bony form of the torticollis. To date, the cause of the congenital torticollis is not quite clear. The main symptom of the muscle torticollis is the tilting of the head towards the altered sternum-acoustic muscle and turning the face in the opposite direction. With the age of the child (and especially in adults) the inclination and rotation of the head increases, asymmetry of the neck, face and skull increases, there is a higher standing of the shoulder on the side of the lesion and scoliosis develops in the cervical-chest section of the spinal column.

Treatment. In congenital muscular curvature newborns and children in the first weeks and months of life are prescribed corrective gymnastics, massage, thermal procedures, correct deformities with veil treated and gauze cardboard collar Schanz. From the age of 2, if conservative therapy is unsuccessful, surgical treatment is used.

4. Illustrative material:

5. Literature:

6. Control questions:

1. Etiology and pathogenesis of congenital torticollis, congenital clubfoot;
2. Classification of congenital torticollis, clubfoot congenital;
3. Clinic of congenital torticollis, clubfoot congenital;

Class #10

1. Theme: Traumatic joint sprains. Degenerative-dystrophic and inflammatory joint diseases. Clinic diagnosis and treatment.


2. Objective: Shoulder sprains are common, accounting for 50-60% of all sprains. In men, these sprains are 5 times more common than in women. The frequency of shoulder sprains is due to the frequency of trauma to the upper limb, especially when falling, and the anatomical and physiological features of the shoulder joint. This determines the relevance of the topic and the need to study it. A physician of any specialty must be able to recognize fractures and dislocations of the shoulder and must provide first aid to the victim before providing specialized medical care. Teach students basic diagnostic techniques and methods of first aid to patients with fractures and sprains of the shoulder.

3. Thesis of the lecture:

Dislocated shoulder.

Traumatic shoulder sprains account for 60% of all sprains. This frequency is explained by the anatomical and physiological features of the joint: the ball head of the humerus and the flat joint hollow of the scapula, the mismatch of their size, a large joint cavity, a peculiar work of the muscles and a number of other fixatives that contribute to the dislocation.

In relation to the scapula, there is a distinction between shoulder dislocations at the front (mandibular, intraclavical, armpit), lower (subacromial) and back (subacromial, subacromial). The most common dislocations are at the front (75%) and armpit (24%), the rest account for 1%.

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In terms of the time elapsed since the congruence of the articulation was disturbed, the dislocations are divided into fresh, stale and aged. Sprains are considered fresh when no more than 3 days have elapsed since the injury, stale - from 3 days to 3 weeks, and aged - if 3 weeks or more have passed.

The mechanism of injury is mainly indirect: falling on the reserved arm in the front or rear deviation position, excessive shoulder rotation in the same position, etc.

Victims complain of pain and loss of shoulder joint function following an injury.

The patient's healthy hand holds the hand on the side of the injury, trying to fix it in the position of withdrawal and some deviation to the front. Shoulder joint is deformed: flattened in the anterior position, acromion stands under the skin, there is a trailing edge under it. All this gives the joint its characteristic appearance.

On palpation, the external orientation of the proximal shoulder is disturbed: the head is felt in an unusual place, more often internally or externally from the joint socket of the shoulder blade. Active movements are not possible, an attempt to perform passive movements reveals a positive "spring resistance" symptom. The rotary movements of the shoulder are transferred to the atypically positioned head.

Radiography is the leading assistive method of examination for shoulder dislocations.

The dislocated segment should be corrected as soon as the diagnosis is made. Anesthesia can be general or local. Anesthesia should be preferred. Topical anesthesia is achieved by injecting 20-40 ml 1% novocaine solution into the joint cavity after a preliminary subcutaneous injection of morphine or omnopone solution.

Koher's way. It's the most famous example of the lever principle of the shoulder repositioning. The patient is put in a chair. A towel in the form of an 8-shaped loop covers the damaged shoulder joint and performs counter-retraction. The doctor puts one arm of the same name with the dislocated arm from above on the elbow joint, bending the extremity in the elbow joint at a right angle. Then the doctor performs actions in 4 stages, smoothly changing each other.

Koher's method is one of the most traumatic and can be used in young people with anterior shoulder dislocations. It should not be used to correct sprains in elderly people due to the threat of fracture of the shoulder's porous bones and other complications.

The oldest is the Hippocratic method. The patient lies on the couch on his back. The doctor puts the heel of his unfolded leg (with the patient's dislocated arm of the same name) in the patient's armpit area. After capturing the patient's hand, the patient is guided along the long axis of the arm, with a gradual grip and pressure from the heel to the head of the humerus bone outside and upwards. When the head is pushed, it is corrected.


The Mota method. The patient lies on the table. The assistant pulls the patient's hand up, resting his foot in the victim's forearm, and the surgeon tries to put his fingers on the head of the humerus.

Gianelidze's way. It's the most physiological, atraumatic way. It's based on relaxing the muscles by pulling the affected limb by gravity.

Chucklin's way. The patient is put on his back. The surgeon, grabbing the upper third of the forearm, bent at right angles, slightly deflects the dislocated arm and makes a stretch on the shoulder axis. At the same time, the other hand, inserted into the armpit socket, exerts pressure on the head of the humerus bone, which leads to a reposition.

After the shoulder is closed or open, the limb should be immobilized with a plaster longtail from a healthy shoulder to the heads of the metacarpal bones of the damaged limb. The period of immobility to avoid the development of the usual shoulder dislocation should be at least 4 weeks for young people and 3 weeks for older persons. In older people and seniors kerchief bandages (instead of plaster bandages) are used for 10-14 days.

Older shoulder dislocations. Dislocations that have not been eliminated within 3 weeks or more are considered to be older.

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If the closed correction failed, resort to open correction.

Unusual shoulder dislocation. Development of the usual shoulder dislocation may be caused by damage to the nervous vascular bundle, joint lip, fractures of the joint socket of the scapula, etc.. Most often the usual dislocation develops as a complication of a traumatic anterior dislocation due to artistic errors: neglect of pain relief or its inferiority, rough methods of correction, inferiority or lack of immobilization, early physical activity.

External examination reveals muscle atrophy in the deltoid and scapular areas; the shoulder joint configuration has not been changed, but its function has been significantly changed. The active external rotation of the shoulder is restricted to 90° and the forearm is bent for fear of dislocation (Weinstein's symptom) and passive rotation in the same position and for the same reason (Babich's symptom), Stepanov's positive symptom. He is tested as a Weinstein symptom, but with the difference that the patient is put on the couch on his back. Performing shoulder rotation, the patient can't reach the back of the patient's hand to the surface on which he lies.

Patients with the usual dislocation of the shoulder are subject to surgical treatment, because conservative methods are not effective.

Weinstein's operation is the most famous.

The anterior incision in the projection of the interstitial furrow dissects the soft tissues and the shoulder joint capsule. The tendon of the long head of the shoulder biceps muscle is separated and removed externally. Maximum shoulder rotation until a small bump appears in the wound. Cut longitudinally from the bump starting from the hillock, 4-5 cm long attached to the underside muscle. Then the upper bundle is crossed at the small hump, and the lower bundle at the end of the longitudinal cut. The residual limb of the occipital cult is separated by the tendon of the long head of the double-headed shoulder muscle and fixed with a U-shaped suture, and the cult itself is stitched to the upper end of the occipital muscle. After the operation, apply a soft bandage in the specified hand position for 10-12 days. The frequency of relapse, according to various authors, varies from 4.65 to 27.58%.

The Sverdlov's operation, developed at the N.N. Priorov Central Institute, can also be attributed to this group. In this operation, tendon tendon tenodesis of the long head of the shoulder biceps muscle is combined with the creation of an additional autoplasmic ligament fixing the head of the humerus.

4. Illustrative material:

5. Literature:

6. Control questions:

1. Injury mechanism and classification of sprains;
2. Basic clinical and radiological signs of sprains;
3. Indications and typical methods of conservative treatment of sprains;
4. Indications for operative methods of sprains treatment;
5. Rules of application of transport and therapeutic splints at sprains;

Class #11

1. Theme: Posture defects, scoliosis, osteochondrosis.

2. Objective: To familiarize students with the essence of the considered congenital deformities, to give information about their prevalence, the main criteria of early recognition and diagnosis. To give an idea of the methods of conservative and operative orthopedic treatment of scoliotic disease, congenital muscular torticollis, funnel-shaped chest.

3. Thesis of the lecture:

SCOLIOTIC DISEASE

Scoliosis is a lateral curvature of the spine with mandatory rotation of the vertebral bodies, a characteristic feature of which is the progression associated with the age and growth of the child. It is characteristic that the percentage of patients with scoliosis, according to many authors, is different. It depends on the assessment of the disease and is associated with frequent mixing of the definitions of defective posture and scoliosis. Therefore, the percentage of scoliosis diseases ranges from 1 to 60.

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This is confirmed by the low percentage of scoliosis in adults. Thus, in Transcarpathia in 1943, 63% of children with scoliosis were found, and of the examined adults - only 2%. This once again proves the possibility of incorrect assessment of patients with defective posture.

For differential diagnosis the criterion, first of all, will be the elimination of the observed pathology by the patient or the doctor and the absence of spinal curvature on the X-ray produced in the lying position. True scoliosis even in the initial stage of development is characterized by the deformation of the spine itself, which is preserved regardless of the load and position of the patient.

The following forms of scoliosis are distinguished depending on its etiology and pathogenesis: congenital, dysplastic, neurogenic, static and idiopathic.

Congenital scoliosis: it depends on the deformity which has developed on the basis of changes in the bone skeleton of the spine - synostosis of the ribs on one side, additional ribs, additional semi vertebrae, synostosis of the australges, defects of the temples, etc. and dysplasia of the lumbar-sacral region; dysplastic scoliosis - spondylolysis, non-conversion of the temples, unilateral sacralization and lumbarization. The common origin of congenital nature makes it necessary to combine the two concepts of etiology into one form of congenital scoliosis.

Neurogenic scoliosis: mainly due to poliomyelitis, which is caused by a disturbance of the muscular balance in both back and oblique abdominal muscles. The group of neurogens also includes scolioses based on myopathy, syringomyelia, neurofibromatosis, spastic paralysis, etc.

Static scoliosis: most often occurs as a result of a lesion of some lower limb joint, most often in case of ankylosis, congenital hip dislocation, etc., i.e. a lesion capable of shortening the limb with the subsequent persistent change of the spine.

Idiopathic form of scoliosis: most common, but its origin is not yet clear. Some authors, the so-called earlier rachotic scoliosis was attributed to idiopathic, but the peculiarities of a number of biochemical processes have allowed to recognize that this idiopathic form of scoliosis is hormonal, and most authors, noting the disturbance of the neuro-muscular equilibrium in this form of scoliosis, attributed the ambiguity of the cause of its origin either to polio, or to some neurodystrophic processes, especially in muscle tissue. Therefore, the tendency of some orthopedists to place idiopathic scoliosis in the section of dysplastic and congenital scolioses in some cases is quite understandable.

Some orthopedists leave groups of rachitic and family (hereditary) scolioses.

At present, the most rational classification is that suggested by M. B. Volkov, E. Knikiforova, A. F. Kaptelin, who divide all patients with scolioses into two groups: with congenital and acquired.

Congenital scolioses include congenital spinal anatomy, dysplasia of the lumbar-sacral unit, family scolioses, etc., **acquired scolioses include:** rickets, paralytic, statistical and idiopathic.

The severity of scoliosis is characterized by the degree of change, and some orthopedists determined the degree according to the clinical picture and the severity of curvature, while others adhered to the degree depending on the size of the angle of the main curvature, guided by p-grams. The division of scoliosis into degrees according to V.D. Chaklin, who distinguished 4 degrees of curvature, was the most widespread in the Soviet Union:

I - curvature angle 180-1750;

II - 175-1550;

III - 155-1000;

IV - less than 1000.

Patients with congenital scoliosis show changes in the cardiovascular system and respiratory organs. If the deformation is formed in the thoracic region, the deformed vertebrae are carried away by the ribs attached to them and a chest deformation occurs with the development of the rib hump.

The deformation of the spine progresses differently with different types of curvature.

Despite the large number of proposed classifications of different types of scoliosis, the most acceptable classification at present is that of Kazmin:

I - upper thoracic;

II - thoracic;

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III - lumbar thoracic;

IV - lumbar

V - combined.

Thus, the upper thoracic type of scoliosis is more often congenital and progresses rapidly. In patients with lumbar type of scoliosis, the deformation is sometimes subtle, no significant progress of the deformation is observed. Patients with the chest-lumbar type of scoliosis have a significant thorax of the vertebrae, and in S-shaped (combined) scoliosis both arcs of curvature develop in the same way, and this type of scoliosis is usually compensated.

The main focus of the orthopaedic treatment of scoliosis is on the main curvature, so determining which curvature is the main problem. The longer scoliosis exists, the more stable and fixed it becomes.

The simplest methods to determine the stability of deformation are:

1. The method of tagging the australis, after which the patient is tilted in different directions (right and left);

2. Correction of vertebrae behind head;

3. Laying the patient on his side, the concave side;

4. Pressure with hands on the convex side;

5. Radiography:

a) Comparison of X-rays from lying and standing;

b) Comparison of X-rays taken while standing, sitting and tilting.

To clarify the degree of severity of the main curvature, mainly in the thoracic section, A.I. Kazmin proposed to determine the degree of its severity by the stability index. This method is quite objective and makes it possible to put the readings to another method of surgical intervention, and the degree of stability increases with approaching one. For this purpose, a special formula has been proposed:

$$\frac{180 - a}{180 - aI}$$

where a is the angle of curvature lying in degrees; aI is the angle of curvature standing. At $a = aI$ stability index = 1.

For example: $\frac{180 - 179}{180 - 172} = \frac{1}{8} = 0,1$

Thus, the lower the stability of deformation, the easier it is to hold and correct it, so it is more correct to specify the stability index in addition to the scoliosis degree.


The progression of deformation in scoliosis depends on the age of the patient, the type and degree of curvature, and the etiology. Its greatest progression is observed during the period of rapid growth of the child and usually ends when the growth stops. However, this provision does not apply to polio-based scolioses, as in these cases it may progress even after the child stops growing. Consequently, the earlier the child falls ill, the greater the risk of deformation progression, and the later the child falls ill, the less likely it is that scoliosis will develop significantly.

Scoliosis progression continues with the child's growth and reaches its maximum in the puberty period, in girls at 11-13 years old and in boys at 14-16 years old. After this age, the degree of progression gradually decreases and stops by the end of the skeleton growth period, i.e. by the age of 17-20.

The end of the child's growth can be tracked by tests of the ossification of the iliac wing ("Risser zone").

Some features of the examination of a scoliosis patient. Past medical history: at what age did the patient develop deformity, course of the disease (progression), hereditary history, etc.

Clinical examination of the child begins, first of all, with the examination of his height, weight, the presence of deformities standing and lying. In order to determine the deviation of the

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spinal arc, a plumb line is attached to the skin in the area of the cervical vertebrae and the degree of deviation of the austral spine from the plumb line is measured in centimeters. However, the most reliable method of examination is radiography, which is performed on a large film with mandatory pelvic grip. Images are taken in the standing and lying position.

Electromyographic examination, or muscle chronaximetry, allows to determine the state of the muscular system, which is especially important in neurogenic forms of scoliosis.

Many people attach great importance to biochemical parameters of blood and urine, which to some extent can shed some light on the origin of scoliosis, and sometimes on the deep changes that occur in this disease (violation of amino acid metabolism, metabolism of mucopolysaccharides, etc.).

Prophylaxis and treatment. Given the frequency. The possibility of progression of scoliosis and further course, much attention should be paid to the prevention of scoliosis.

In the early stages of a child's life, from infancy until the age of 3 years, it is important to eat properly, stay in the fresh air, sleep hygiene and hardening of children as prevention of possible rickets. In case of inclination to progression of the process is shown stay in plaster beds, massage of the body muscles, baths.

In preschool it is necessary to make sure that the furniture of the child corresponds to its height. Sleeping children should be on a hard bed with a small pillow under his head. The greatest attention should be paid to schoolchildren, as at 7-9 and 12-14 years of age there is the greatest progression of scoliosis. If there is no progression (measurement, P-graphy in comparison with the previous pictures) outpatient treatment is possible - periodic therapeutic gymnastics (exercises stretching the spine ligament apparatus are contraindicated!). The main attention should be paid to sports activities: especially recommended skiing, basketball and volleyball, swimming. In schools, create special groups for corrective gymnastics. Gymnastics should be performed in the position on the back, stomach, all fours, including exercises with a stick.

In the last two decades in many countries of the world, as well as in the Soviet Union, special boarding schools for schoolchildren suffering from scoliosis have been created. These schools teach subjects in the stomach position, during breaks do gymnastic exercises, at night sleep in a plaster bed. It is necessary to remember that therapeutic gymnastics should be conducted technically correct and, most importantly, taking into account the correct indications for it (especially in cases of clear etiological factor) with constant control over the course of spinal deformation.

Conservative treatment. The aim of conservative scoliosis therapy is to create compensatory curvatures and to correct (redress) the primary curvature.

Conservative methods of scoliosis treatment are combined:

- Therapeutic gymnastics with an individually designed programme;
- corrective traction;
- corrective plaster beds or stage plaster corsets-beds;
- staged edressing by apparatus;
- wearing of corrective and supporting corsets;
- general tonic treatment.

Stretching is performed on a horizontal plane in a bed with a shield and is carried out by overlaying a belt covering the pelvis, with tractions on the length of the right and left lower limbs of 5 kg. (it is possible to stretch slightly more). In addition, side tie rods with pressure on the main curvature and compensatory curvature are applied. The pull is periodically removed and the patient performs gymnastics and massage.

Corrigerating plaster beds in the treatment of patients with scoliosis are not only of great preventive value, but also are effective therapeutic measures.

Removable devices and corsets play an important role in the treatment of scoliosis. The advantages of orthopaedic corsets and apparatuses is that patients are free to walk in them while correcting. The most common ones are Ducrocke, Rieser, Blatt and CNIP. Children wear corsets all day, taking it off only at night, and sleep in plaster crib with detorsion pillows.

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In addition to physiotherapeutic treatment for patients with scoliosis, which is carried out strictly according to indications, depending on the etiology of scoliosis, spa treatment is of great importance.

Conservative orthopaedic treatment (therapeutic gymnastics, massage, apparatus therapy, etc.), physiotherapy, spa treatment, as well as drug therapy and a rational diet in a significant percentage of cases have a positive effect, especially if they begin in the early stages of the disease.

Surgical treatment. Surgical treatment of scoliosis has certain indications: the failure of long-term conservative treatment for the progression of scoliosis P degree. All scolioses of P-degree require correction and surgical fixation of the spine. Kyphoscoliosis of P-S degree and IV degree also requires surgical intervention.

Surgical treatment of patients with scoliosis is performed either on the soft tissues, or on the spine and chest.

Surgery on the soft tissues. For more than a century history of attempts to treat scoliosis through operations on the soft tissues, many different methods have been proposed, based on the intersection of the muscles on the concave side. However, all muscle operations were performed mainly in the case of paralytic scoliosis on polio soil.

Skeletal surgeries. Spine fixation and thoracoplasty were the most common. Posterior spine fixation surgery (spondylodesis) is performed in order to fix the achieved correction and ensure stability in the place of primary curvature: in addition, osteoplastic fixation should relieve pain, restore the patient's efficiency, and also satisfy him from the cosmetic point of view. Posterior fixation of the spine is used as a final stage after orthopaedic and conservative treatment, as prevention of deformation and, finally, as a complement to other surgical methods of scoliosis treatment.

Methods of surgical treatment of scoliosis. Posterior osteoplastic fixation according to Chaklin.

The operation is performed in two different variants depending on the form and degree of scoliosis.

The first variant is used for scoliosis of P degree and with one curvature arc: the P-gram determines the area of spine fixation, usually concerning IX-X vertebrae. The skin incision is made in an arched shape, bypassing the pinnate spines. The concave side is skeletoned and the formation of the bed is performed, for which the buds are exposed with a chisel, and sometimes transverse spurs, and the bone plastics are beaten from them so that a deep bone bed is formed. In the lumbar region, the intervertebral articulations are exposed for arthrodesis. Auto and homogeneity are used as grafts.


The second variant of the operation is performed in case of S-figurative scoliosis, when the spine has two mutually opposing curvatures, where they form a bed for grafts. At the place of transition of one curvature into another, the pinnate branches are removed, which makes it possible to lay a continuous transplant tightly on two curvatures of the vertebrae at once. The transplant is usually autogenic, taken from the tibia, with the addition of a homotransplant or separate pieces of homogeneity.

After the posterior fixation operation, the patient is in bed: first 7-10 days lying on the abdomen and then on the back for 2-3 months. After that he is allowed to get up - first in a plaster gelatin corset, soon he is replaced by a rigid corset, which the patient wears 8-10 months.

For surgical treatment of Scoliosis III-IV degree proposed correction in two stages:.

The first stage is the correction of the vertebrae in the lumbar spine distributor, one end of it is placed on the wing of the iliac bone, and the other end rests securely on the shackle or transverse process of the most inclined vertebrae (most often it is I lumbar or XII pectoral) on the side of the concave. Expanding the coupling of the installed distributor, mechanically straighten the spine in the lumbar spine, and then produce bone graft fixation of auto or geotransplant.

In 3 months, the second stage of the operation is carried out - mobilization of the thoracic spine, which is achieved by removing part of the disc (disectomy) or wedge-shaped resection of the vertebral bodies at the top of the largest curvature in scoliosis of III-IV degree.

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Partial removal of the disc and its dissection is done after the resection of 3-4 ribs. After the dissection of the intervertebral disc, inter and jagged ligaments increases spine motility and made immediately on the operation of the posterior osteoplastic fixation in the thoracic section does not interfere with its further correction. Correction is carried out 7-10 days after the operation with a corset and collar.

In severe forms of kyphosis, A.I. Kazmin suggested using the method of wedge-shaped body resection of two adjacent vertebrae, and to curvature kyphosis to perform resection of temples and australges. The operation ends with posterior osteoplastic fixation on the concave side of the curvature. After 10-12 days, the patient is put on a plaster corset, in which further correction is made in the thoracic spine.

Harrington (1962) to correct the scoliotic deformation of the spine suggested the use of a special metal contractor, capable of bringing together the individual points of the spine, if necessary, as well as the distributor. The distraction device is used on the concave side and the contractor on the convex side; correction is made immediately during the operation. If the child is older than 10 years, the operation is complemented by posterior osteoplastic fixation of the spine. Plaster corset is applied for 12 weeks.

Application of both contractor and distributor in case of severe forms of scoliosis is the most rational and less severe for the patient than wedge-shaped resection of the vertebral body. Complemented by posterior osteoplastic fixation, the operation becomes more effective. Surgery on the spine with a formed rib hump does not eliminate rib deformities, so often requires self-treatment - removal of the rib hump, or thoracoplasty.

It should be noted that surgery to remove the rib hump, removing a cosmetic defect can degrade external breathing performance and spine function. Therefore, it must be remembered that in some cases it can cause harm to the patient. This operation is hardly justified in patients with respiratory disorders.

4. Illustrative material:

5. Literature:

6. Control questions:

1. Define the terms "posture", "lordosis", "kyphosis", "scoliosis";
2. Basic types of posture, diagnosis of posture disorders;
3. Scoliotic disease forms, pathogenesis and etiology. Clinical signs and research methods.
4. Modern approaches to conservative and surgical treatment and prevention of scoliosis. Place of manual therapy for scoliosis. Indications for surgical treatment.

Class #12

1. Theme: Osteochondropathy. Tumours of bones and joints.

2. Objective: To familiarize students with the frequency, clinical manifestations of different types of bone tumors. To give an idea of modern methods of diagnostics and treatment of patients with tumors. To acquaint students with modern views on etiology, pathogenesis and prevalence of degenerative-dystrophic diseases (osteochondropathy, osteoarthritis). Give an idea of clinical manifestations, diagnosis and treatment methods of degenerative-dystrophic diseases.

3. Thesis of the lecture: Benign tumors are less common than malignant ones. Primary malignant tumors are found 3 per 100,000 population. (Trapeznikova N.N., 1989) more often in men aged 15-40 years. They are localized in any department of the skeleton. Etiological moments are insufficiently studied (radiation, trauma, etc.).

There are more than 60 classifications. The most acceptable classification is that of T.P. Vinogradova (1971). General clinical symptoms:

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Slow growth; smooth; painless; skin over them is not changed, mobile. Compose from 1% to 15%.

Radiology: clear contours, wide stalk, no soft tissue component.

Treatment - surgical in clinical manifestations combined with bone plasty.

Rapidly growing, expressed pain syndrome. The surface is uneven, painful. Skin is stationary, intimately soldered with the subject tissues. Vascular pattern. Suffers general status. Changes in blood (SOE increased, reduction of Hv, etc.).

P-logically - destruction of bone tissue; plate or needle periostitis, soft tissue component. Metastases into other organs (more often into soft ones). The prognosis is unfavorable up to 90%, 5-year survival rate up to 20%.

Treatment - surgical, combined.

a) Metastases more often in the spine, pelvis. Clinically manifested either by pain or pathological fractures, sometimes as a random P-logic find.

b) Pain, dysfunction of the joint, segment, infiltration, on angiograms -- pathological vascularization. Metastases to the lungs. Treatment - surgical, amputation. It's a bad prognosis.

Special aseptic bone necrosis. It's based on trauma, eating disorders.

5 stages:

- compression fracture;
- necrosis;
- fragmentation;
- structural recovery;
- consequences.

Phases:

- necrosis;
- perestroika;
- outcome.

Groups:

- aseptic necrosis of long tubular bones;
- ass. necrosis of epiphysis of short tubular bones;
- ass.necrosis of apophysis;
- partial wedge-shaped necrosis of the joint ends.

The n/thoracic section is more frequently affected; arched curvature. Affected mostly on the VII, VIII, IX, X vertebrae.

Type of apophysis, loosening, segmentation, deformation of bodies, pressure of half moon or saucer shape, wedge-shaped deformation, kyphosis.

Rigid bed, LFK, massage, recliner at early stages.

Lower thoracic, lumbar spine. Pain, fatigue. Button bump, kyphosis. Development is fast, recovery is long (6-8 years).

Affects one vertebra, rarely two or three. The density of the vertebrae is 2/3-3/4.

Conservative: rigid bed, FTL, LFK, massage, spa treatment. The treatment is long (2-3 years.).

Systemic disease with perverted osteogenesis. Pain and deformation of bones, fractures. Special pigmentation in the buttocks area, back (light brown). Atrophy of muscles, lameness, pain (see Albright).

Splitting areas, separated from healthy tissue by a sclerotic border. Affected part of bulb-shaped, cortical layer thinned. Deformation of bone (shepherd's stick).

Expohlaxation: resection with bone plasty.

Family, inherited disease. By dominant type. The age of 40-60 years.

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Characteristic: asymptomatic at first. Revealed as a radiological find. Over time, the skull and limbs thicken, there is pain, deformations, restriction of movements.

Librarization of the cortical layer, disappearance of the osseous canal. All tubular bones are affected. Unstructured pattern with spotted seals in the form of wool flakes, areas of sclerosis, osteoporosis.

Symptomatic. Deformities - surgically.

Systemic disease - violation of parathyroid gland function (violation of mineral metabolism, increased excretion of calcium and phosphorus).

In the clinic: dry skin, muscle weakness, deformities, pathological fractures.

Osteoporotic .

Cystic

Mixed

Initial - cystic changes, osteoporosis in individual bones.

Expressed - osteoporosis and multiple cystic foci in all bones.

Symptomatic.

There are deviations in the direction of bone growth in the area of epimetaphysis, apophysis in the form of lateral "emissions" of cartilage tissue.

In the clinic: painless tumor-like formation, dense consistency. They are more often detected by accident, either as a radiological finding or as a cosmetic defect.

The formation on the "stem" of the large cell structure, covered with a cortical layer, passing into the matrix layer. There may be areas of calcification.

Operative.

Congenital disease - delayed and perverse ossification of embryonic cartilage. It is characterized by pathological cartilage foci more often in the metaphyseal departments, the thicket is affected by short bones (hands, feet, ribs). Pathological fractures are not uncommon.

- Single (one segment)

- One-sided

- Multiple

Specific deformation: galipathic hip curvature; valgus or varus. tibial curvature.

Round or oblong pockets of enlightenment with distinct boundaries. The size of the centers can reach 8-10 cm. Epiphyses are flattened, beveled, bones of the hand, feet "bloated".

Surgical (bone grafting), but often relapses. Deformity is treated operatively.

4. Illustrative material:

5.Literature:

6. Control questions:

1. Frequency, classification of tumors:

- primary benign;

- primary malignant;

secondary malignant (general characteristic).

2. Nosological units

2.1 Primary benign tumours (chondroma, chondroblastoma, osteoma, osteoidosteosteoma):

- clinical manifestations


- radiological pattern

- methods of treatment

2.2 Primary malignancies (chondrosarcoma, periostatic fibrosarcoma, osteogenic Ewing sarcoma):

- clinical manifestations

- radiological pattern

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- methods of treatment

2.3. Secondary malignant tumors:

a) Metastatic (prostate and breast cancer, etc.):

- osteoclastic tumours;

- osteoplastic tumours;

b) from synovial shells

c) secondary malignant tumour clinic

d) diagnosis

e) treatment

3. Osteochondropathy.

- etiology;

- pathogenesis;

- stages;

- phases;

- groups.

4. Nosological forms of osteochondropathies:

- femoral heads (b-n Legg Calve Perthes);

- bone bumps, (b-n Osgood-Schlatter);

- the heads of metatarsal bones (b-nor Keller P);

- osteochondropathy of apophysis (b. Soyermann-Mau);

Radiological picture by stages:

- primary;

- second;

- third;

Treatment:

- body osteochondropathy (Mr. Calve)

Radiology

Literature:

Basic:

1. Kotelnikov, G.P.; Krasnov, A.V.; Miroshnichenko, V.F. // Traumatology and orthopedics. - 2009. - 538 c.

2. Gumanenko, E.K.; Kozlova, V.K. // Politrauma. -2009. - 608 c.

3. Kotelnikov, G.P.; Mironov, SP. (in Russian) // Traumatology. - 2008.

4. Fishkin, A.V. (in Russian) // Traumatology and orthopedics. -2008. - 352 c.

5. Traumatology and orthopedics (in 4 volumes). Volume 3. Traumatology and diseases of the lower limb. Publishing House: Hippocrates, 2008. - 1056 c.

6. Shaposhnikov, Yu.G. (in Russian) // Traumatology and orthopedics. -2007. - Zt.

7. Kornilov, N.V.; Griaznukhin, E.G. (in Russian) // Traumatology and orthopedics, volume 4. Traumas and diseases of pelvis, chest, spine, head. 2006. - 624 c.

8. Ankin L.N., Ankin N.L. // Traumatology and Orthopedics. -2005. - 496 c.

9. Traumatology and orthopedics/ Manual for doctors in 4 volumes under the general edition of N.V. Kornilov. - S-Pb., "Hippocrates", 2004. - 768 c.


10. Kirichek SI. // Traumatology and Orthopedics. - 2002.

Additional:

1. Girshin S.G. // Traumatology and orthopedics. Clinical lectures on emergency traumatology. -Textbook. - 2009.

2. Ivannikov SV., Hovhannisyan O.V., Gear N.A. // Traumatology and orthopedics. External sore throat osteosynthesis at forearm bone fractures -Practical resemblance. - 2009.

3. Shapovalov, V.M.; Khominets, V.V.; Mikhailov, S.V.// Internally osteosynthetic foundations. -2009. - 240 c.

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|--|--|--|---|
| <p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p> | | <p style="text-align: center;">  SKMA -1979- </p> | <p style="text-align: center;"> SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p> |
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4. Novikova, S.L. (in Russian) // Ease of movement. Rehabilitation after endoprosthetics of knee and hip joints by the patented technique. 2009.

5. Epifanov V.A., Epifanov A.V. // Restorative treatment of the musculoskeletal system injuries. - 2009. - 480 c.

6. Kondratyev A.N. // Neurotraumatology Emergency. - 2009. - 192 c.

7. Klukvin, I.Yu.; Miguleva, I.Yu.; Okhotskiy, V.P.// Brush traumas. - 2009

8. Trubnikov, V.F. (in Russian) // Emergency help at traumas, painful shocks and inflammations - practical manual. 2008.

9. David Grandi, Andrew Swain (in Russian) // Spinal cord injury. - 2008. - 128.

10. Petrov, V.G.; Zamilatskiy, Yu.I.; Burov, G.N. (in Russian) // Technologia of the upper limbs prosthesis manufacture. 2008. - 2008. - 128 c.

11. Lawrence, B. Harkness, Kim Felder-Johnson (in Russian) // Secrets of an ankle joint and foot. - 2007. - 320c.

12. Kotesheva, I.A. // Traumas. First aid and regenerative treatment. - 2008. -352 c.

13. Nabokov, A.Yu. // Modern osteosynthesis. - 2007. - 400 c.

14. Semenova O.P. Rehabilitation of the posttraumatic patients. - 2006. -

15. Sokolov, V.A. // Multiple and combined traumas. - 2006. - 518 c.

16. Sokolov V.A. //Traumatology: Multiple and combined traumas, Practical manual. - 2006. - 518 c.

Electronic resources:

1. Gostishchev, V. K. General surgery [Electronic resource] : the manual / V. K. Gostishchev. - Electron. text data. (65.0Mb). - Moscow: GOTAR - Media, 2017. - E. wholesale disc (CD-ROM).

2. General practice. [Electronic resource] : book / edited by I. I. N. Denisov; - Electron. text dan. (84,0Mb). - Moscow: GOTAR - Media, 2016. - 896 bet. el. wholesale disk (CD-ROM).

3. Consultant to physician. Orthopedics and Traumatology. Version 1. 1 [Electronic resource] : manual. - Electron. text data. (229 Mb). - Moscow: GOTAR - Media, 2009. - electronic wholesale disc (CD-ROM).

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