

Ministry of Health Protection of Ukraine
Poltava State Medical University

Approved
at a meeting of the department
pediatric surgery
with traumatology and orthopedics
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Methodical instructions
for independent work of students
in preparation for the practical training and in the classroom

Academic discipline	Traumatology and Orthopedics
Module № 1	Traumatology and Orthopedics
Content module № 3	Degenerative-dystrophic, inflammatory and tumoral diseases of the extremities and joints
The topic of the lesson	Degenerative-dystrophic and inflammatory diseases of the joints
Course	5
Faculty	Medical

1. Actuality of theme:

People fall ill an arthrosis in age 25-30, that quite often is related to the workers and sporting overloads. For elderly and old people degenerative and dystrophic changes arise up simultaneously in many joints, but arrive at most shown in the shallow joints of brushes. These changes in medical practice sometimes by mistake consider as gout.

Mostly at a deforming arthrosis some one joint is struck, quite often two of the same name, rarer two or a few different joints.

In the last decade amount of patients considerably grew deforming arthrosis. It is related to the increase of traumas of joints, with the professional loading, increase of life-span of man, with the features of feed and many other reasons.

2. Educational aims:

➤ To become familiar with clinical and X-ray presentation of degenerative and dystrophic diseases of joints.

➤ To know about principles of diagnostics, treatment and prophylaxis of arthrosis.

➤ To master terminology, classification, general features of flow of disease, principles of early recognition.

➤ To master the basic moments of prophylaxis, conservative and operative treatment.

➤ Able to conduct the differential diagnosis of degenerative and dystrophic diseases of joints.

➤ To capture the methods of determination of degree of violations, receptions of CPhE, massage.

➤ Able to appoint treatment to the patient with an arthrosis

➤ Able to define a testimony to the surgical method of treatment of degenerative and dystrophic diseases of joints.

3. Base knowledge, abilities, skills necessary for the study of theme:

Discipline	To Know	Able
Normal anatomy	Structure of skeleton	To define the pathological changes of elements of locomotorium
Normal physiology	Normal indexes of these laboratory researches	To define the rejection of indexes lab. researches
Propedevtic of internal illnesses	Rules of realization of examination, palpation, percussion, auscultation	To conduct the inspection of patient
Pharmacology	Groups of pharmacological preparations : influencing on metabolism of cartilage, antiinflammatory action, biostimulators	To appoint medicamental therapy to the patient with an arthrosis
Radio Therapy	X-ray signs of	To set a X-ray diagnosis

	degenerative diseases of joints	
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4. Materials for before auditorium of independent work

4.1. Reference map for independent work with literature on the topic «Degenerative and dystrophical diseases of joints»

Basic tasks	Pointing	Answers
To learn:		
Etiology	To name basic etiologic factors that result in the degenerative and dystrophical diseases of joints	1. Displasia of joint 2. Trauma 3. Inflammatory processes 4. Violation of exchange processes 5. Immune violations
Pathogeny	To name the nosotropic theories of development of arthrosis	1. Violation of local circulation of blood 2. Biomechanics 3. Violation of intra-articular hydrostatical pressure
Classification	To bring classifications over of arthrosis	1. Clinical 2. Roentgenologic
Clinic	To specify basic symptoms	1. Pain. 2. Deformation of joints. 3. Limitation of mobility
Diagnostic	To give the list of basic methods of diagnostics	1. Clinical 2. Laboratory 3. Instrumental
Differential diagnostics	To conduct differential diagnostics with other diseases of joints	Different arthrosis from specific and heterospecific inflammatory diseases, rheumatism, gout and etc
Conservative treatment	To specify composition of holiatry of arthrosis	1. Unloading of joint 2. CPhE 3. Massage 4. Physiotherapy. 5. Curative blockades 6. Oxygen therapy 7. Medicamental therapy 8. Needle reflex therapy 9. Phytotherapy
Surgeon treatment	To name the groups of operative interventions, define testimonies to each of them	1. Making better circulation of blood in the tissues of joint 2. Unloady 3. Mobility

		4. Antihunt 5. Reconstructive and correlation
Prophylaxis	To distinguish the groups of persons for the health centre system, to specify prophylactic measures	Patients with born and purchased deformations of joints, locomotorium, consequences of intra-articular breaks

4.2. Professional algorithms in relation to a capture by skills and abilities:

Task	Pointing	Notes
To inspect sick	To collect complaints, set anamnesis of disease and life to set character of pain, define the volume of motions in a joint	To pay attention to etiology of disease
To appoint the volume of additional inspections	To interpret data of laboratory and instrumental methods of inspection	To pay attention to changes of proteinogram
To set a clinical diagnosis	To define the degree of violation on the basis of clinicoradiological data	To pay attention to generalization of process, presence of concomitant diseases
To appoint the plan of conservative treatment	To define curative measures for a holiatry on the certain stage of disease, to set their sequence	To pay attention to firmness of pain syndrome, speed of progress of pathological process, degree of defeat
To ground the method of surgical treatment	Taking into account the state, age, profession of patient to define the aim of the planned interference, choose optimal methodology of operation	To pay attention to postoperative period, social rehabilitation of patients

4.3. Table of contents of theme

Arthrosis develop after a trauma (sharp or micro), some inflammatory processes in a joint: (tuberculosis, syphilis), after epiphyseal osteomyelitis, chronic synoviit and other.

Reasons of arthrosis can be metabolic disturbances, change of function of ductless glands, vitamin disbalance, that create a pathological background and less endurance of the bone system to excessive and even to ordinary physical activities. Reason of deforming arthrosis can be a primary defeat of bark of epinephroses

with the deficit of hydrocortizone that regulates metabolism of collagen - basic albumen of connecting tissue.

Now a considerable place in the origin of degenerative and dystrophical diseases (arthrosis, osteochondrosis of backbone) is taken to the immunogenesis vehicle.

There are three basic nosotropic theories of arthrosis :

1. Theory of violation of local circulation of blood.
2. Biomechanics theory.
3. Theory of violation of intra-articular hydrostatical pressure.

The clinical display of arthrosis is characterized by three basic gradually increasing symptoms: by pain, deformation of joint and limitation of mobility.

In the flow of disease distinguish 3 stages,

Prearthrosis (A- 0). Characterized by the precursors of arthrosis - inconstant pains after the overload of joint or long uncomfortable position of leg, feeling of discomfort in a joint. External changes from the side of joint are not present, a motive function does not suffer.

I the stage of arthrosis (A - I) is indemnification. Conditioned by beginning of degeneration of arthral cartilage - his dimness, reaction of synovium on degeneration of cartilage. For this stage morning pains are characteristic, a patient "goes" away then, pain disappears and again appears to the end of day. At overloads pain increases, a joint swells up a little, some limitation of motions certain for every joint appears. Due to a synoviit joint is incrassate, but other signs of inflammation are not present.

The II stage (A - II) is subindemnification. Answers more expressed pathological changes of joint. Remissions less long, pains, are stronger. A joint is irreversibly deformed. Motions limit already in all planes and accompanied by a crunch.

III the stage of arthrosis (A- III) is decompensation. Clinically it is determined by considerable deformation of joint with an expressive bulge and expansion of epiphysiss, expressed atrophy of muscles of all ending. The staggered joint is in a force position. All motions limit proof, up to pendulum motions, and painly.

Diagnostics is based on the basis of clinicoradiological data.

Treatment of deforming arthrosis can be conservative and surgical depending on the stage of illness and expressiveness of clinical displays.

The aim of conservative treatment is taken to:

➤ Cut short of the pain feeling, removal of muscular and arthrogenesis contracture, increase of function of joint.

➤ Corrections of intra-articular violations: improvement of metabolism of tissues of sick joint, warning of further lysis of integumentary regulation cartilage, inhibition of inflammatory process.

Stimulations of metabolic processes are in an organism, or normalizations or improvement of the psychological and general state of patient.

For the achievement of these aims next curative measures are used: physiotherapy, curative physical education and mechanotherapy, oxygen-therapy, balneological treatment, CPhE, massage, numerous medical preparations are used.

Treatment of arthrosis must be begun with the obligatory unloading of joint. Curative blockades.

Apply intra-articular introduction of contrical or trazilol. Enter in a joint preparations that improve metabolism of cartilage.

To the methods of nosotropic therapy of deforming arthrosis introduction behaves to the joint of medical oxygen.

Locally on the area of joint it is possible to apply ointments with bee poison, with serpentine poison, on the basis of pepper, ointment.

Medicamental therapy.

Arteparon apply for the correction of intraarticular violations, mucartin, rumalon.

For inhibition of inflammatory displays and cut short of the pain feeling appoint an aspirin, trisalicylate, salicylate of natrium, voltaren, pyrocsicam. For general influence on an organism biostimulators are used: aloe, FIBS, vitamins of group B).

Surgical treatment is shown at the quickly making progress flow of disease, proof pain syndrome, contracture of joint in vicious position. Operations execute usually at II - III of stages disease.

All numerous interferences applied at deforming arthrosis, it is possible to unite in next groups:

- making better circulation of blood in the tissues of sick joint;
- off-loading;
- mobilizing and antihunt a joint;
- reconstructive;
- correcting.

For the prophylaxis of arthrosis an account and health centre system are needed:

- children with displasia of thurl and set congenita dislocation of thigh;
- persons that carried the osteochondropathy of head of thigh-bone;
- persons with congenita and purchased deformations of the locomotorium system, shortening of extremity, scoliosis;
- patients with the consequences of intra-articular breaks and wrong accrete break of diaphysis.

Materials for self-control

A. Questions for self-control:

- Etiology of degenerative and dystrophical diseases of joints.
- Pathogeny of degenerative and dystrophical diseases of joints.
- Classification of degenerative and dystrophical diseases of joints.
- Clinic and X-ray displays of degenerative and dystrophical diseases of joints.
- Differential diagnostics with other diseases of joints.
- Holiatry of degenerative and dystrophical diseases of joints.

- Prophylaxis of degenerative and dystrophical diseases of joints.
- B: Tests for self-control: see an appendix
- C: Tasks for self-control: see an appendix

Recommended literature

The main literature:

1. Traumatology and orthopedics : textbook for students of higher medical educational institutions / edited by Golka G. G., Burianov O. A., Klimovitskiy V. G. – Vinnytsia : Nova Knyha, 2018, – 400 p. : il.
2. Venger V. F. Serbyuk V. V. Rashed Mochammad. Traumatology and orthopedics. – Odessa: Druk, 2006. – 248 c.
3. Bur'yanov O. A. Traumatology and Orthopedics. K.: Medicine, 2007. – 216 c.

Background Information:

1. David J. Dandy, Dennis J. Edwards Essential Orthopaedics and Trauma, Churchill Livingstone Elsevier, 2009, - 490 p.
2. David L. Hamblen, A. Hamish R. W. Simpson Adams's Outline of Orthopaedics, Churchill Livingstone Elsevier, 2010, - 485 p.
3. Ronald McRae, Max Esser Practical fracture treatment, Churchill Livingstone Elsevier, 2008. – 447 p.
4. Ronald McRae Clinical orthopaedic examination, Churchill Livingstone Elsevier, 2010. – 323 p.
5. David J. Dandy, Dennis J. Edwards Essential Orthopaedics and Trauma Churchill Livingstone Elsevier, 2009, - 490 p.
6. Borland WA. Illustrated Medical Dictionary. - 29th edition. -Philadelphia, 2003.

Internet resources:

<https://www.4tests.com/usmle#StartExam>
http://goto.grockit.com/kaplan/quizzes/medical.php?utm_source=kaptest&utm_medium=kaptest&utm_term=us-med&utm_content=try-us-for-free-us-med&utm_campaign=usmle-step1-qzzer
<http://www.nejm.org/multimedia/interactive-medical-case>
<http://www.roadto10.org/ics/>
http://www.medscape.com/index/section_1436_0
<http://www.webmd.com/a-to-z-guides/quizzes/>
http://www.medicinenet.com/quizzes_a-z_list/article.htm
<https://medlineplus.gov/surgeryvideos.html>
<http://www.bidmc.org/yourhealth/bidmcinteractive/quizzes.aspx>
<http://hardinmd.lib.uiowa.edu/index.html>
<https://www.youtube.com/user/nucleusanimation/videos>

<http://www.medicalstudent.com/>

http://www.thestudentroom.co.uk/wiki/Resources_for_Medical_Students

<http://www.nucleuscatalog.com/>

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