



ДИСПЛАСТИК КОКСАРТРОЗДА БЎҒИМ ЮЗАСИНИНГ ГИСТОКИМЁВИЙ ЎЗГАРИШЛАРИ

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Резюме

Диспластик коксартрозда чаноқ сон бўғими капсуласининг хар хил даражадаги склеротик ўзгариши сон суяги бошчаси бўғим юзаси ва чаноқ суяги ярим ойсимон бўғим юзасининг бир бирига нотекис туриши оқибатида сон суяги бошчаси бўғим юзасида дистрофик ва дисрегенератив ўзгаришлар ривожланиши аниқланади. Натижада сон суяги бошчасининг олд ва орқа латерал юзалари тана оғирлиги таъсирида кўзиқорин шаклида яссилашади ва ностобил бўғим юзаларини ҳосил қилади. Оқибатда сон суяги бўғим юзаси шу соҳада дистрофик ва дегенератив ўзгаришларга учрайди. Бўғим юзаларининг пастки олд ва орқа медиал юзаларида жуда кўп сонли емирилган ўчоқларнинг шаклланиши билан давом этади.

Калит сўзлар: морфология, чаноқ сон бўғими, неоартроз, бўғим капсуласи, гиалин тоғайи, фибриноид бўқиш, анкилоз, склероз, дисплазия.

ГИСТОХИМИЧЕСКИЕ ИЗМЕНЕНИЯ СУСТАВНОЙ ПОВЕРХНОСТИ ПРИ ДИСПЛАСТИЧЕСКОМ КОКСАРТРОЗЕ

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Резюме

При диспластическом коксартрозе выявлены различные степени склеротического изменения капсулы головки бедренной кости за счет неравномерного совмещения суставной поверхности головки бедренной кости и суставной поверхности полулунной кости с развитием большого количества дистрофических и дисрегенеративных изменений на нижне-среднем латеральной и медиальной поверхностях головки бедренной кости суставная поверхность продолжается. В результате передняя и заднелатеральная поверхности головки бедренной кости под действием веса тела приобретают грибовидную форму и образуют неустойчивые суставные поверхности. В результате суставная поверхность бедренной кости в этой области подвергается дистрофическим и дегенеративным изменениям. Продолжается с образованием большого количества очагов эрозии на нижнепередней и заднемедиальной поверхностях суставных поверхностей.

Ключевые слова: морфология, тазобедренный сустав, неоартроз, суставная капсула, гиалиновое образование, фибриноидное набухание, анкилоз, склероз, дисплазия.

HISTOCHEMICAL CHANGES IN THE ARTICULAR SURFACE IN DYSPLASTIC COXARTHROSIS

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Abstract

In dysplastic coxarthrosis, various degrees of sclerotic changes in the capsule of the femoral head were revealed due to uneven alignment of the articular surface of the femoral head and the articular surface of the lunate bone with the development of a large number of dystrophic and dysregenerative changes on the lower-middle lateral and medial surfaces of the femoral head, the articular surface continues. Summary: In dysplastic coxarthrosis, various degrees of sclerotic changes in the capsule of the femoral head were revealed due to uneven alignment of the articular surface of the femoral head and the articular surface of the lunate bone with the development of a





large number of dystrophic and dysregenerative changes on the lower-middle lateral and medial surfaces of the femoral head, the articular surface continues.

Key words: morphology, hip joint, neoarthrosis, joint capsule, hyaline formation, fibrinoid swelling, ankylosis, sclerosis, dysplasia.

Relevance of the Topic:

Dysplastic coxarthrosis accounts for 40% of joint arthrosis. The absence of clinical morphological and specific pathogenetic recommendations that explain dysplastic coxarthrosis in adults with specific criteria, and the lack of factor algorithms based on various specific criteria in treatment standards, once again indicate the relevance of this work. At the same time, the urgency of the problem of surgical treatment of dysplastic coxarthrosis is based not only on the severity of this pathology, but also on the lack of strictly individual and pathogenetically based recommendations. Radical treatment of dysplastic coxarthrosis, like other types of arthrosis, is endoprosthesis of hip joint. Endoprosthetics in stage III-IV coxarthrosis due to complete displacement of the hip requires an individual approach, planning of the operation and serious preparation of the surgeon in each case. This, in turn, requires the development of a specific algorithm based on the results obtained through morphological study and special examination methods of the components that make up the hip joint in dysplastic coxarthrosis. It allows you to determine treatment tactics based on the generated algorithm.

Purpose: To examine and analyze the morphological changes in the resected femoral head during the total endoprosthetic procedure in patients with 3-4 degrees of dysplastic coxarthrosis and to study and analyze data on morphometric parameters.

Material and Methods:

As a research object, a total of 136 coxarthrosis of 3-4 degrees, resected femur head during total endoprosthetic surgery was taken at the department of traumatology and orthopedics of the multidisciplinary medical association of Bukhara region. Morphological and morphometric changes in the surfaces of the obtained femoral heads were analyzed.

Research Results and their Discussion:

The average thickness of the hyaline bone of the femur is $1.78-6.55 \pm 0.8$ mm, and in dysplastic coxarthrosis, this index is eroded and thinned to 0.68 ± 0.5 mm on the joint surfaces with high pressure. As a result, the dehyalinization of the hyaline coating, the





appearance of fibrous tissue with coarse collagen fibers is observed on the surfaces of the eroded branches. It is in these areas, in the joint space, fibrous structures with fibrous adhesions cause dislocation of the joint surfaces and unstable joint surfaces. In our research, we studied the resected femoral head in dysplastic coxarthrosis by staining it with Altsian blue, a histochemical examination of morphological methods. When the surface of the joint is treated with special decalcifier equipment and examined microscopically, focal accumulation of Schiff structures (acidic mucopolysaccharide above pH 1.2) in the extracellular areas of the hyaline layer (see Fig. 1), tracing the sequence of isogenically located chondrocytes, extracellular in the tissue It proves that a large number of type 4 fibers of collagen structures are synthesized in a large amount in the matrix.

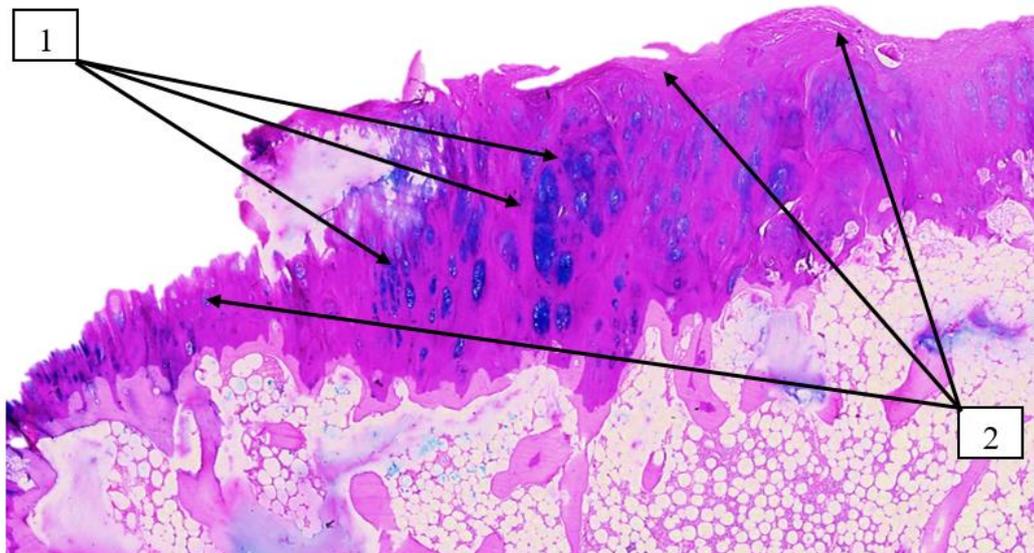


Figure 1. Dysplastic coxoarthrosis. Patient L is 49 years old. The histioarchitectonics of the hyaline spongy structures has changed. The appearance of abundant acidic mucopolysaccharide Schiff (GX+) positive structures in the nucleus and cytoplasm of most chondroblasts and chondrocytes (this appearance indicates hypoxia) (1).

Destructive changes are detected on the surface of the hyaline gland (2). Paint Altsian Blue Size 10x10.

These changes cause an increase in type 4 coarse collagen fibers in the structure of the hyaline layer, a disruption of the microhistioarchitecture of the homogeneous structure of the hyaline layer, and the transition of a smooth surface hyaline coating to a rough fibrous surface (see pictures 2 and 3). As a result, between the layers of the hyaline layer, coarse collagen fibers disrupt the diffusion process of the hyaline layer and lead to the formation of various uneven surfaces.

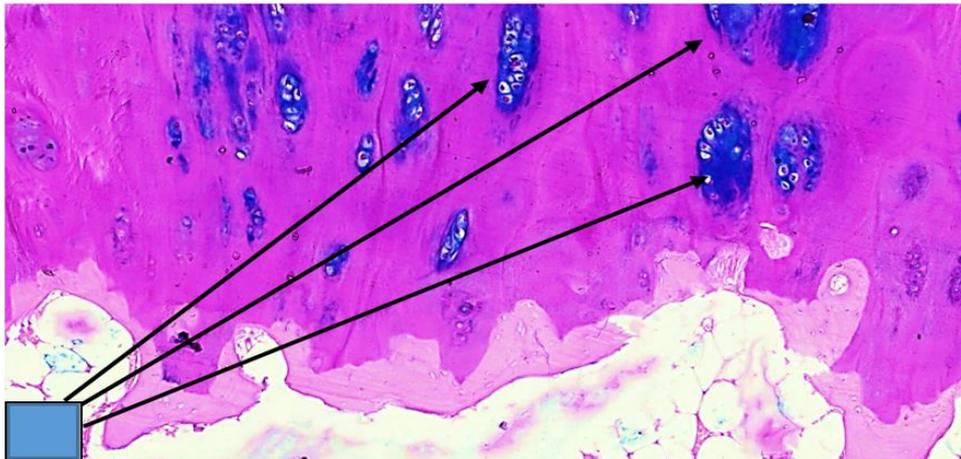


Figure 2. Dysplastic coxoarthrosis. Patient N is 39 years old. Isogenically located chondrocytes are of different sizes, and Schiff (8GX+) positive structures are detected with a focal sharp increase of acidic glycosaminoglycans in the periphery and cytoplasm. In the extracellular matrix, shadows of darkly colored, sparse fibrous structures are detected. Paint Altsian blue. The size is 40x10.

As a result, the thinned hyaline leads to an increase in the proliferative activity of fibroblasts in the connective tissue tract growing from the epiphyseal branch. This proliferative activity leads to rapid erosion of the hyaline cartilage lining and compression of the spongy substance to the bony columns due to body weight bearing on this area and deformation of the joint surface (see Figures 4-5). In the microscopic view of the hyaline, the surface and thickness of the hyaline are different, the presence of granular and columnar curved surfaces on the surface of the joint is considered to be the proof of our above opinion (see pictures 6-7).

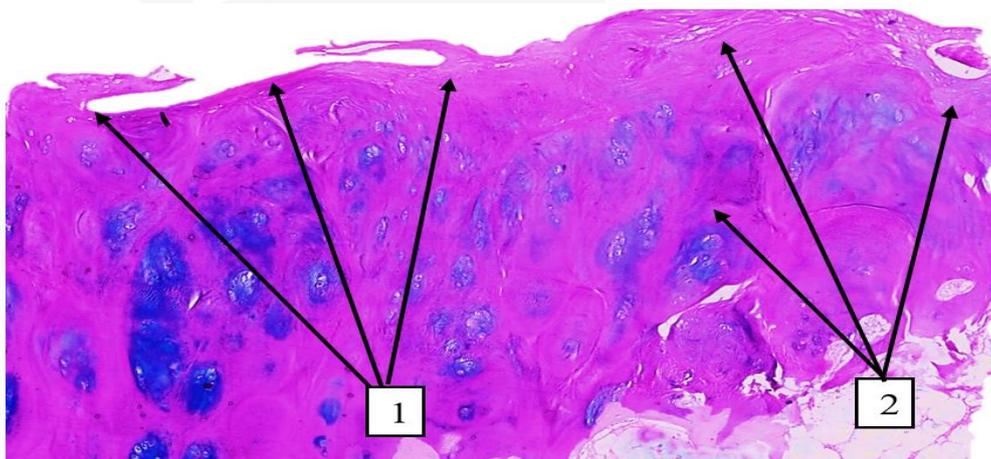


Figure 3. Dysplastic coxoarthrosis. Patient R is 53 years old. Focally increased Schiff (8GX+) positive structures of acidic glycosaminoglycans are detected on the surface of the bone, and fibrous structures are detected (1). In Schiff-negative areas, areas with increased focal synthesis of collagen fibers are identified (2). Paint Altsian blue. The size is 40x10.



Disruption of diffusion nutrition in the structures of the hyaline tendon in dysplastic coxarthrosis, increase in glycosaminoglycans in the hyaline structure as a result of increased hypoxia increases fluid absorption in the hyaline tendon. As a result, focal mucoid swelling on fluid-soaked joint surfaces leads to fibrinoid swelling and a sharp disruption of the hyaline cartilage structure (This change is considered to be a clinical proof that the effective effect of intra-articular chondroprotectors does not always have positive results) (see Fig. 6). As a result, reparative regeneration processes in the necrobiosis hyaline cover are completed in the form of incomplete replacement. Depending on the spread of the process, damage and the dynamics of the influencing factor, as a result of advanced osteoarthritis, the collection of fibroblasts that have proliferated in the perimeters of the joint gradually undergoes dystrophic calcinosis and ends with the formation of osteophytes along the perimeter of the joint. This change in turn can lead to limitation of movement in the joint and to ankylosis of the joint.

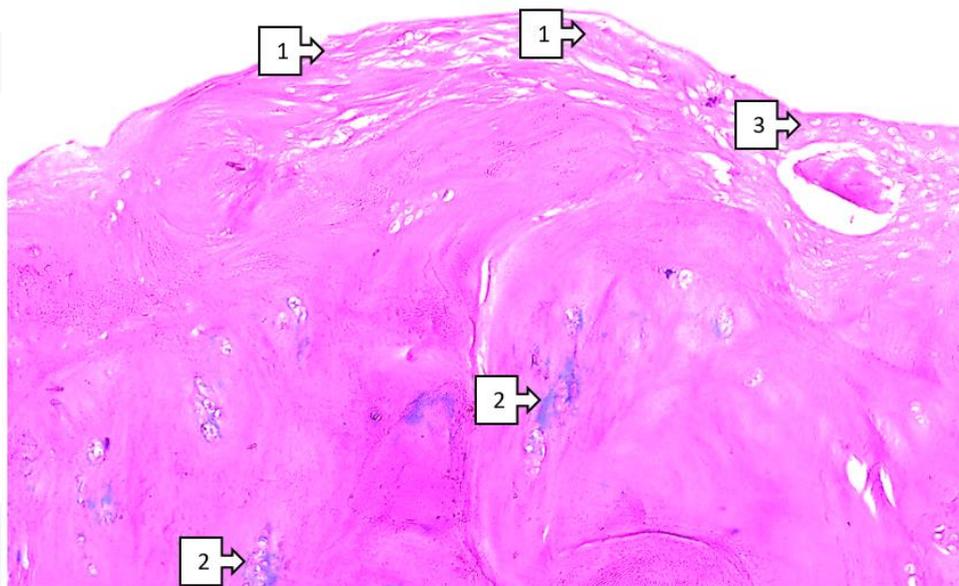


Figure 4. Dysplastic coxoarthrosis. Patient L is 47 years old. Fibrous structures are identified on joint surfaces, where focally increased Schiff (8GX+) positive structures of acidic glycosaminoglycans are detected (1). Mucoid secretion around isogenic chondrocytes (2). Abundant macrophage cells are detected on dehyalinized surfaces (3). Paint Altsian blue. The size is 40x10. The resorptive cystic enlargement of the femoral head, in turn, is characterized by the compression of the rounded femoral head and its semi-mushroom shape due to the weight of the body. These changes are mainly explained by the simultaneous development of joints, bones and ligaments due to dysplasia.



It is the resorptive erosion of the spongy substance of the epiphyseal branch, which leads to the diagnosis of osteoporosis and the formation of sclerosis and hyalinosis of rough ligaments in the perimeter of the deformed joint. This leads to a radical change in the biomechanics of the joint from a clinical morphological point of view.

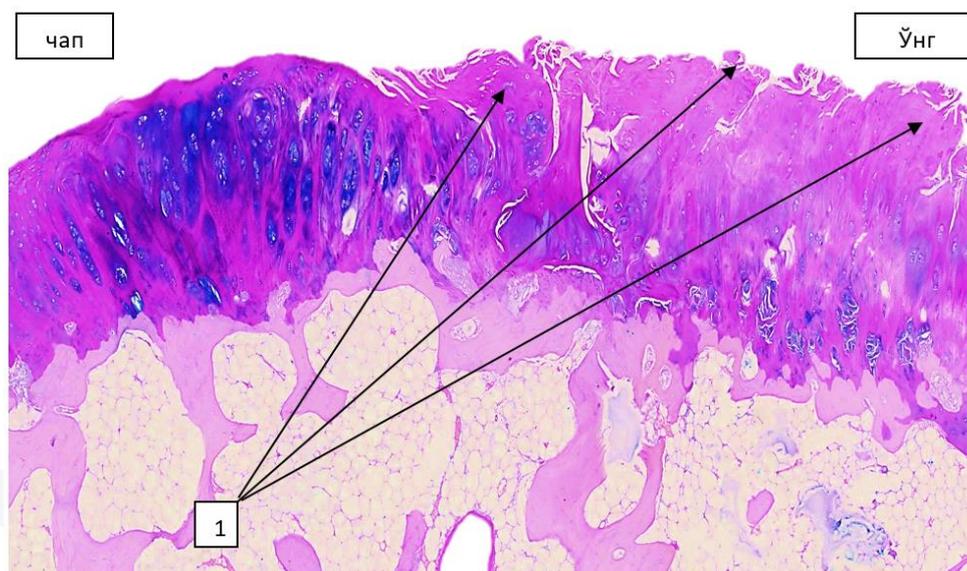


Figure 5. Dysplastic coxarthrosis. Patient B is 57 years old. Appearance of scarred joint surface due to multiple incomplete reparative regeneration (substitution) in hyaline cartilage on the joint surface (1). On the left is a relatively preserved hyaline tumor, on the right are foci of connective tissue, the surface of which is completely covered with fibrous tissue. Paint Altsian blue. The size is 40x10.

Dysplastic coxarthrosis, accompanied by the formation of numerous fibrous adhesion scars on the joint surfaces, is characterized by unevenness of the joint surfaces, neoosteogenesis in the fibrous tissue (pathological type leads to dystrophic calcinosis), and the process of reparative regeneration continues with the appearance of osteophytes. As a result of a sharp decrease in the dynamic movements of the tendons of the joint capsule in the areas where osteophytes have formed, it continues with the appearance of foci of hyalinosis and calcinosis in the tendons. These changes can lead to limitation of movements and ankylosis of the hip joint in terms of clinical morphology.

Conclusions

1. In dysplastic coxarthrosis, dehyalinization on the surface of the hyaline bone develops due to a sharp decrease in the thickness of the hyaline bone.



2. In dysplastic coxarthrosis, the incomplete type of reparative regeneration on the surface of the hyaline bone continues in the form of substitution and ends with the formation of rough fibrous surfaces on the joint surfaces.
3. In dysplastic coxarthrosis, osteoreparation on the surface of the joint is carried out in the form of substitution and continues with the formation of ossificates on the surface of the joint and osteophytes on the perimeter of the joint.

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