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PATHOMORPHOLOGICAL CHANGES IN PROTRUSIONS AND CIRCULAR VERTEBRES

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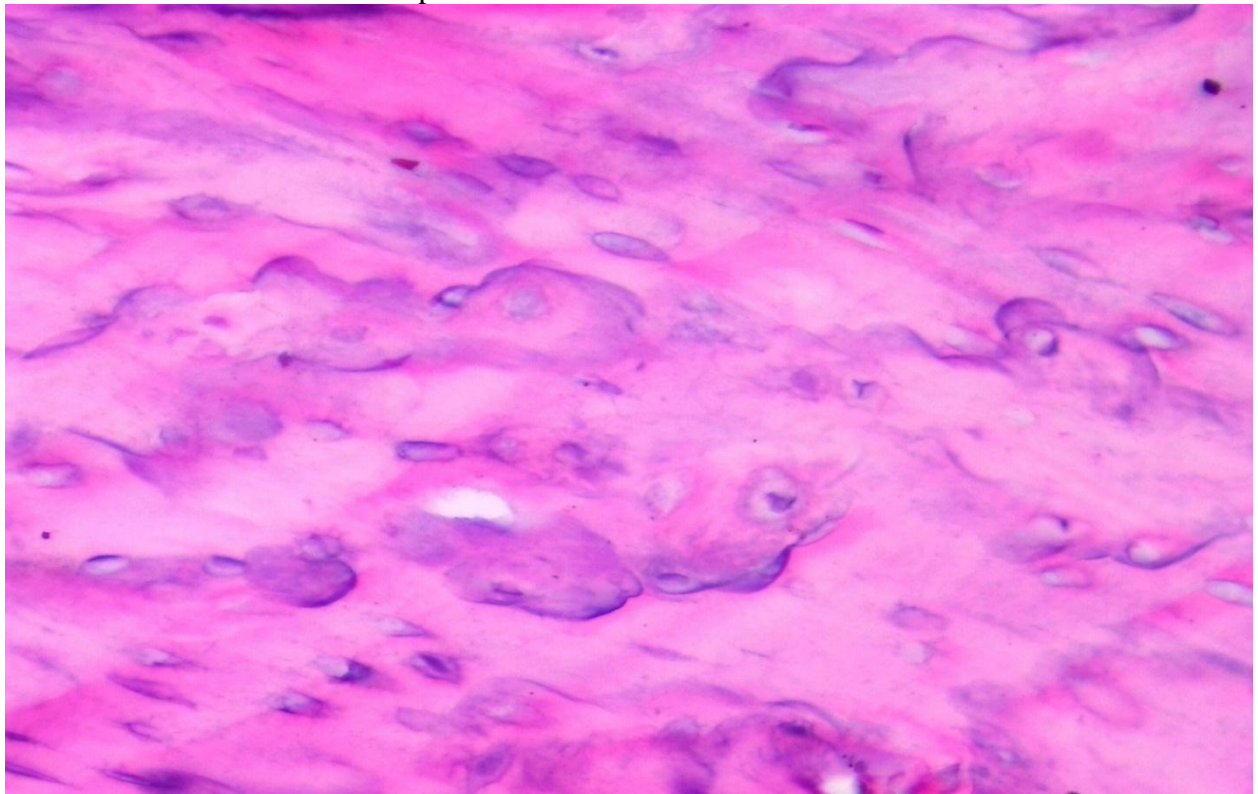
ABSTRACT

The article discusses Schmorl's hernia and its effect on the properties of the spinal canal, among the changes that can occur with degenerative diseases of the lumbar spine. Based on a pathomorphological study, changes in the spinal cord, discs and spinal cord caused by Schmorl's hernia were studied in 26 patients with degenerative diseases of the spine.

Material and research methods: 46 patients with degenerative diseases of the lumbar spine were diagnosed with protrusion of intervertebral discs based on the results of CT and MRI studies. A pathological examination of the degenerated plates of the togai and disc protrusions obtained during the operation was carried out and the results were obtained. The topography and morphology of the lumbar spinal disc taken from the spine were studied depending on the age of the patients. In this case, our age-specific study was useful in identifying disc pathologies. Another reason we study disc herniations by age is because it aligns with research priorities. As patients age, the load on the lumbar disc increases, processes causing hormonal changes and the development of degenerative changes in tissues lead to disruption of the normal morphological state. As a result of these processes, various pathomorphological changes occur in the spinal disc. A comprehensive morphological study of spinal hernias requires a scientific analysis of pathomorphological processes. Based on these studied data, we can say that the creation of a pathomorphological basis for a vertebral hernia serves as a scientific basis for restoring human health. Thus, our conclusion, based on the morphology of vertebral protrusion and herniation, determines the treatment algorithm.

Due to the random arrangement of fibrous tissue, disc fibrosis in spinal herniation (Fig. 4.3.1) is caused by various loads and metabolic disorders. In patients aged 30 to 50 years who underwent histological examination of the vertebral disc, the structure of the disc is not the same, the medial tissue of the disc faces the softer oscillating core. In the middle layer of the disc, the tissue consists of elastic fibrous fibers, and in the peripheral part, the fibrous tissue consists of round thin cords with denser fibers. In a normal intervertebral disc, the fibrous disc reduces the volume of impact forces and maintains the normal position of the disc. It has been established that the inner and outer layers of fibrous tissue of the intervertebral disc consist of rare collagen

fibers. Between the individual collagen and elastic (Fig. 4.3.2) bundles, swelling and interstitial substance are found, which serve the elasticity of the disc and nutrition of the disc . We have already mentioned that the entire surface of the vertebral disc is not the same; the same layer is located in front of the posterior part of the vertebral body, that is, the transverse process. The thickness of the surface on the posterior longitudinal side of the disc is twice the thickness of the fibrous layer under stress loads. Now, if we analyze the mechanism of this process, then the loads directed at the spine are mainly applied to two surfaces of the back of the human spine, i.e., the scapular bone growth. As a result of these loads, as we said above, the fibrous ring on the posterior surface of the vertebral body swells from tension, resulting in a protrusion in the spinal disc. When analyzing patients aged 50 to 65 years with herniated intervertebral discs, it was noted that with age, the elasticity of the spinal disc core deteriorates. At the same time, the correct proportionality of lifestyle changes depending on old age in diseases of the spine, that is, the occurrence of endocrinological diseases and inactivity at this age, has been established. When studying the causes of the rare occurrence of vertebral hernias in old age, the findings of a histological study convincingly showed that the fibrous layers of the disc herniation are not fully supplied with blood vessels, which develops only due to diffuse nutrition. At the same time, the need to move for nutrition and lack of mobility in older people leads to deterioration of disc function and loss of shock absorption.



Rice. 4.3.1. When a herniated disc occurs, the spinal tissues are distributed unevenly. Picture: G-E. Bed: 10x40.

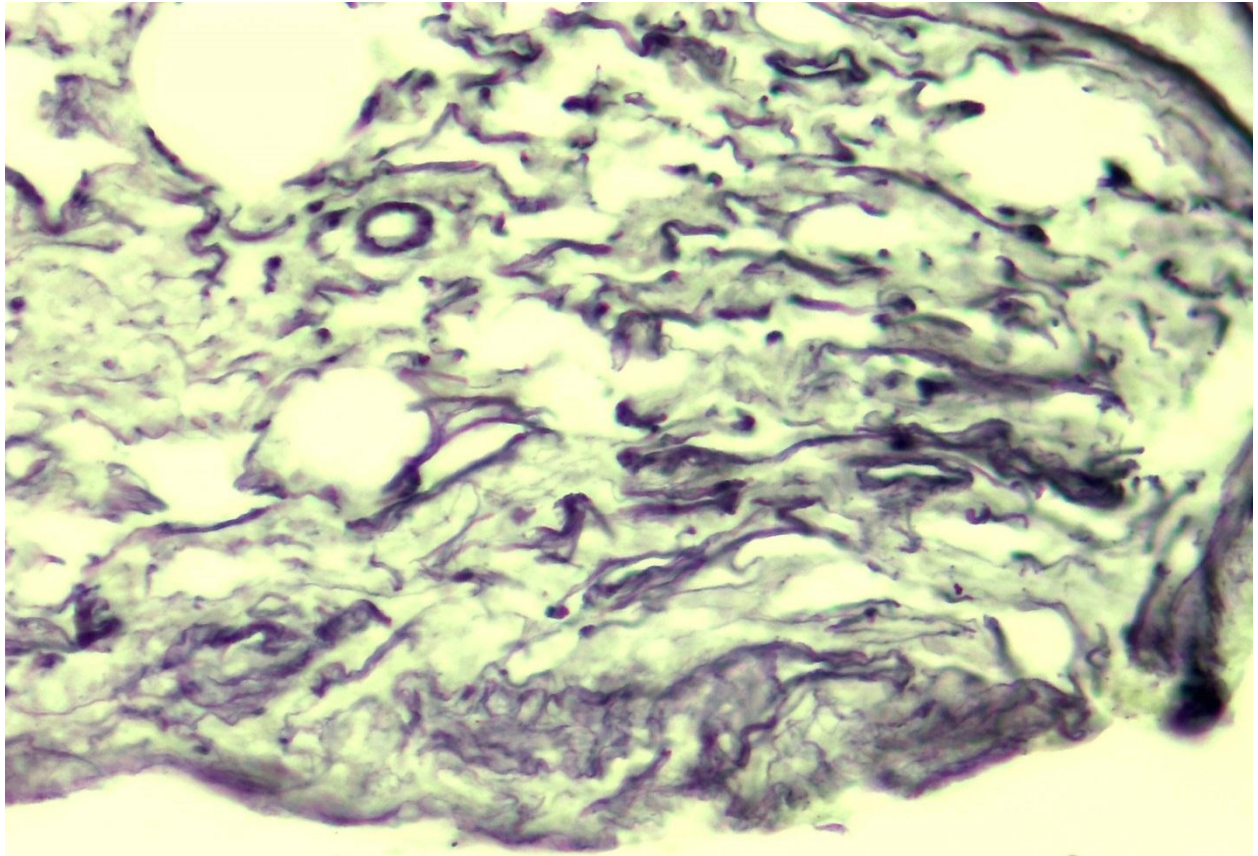
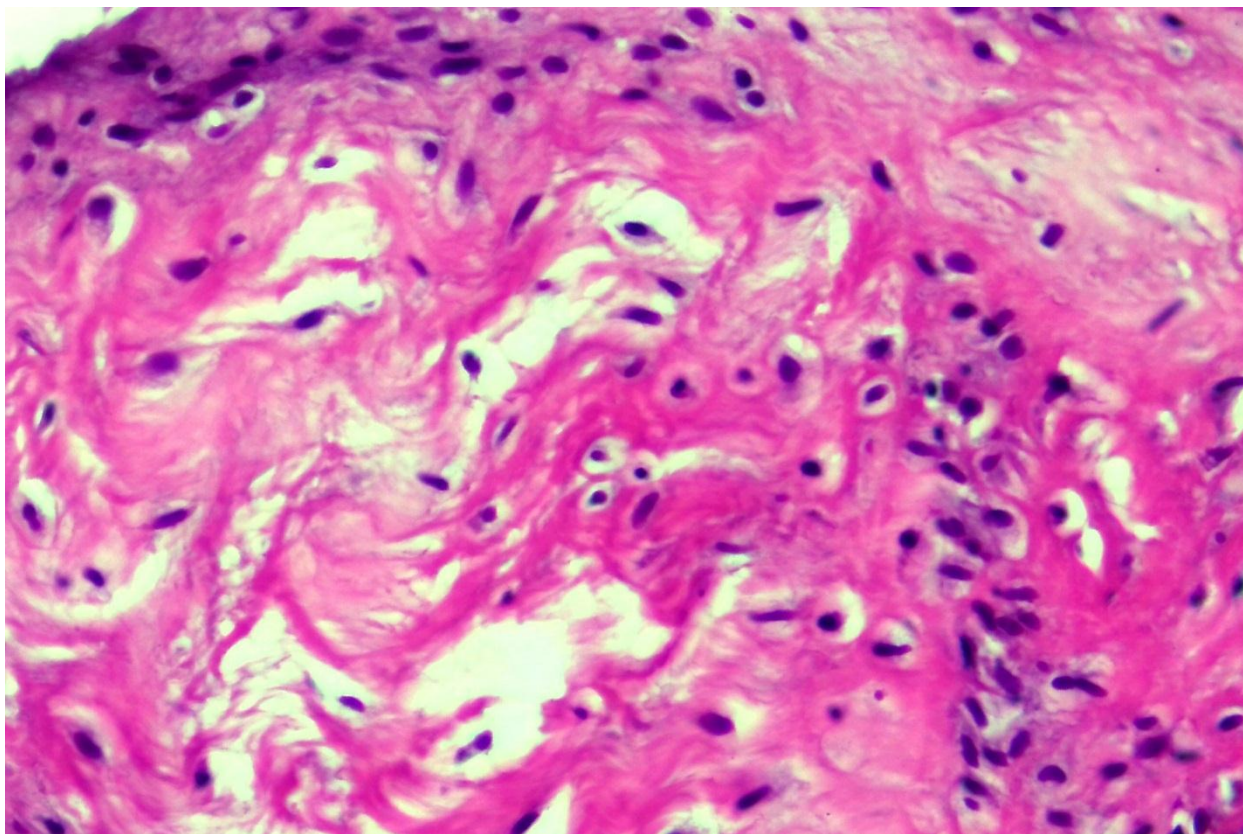
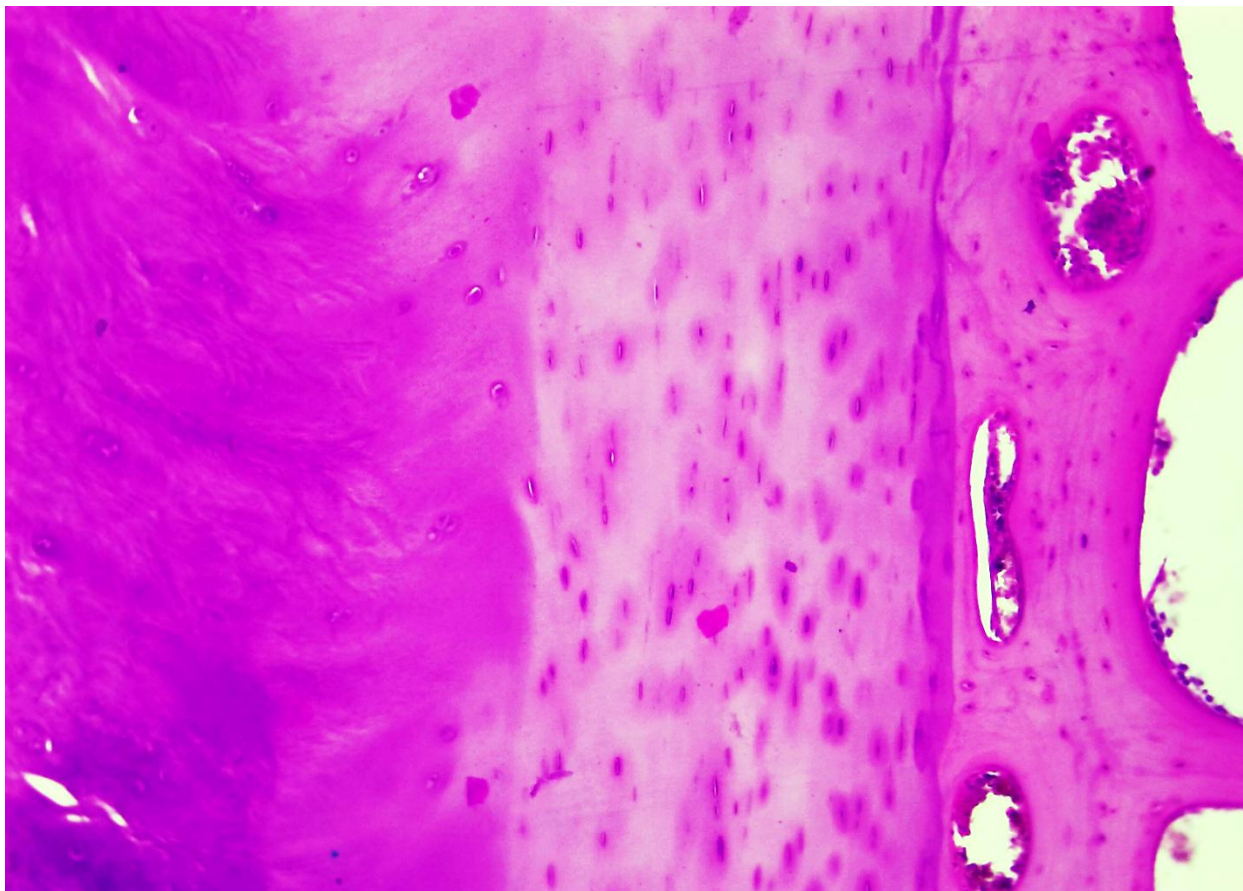


Fig. 4.3.2 Elastic fibers in vertebral hernia are reduced, fragmented and torn. Paint: Weigert method. Bed: 10x40.

The pathological process develops due to a violation of the elasticity of the intervertebral disc of the spine, which leads to thinning of the collagen inner layer of the intervertebral disc. As a result of excessive stress on the spine, the oscillating tissue of the core begins to move out of place when the core touches the inner wall of the spine and the tissue does not return to its place. As a result of the action of this irreversible stress factor, a process of dehydration occurs in this area. Malnutrition in the tissues prevents the mobile nucleus from returning to its place, and the disc changes its normal morphological state, resulting in a thinning of the fibrous layer. These clinical and pathological processes determine the cause of intervertebral disc herniation. In a study of morphological changes in patients with spinal hernias in people aged 30 to 50 years, it was found that disc damage is caused by heavy loads, mainly due to the preservation of the elasticity of the disc. In patients of this age, metabolic dehydration of the spinal disc was observed to a lesser extent, since people 30-50 years old spend their lives only with movement and heavy loads. Histological examination of the vertebral disc of these patients revealed the presence of fiberless chondroid material in the form of separate islands of different sizes in the branches of bone and disc tissue that had fallen into each other. The presence of relatively large chondrocytes in the cartilage around the islets helps the disc regain its disc configuration. Over time, some islets are resorbed, causing the islets to shrink and calcify, which is considered a sign of aging herniated discs. In a study of patients aged 50 to 65 years, it was found that filling the islets in thick tissues with a calcified substance leads to loss of fibroid elasticity, which is observed in patients of this age. In the layers of the upper articular surface of the spine, thinning of the dense fibrous tissue connected to the bone and bone was found (Fig. 4.3.4), and these conditions were found to lead to joint deformity. surfaces as a result of various stresses with age.



Rice. 4.3.3. The presence of chondroid material with unevenly distributed fibers in the vertebral hernia. Picture: G-E. Bed: 10x40.



Rice. 4.3.4. The spine is a layer of dense, tough tissue connected to bone and bone in the layers of the upper articular surface. Picture: G-E. Bed: 10x40.

During histological analysis of the pathomorphological changes of the spinal disc

herniation, it was noted that most of the monocyte, histocytic cells of osteoblasts and chondroblasts are collected in the bone marrow islands adjacent to the vertebral symphysis, and they are directly associated with the bone and chondroblasts. tissues of the spine and updated the composition of these tissues. The upper and lower parts of the intervertebral disc are attached to the surface of the spine by dense cartilage. In terms of composition, the tendon tissue is located in the form of a parallel circle, small chondrocytes are occupied between them, and in some places there are foci of calcification. The inner side of the peripheral layer of this dense fibrous tissue, that is, the side of the disc facing the nucleus, is different from the peripheral layer. In this case, bundles of thick tissue are located in the direction from the outer layer to the inner, and between these bundles single dukkam chondrocytes are detected. The nucleus of the vertebral disc consists of a large amount of chondroid material with relatively sparse fibers. The bundles of such tissue are located chaotically, in some areas they are denser, in others they are sparse, and there are almost no cells between the fibers. Differences in the histological structure of the intervertebral disc are observed in different topographic areas of the intervertebral disc. Fibrous bundles in the outer dense layer of the disc have a ring shape, and in the inner layer they have a radial shape. and in the layer close to the core, it turned out that it was located in a random direction. In all these processes, the pathomorphology of the disc herniation was studied on the basis of the microscopic structure of the conclusions of histological studies.

Conclusion.

When analyzing the clinical and pathomorphological changes of a spinal hernia, we see that disc bulging develops differently in all vertebrae, which requires a correct assessment of pathological processes. The conclusions of the conducted scientific studies showed that when studying the level of morbidity of patients and making the correct diagnosis determined that pathomorphological changes should be determined on the basis of an individual approach to age, lifestyle and work activity. Spinal diseases occupy a high place among diseases of the musculoskeletal system, the main causes of which indicate the relevance of the topic. The increase in the incidence of spinal hernias is an increase in the functional living conditions of people in the next 10 years, that is, a decrease in the required level of mobility and immobility in older people. All this disrupts the activity of the disk, that is, its nutrition, and leads to diseases. Knife protrusion and disc herniation is a disease of people living in modern conditions, and requires the development of appropriate modern treatment methods and an individual approach.

When treating vertebral protrusion and herniation, it is necessary to rely on clinical and morphological findings of disc bulge; for this, there must be an individual approach to each patient and, accordingly, diagnosis and treatment. We found that the clinical and morphological changes in the lumbar disc we studied are different at different levels of the spine, and as a result of these stresses, the pathomorphology deviates from the norm. And at the same time, we found that increasing age leads to irreversible pathological changes in the disc.

All examination conclusions determined the need to clearly define pathomorphological changes in vertebral protrusions and hernias, depending on the location of the process, and, accordingly, to develop a treatment algorithm. A complete study of the clinical and morphological features of spinal protrusion and hernia will allow clinicians to identify the causes of the disease and carry out the correct analysis and the correct choice of treatment algorithm. Thus, it became clear that it is necessary to correctly assess the clinical and morphological changes of disc herniations. Thanks to this, perfect diagnosis and treatment using modern methods occupy an important place for people's health.

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