Ministry of Health Protection of Ukraine
Poltava State Medical University

Approved
at a meeting of the department
pediatric surgery
with traumatology and orthopedics
Protocol №1 August 27 2021
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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	Congenital diseases of the spine, bones and joints
Course	5
Faculty	Medical

Poltava 2021

1. Actuality of theme:

Congenita deformations behave to difficult orthopaedic pathology of locomotorium. The lacks of development of separate formations of skeleton, ligamentary vehicle, muscular tissue lie in their basis, that make progress with development of child. Clinical signs depend on the type of deformation, age of child and characterized depending on localization of pathology by separate symptoms. In early age they can be less expressed, however, already to 3-4 months lives of child show up more clearly, and to 2 they are noticed by parents. A large and important feature at these pathologies is an early exposure of deformations, beginning from maternity hospital.

2. Educational aims:

- To learn the most widespread deformations of locomotorium, etiopathogeny, methodologies of inspection of such patients.
- Able to take the history, conduct the inspection of function of extremity, read X-ray.
- To capture by skills realization of inspection, imposition of gipseous bandage, small bed; realization of glue extraction.

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

Discipline	To know	Able
Normal anatomy	A structure is a normal anatomic structure of the damaged segments	To use knowledge of structure for implementation of practical skills
Radiotherapy	Research methodologies, correct preparation of patients	To read X-ray, computer sciagrams
Topographical anatomy and operative surgery	Topographical correlations	To use knowledge of topographicand anatomic correlations for implementation of local anaesthesias
Pharmacology	Remedies for etiologic, pathogenic and symptomatic therapy	Correctly to conduct and estimate the results of tests on medicinal preparations and determine the effective ways of their introduction
Course of physiotherapy and curative physical education	Ground of application of physical therapy factors and CPhE	To use physical therapy methods and CPhE

4. Materials for before auditorium of independent work

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

Tasks	Pointing
To choose from a symptom complex list, that characterize congenita pathology	To take the history
At objective research to educe the symptoms of congenita pathology of locomotorium	To define a volume and sequence of methods of inspection
To lay down the chart of additional methods of inspection	To define the necessity of additional methods of inspection
To ground to the tactician of treatment, to educe a testimony to operative treatment	To know before operation preparation, symptomatic therapy
To define the type of operation depending on a disease	To know topography of tissues and technique of operations
To give the operating setting then	To apply the methods of pathogenetic therapy

4.2. Table of contents of theme

Congenita dislocation of thigh.

Congenita dislocation of thigh - one of most that often meet deformations of locomotorium, constituent over 3% all orthopaedic diseases.

One-sided dislocation of thigh meets in several times more often than bilateral (7:1), thus in girls more often than for boys.

Dyaplasia of thurl. It is the teratosis of trochanter cavity (it compression, excalation of head of thigh-bone and surrounding her muscles, and also pathology of ligamentary vehicle and capsule of joint). Dysplasia of thurl meets in 16 from 1000 babies, and dislocation is formed in 5 from 100.

Consider that dislocation of head from cavity takes place as early as intra maw period. A child gives birth with the stretched capsule of thurl, as a result the head of thigh easily slips out from cavity at the list of legs and similarly easily enters for her at taking of them. Maldevelopment of throchanter cavity and proximal department of thigh conditioned mainly by absence of correct betweenness by them.

Subluxation of thigh. On a background a dysplasia joint the head of thigh is displaced outside and up, but it keeps indoors outside a limb, remaining in a joint. However in this case the center of head does not answer the center of throxanter cavity.

Dislocation of thigh. Comes, if the head of thigh is displaced yet more outside and upstairs, a limb as a result of elasticity is wrapped up in the cavity. Head of thigh not only not center, she appears out of arthral cavity outside a limb.

The effect of treatment of congenita dislocation of thigh depends on a degree and form of pathological process. Not subject to the doubt, that than before diagnosed and begun treatment, the more chances are on success. A diagnosis must be set already in a maternity hospital.

In the exposure of this pathology a basic role belongs to the paediatrician of maternity hospital (if necessary - with consultation of orthopaedist). In future a review is conducted through 3- 4 week and in 3-monthly age, as possible before to set a diagnosis.

Early diagnostics of dysplasia and dislocation of thurl. Necessary careful collection of anamnesis: finding out of heredity (especially if pathology is suspected for a girl), as pregnancy flowed, what violations of her development were marked. The defined value has character of flow of luingins. At luingins in pelvic place of birth congenita dislocation of thigh meets considerably more often.

To the basic symptoms of congenita dislocation thighs belong:

1. Symptom of dismount, or «goldfinch» (symptom of Marks – Ortolani).

2. Limitation of taking of thigh.

3. External rotary press of lower limb.

Diagnostics of congenita dislocation of thigh is in more senior age. For children older diagnostics of congenita dislocation of thigh does not present considerable difficulties a year. First of all at presence of congenita dislocation of thigh(especially bilateral) children undertake the first steps far later than to internal fat (to 14 month). An unsteady step, lameness, appear at one-sided dislocation; at bilateral dislocation is a step, that the symptom of Trendelburg is crossed («duck»),

Basic value not only for establishment of diagnosis but also for the choice of method of treatment have data of roentgenologic inspection.

Treatments of dislocation of thigh in the first weeks of life begin from application of tires that give arcuated in knee-joints legs of position of taking. When a child begins to walk, embole, as a rule, it is not succeeded the ordinary breeding of feet.

Methodology of functional treatment of congenita dislocation of thigh is worked out in a small bandage-bed, made from polyethilene. The polyethylene tire of Volcov provides the gradual weakening of muscles in position of bending of extremity for Lorens-II and taking of thighs to 60-70°. A tire assumes mobility of extremity within the limits of 5-8°, that prevents development of contractures.

Surgical interference at congenita dislocation of thigh at this time is shown in 2-years-old age, and at don’t removal he can be operated, beginning from 1th of life.

Testimony to the open setting: a 1) impossibility to do the closed setting as a result of anatomic changes in a thurl (a large change of head is back high dislocation, dramatic changes of angular sizes of proximal end of thigh, compression cavity and excalation of «roof»), 2) reluxation after the closed setting, 3) diagnosticating of dislocation later 2-years-old age.

All types of surgical treatment at congenita dislocation of thigh can be divided into next groups: а) open embole, б) open setting in a report with reconstructive operations, в) palliative interferences.

Congenita pigeon-toe.

Congenita pigeon-toe is deformation that most often meets among the congenita teratosiss of locomotorium (35-38% all congenita deformations). For boys this deformation meets twice more often than for girls. Bilateral pigeon-toe is observed considerably more often one-sided.

Congenita pigeon-toe is a polyetiological disease.

Clinic. Distinguish two forms of congenita pigeon-toe: typical (about 80%) and offtype (about 20%).

Characteristic position of foot at congenita pigeon-toe is complemented by the rotary press of shin of inside, limitation of mobility in a talocrural joint. At circulation of child pigeon-toe increases, appears callous skins, the bones of foot are displaced on a relation one to one, new arthral surfaces will appear and empty old, because atrophy cartilaginous surfaces.

The step of children that suffer pigeon-toe is characteristic that the foot of one leg they carry through a foot other. Motions in a talocrural joint, that afterwards come true in a frontal plane, change as a result of change of bone basis of foot and their deformations. Muscle of shin badly develop and that is why look thinner. Knee-joints become straight, the posture of all trunk is done to the line, and step - uncertain and low plastic.

Treatment. Both conservative and operative.

Conservative methods at treatment of congenita pigeon-toe to apply as possible before: from a 10-12th day after birth. Treatment can be conducted under the direction of doctor by a mother and consists of daily redresation with the next fixing of obtaining success. It is sometimes succeeded to attain the correction of foot at 2 masses, but for retaining of hypercorrection to the child it is needed on night to lay on plastic hams. In the complex of remedies include that correct of CPhE, keritherapy, massage, appliques of ozocerite, electro stimulation of tibialis muscles.

Surgical treatment of congenita pigeon-toe is a force method. From operations on to the ligamentory vehicle most confession was got by an operation for Zasepin. Operations on bones conduct for the children of not yanger 7, when the most intensive height of bones closes. At the heavy form of congenita pigeon-toe do the falx like resection of foot for Kuslic.

In recent year methodology of correction of heavy forms of congenita pigeon-toe got distribution with the use of dystraction vehicles of Ilizarov. The construction of these vehicles allows gradually to remove everything components of pigeon-toe.

Congenita muscular wryneck.

Congenita muscular wryneck on frequency occupies the third place among the congenita diseases of locomotorium (from 5 to 12%). Mark repressing defeat in girls and more often right side localization.

From many theories of origin wryneck none explains the mechanism of origin of this pathology fully.

Clinic. The expressed deformation in the first 7-10 days of life of child meets rarely. However on 3th to the week one of sternomasteocleidy muscles changes: a compression appears in her middle part. Noticeable inclination of chairman of the aside changed muscle and turn of person become in an

opposite side, the volume of motions of chairman diminishes. If changes in to the sternomasteocleidy muscle small, the head of child can be shown out in correct position. At the considerable bulge of muscle doing it is not succeeded. The row of additional symptoms characteristic for the early period of life of child marks also: asymmetry of person and skulls, divergence in a form, position and size of auricle, sometimes absence of horizontal folds on a neck from the same side.

If wryneck is considerably expressed, a scoliosis will appear. Legs of sternomasteocleidy muscle at palpation thinner of normal, denser by touch, and the defeats of trapezium like shortened on a side and toothed muscles result in the asymmetric standing of shoulder-blade and under shoulder area. Inclination and turn of chairman depend on the degree of one defeat of legs of sternomasteocleidy muscle : in case of repressing defeat of pectoral leg the expressed turn of chairman, and at the defeat of clavicular - and inclination of chairman. For patients with congenita wryneck the half of chairman on the side of defeat becomes more compression and wide. Eyes and eyebrows are subjacent, than on a healthy side. There is a maldevelopment of overhead and lower jaws, and also additional cavities of nose, nasal septum and hard palate. Possible limitation of eyeshots.

Treatment. Conservative therapy is necessary to be begun from the moment of exposure of changes of sternomasteocleidy muscle. Exercises are recommended 3-4 times per a day for 5-10 min., that consist in the turn of head in an opposite side and the aside shortened muscle. Exercises can conduct to have child. It is expedient also to apply the massage of muscles of neck (especially healthy muscle) and UHV-therapy.

Beginning from 6-8-a week's age appoint therapy that lesion, - to the electrophores iodide of potassium; the course of treatment is repeated through 4 masses. A large value in this period has a facial massage and necks on the side of defeat. The attained correction holds out the cardboard-wadding collar of Chanse, by sacs with sand (in a bed), carrying of coif with braids.

Syndactyly. Complete or partial union of a few fingers of brush. Often reported with other vices stipulates not only cosmetic but also functional defect of brush. Distinguish the skin, membranous, bone and eventual forms of syndactyly. A skin form meets most often. Thus two nearby fingers are accrete on all draught. At a membranous form fingers are accrete inter se by means of skin bridge, like a swimming membrane that consists of two sheets of skin. Bone unions meet at one area or all phalanxes. An eventual form is characterized by the union of dystal phalanxes in default of connection between other phalanxes. Mostly at this form mark amniotic constrictions.

Treatment. Mainly surgical: beginning from 5- 6-years age conduct substituting for a defect local or free tissues. Most distribution was got by the methods of dermepenthesis for Dido and Dzanelidze and also method of Ternovsky.

Polydactyly. Deformation related to the increase of number of fingers, more often by the presence of sixth, but sometimes them it can be to 10.

Treatment. Surgical in the first months life of child. The study of sciagram allows correctly to lay down the plan of operation. It is expedient to apply півовальні cuts. At a well-developed additional finger delete the finger located outside, that deforms a brush less than. The removal of additional finger is necessary to be done fully, not abandoning epiphyse.

Materials for self-control

A. Questions for self-control:

- Etiology of congenita deformations.
- Pathogeny of уроджених deformations.
- Classification of congenita deformations.
- Clinicoradiological displays of congenita deformations.
- Holiatry of congenita deformations.

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

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qzzer

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http://www.roadto10.org/ics/

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