

## EVALUATION OF CLINICAL AND ANATOMICAL CHARACTERISTICS AND PATHOLOGICAL FEATURES AT AN AUTOPSY FOR INTERNAL NON-COMMUNICABLE DISEASES IN ANIMALS

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**Abstract:** This article examines the unique clinical and anatomical manifestations and pathological findings of farm animals affected by internal non-communicable diseases. Despite the diversity of etiological factors, pathological changes in a number of non-communicable diseases can be similar. However, differences between individual cases are manifested only in the severity of the developing pathological process, its area, and the extent of the lesion.

**Keywords:** Internal non-communicable diseases, specificity, etiology, clinical manifestations, autopsy picture, pathogenesis, pathological processes, functions, compensation.

## HAYVONLARNING ICHKI YUQUMSIZ KASALLIKLARIDA KLINIK-ANATOMIK XUSUSIYATLAR VA PATOLOGOANATOMIK KO'RINISHLARNING O'ZIGA XOSLIGINI BAHOLASH

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**Annotatsiya:** Maqolada ichki yuqumsiz kasalliklar bilan kasallangan qishloq xo'jaligi hayvonlarini patologoanatomik yorib tekshirishda ayrim klinik-anatomik ko'rinishlarning o'ziga xosligi ko'rib chiqilgan hamda muhokama etilgan. Etiologik omillarning turli-tuman va ko'p qirrali bo'lishiga qaramasdan, bir qator ichki yuqumsiz kasalliklarda patologomorfologik o'zgarishlar o'xshash namoyon bo'ladi, biroq ba'zi holatlarda patologik jarayonlarning rivojlanishi hamda jarohatning maydoni va hajmi bilangina bir-biridan farqlanadi.

**Kalit so'zlar:** yuqumsiz kasalliklar, etiologiya, klinik ko'rinish, yorib tekshirish, patologik jarayonlar, kompensatsiya.

## ОЦЕНКА ОСОБЕННОСТЕЙ КЛИНИКО-АНАТОМИЧЕСКОГО ПРОЯВЛЕНИЯ И ПАТОЛОГОАНАТОМИЧЕСКОЙ КАРТИНЫ ВСКРЫТИЯ ПРИ ВНУТРЕННИХ НЕЗАРАЗНЫХ БОЛЕЗНЯХ ЖИВОТНЫХ

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**Аннотация:** В статье рассмотрены и обсуждены аспекты своеобразности клинико-анатомического проявления и картины патологоанатомического вскрытия сельскохозяйственных животных, подвергшихся внутренним незаразным заболеваниям. Несмотря на разнообразие этиологических факторов, патоморфологические изменения при ряде незаразных заболеваний бывают похожими, однако разница между отдельными случаями проявляется лишь в тяжести развивающегося патологического процесса, его площади и объемности поражения.

**Ключевые слова:** внутренние незаразные болезни, специфичность, этиология, клиническое проявление, картина вскрытия, патогенез, патологические процессы, функции, компенсация.

## INTRODUCTION

According to veterinary statistics, up to 85% of fatalities in farm animals and poultry are caused by non-communicable diseases, with diseases of young animals and metabolic pathologies causing particularly significant economic losses to livestock.

As is well known, the etiology, clinical manifestations, pathogenesis, and pathological changes of internal non-communicable diseases are extremely diverse, making it impossible to formulate a general pathological description of this very broad group of nosological entities (diseases). However, unlike infectious diseases, they are in most cases polyetiologic, characterized by predominant damage to individual organs, systems, or tissues, and often proceed without a pronounced temperature response in the animal's body. Internal non-communicable diseases are even grouped by organ systems, typically subdivided into diseases of the cardiovascular, genitourinary, nervous, and endocrine systems, respiratory organs, digestive tract, and others. Even within a single organ, not all structural and functional components are involved in the pathological process and are affected to the same degree.

This organ- or system-specific concentration of pathological processes is primarily due to the functional and anatomical specificity of organs and their structural components. Depending on the nature of the etiological factor, some organs are directly exposed to the pathogenic stimulus, while others merely exhibit a functional compensatory response or experience the effects of disruption of the body's homeostasis.

## MATERIALS AND METHODS

Since many organs perform diverse functions, various pathogenic stimuli can disrupt one or another of their functions. However, the resulting pathological processes are generally similar. The uniformity of pathomorphological changes in internal organs observed in a number of non-communicable animal diseases is primarily due to their morpho-functional specificity.

## RESULTS

Under various pathogenic influences, the glandular epithelium of the mucous membranes undergoes mucous degeneration, liver cells undergo protein and fatty degeneration, hyaline droplet degeneration is observed only in the kidneys, and Zenker's necrosis develops only in skeletal muscles and the myocardium. Exudative inflammation is most often observed in the lungs, while the liver, which lacks the conditions for exudate accumulation, typically develops degenerative changes and productive inflammation. For example, despite the diversity of etiologic factors, pathological changes in gastroenteritis, liver cirrhosis, and catarrhal bronchopneumonia are similar. The differences between individual cases are only in the severity of the developing pathological process and the area and extent of the lesion.

Of course, in internal non-communicable diseases of farm animals, local pathological processes are also a particular clinical and anatomical manifestation of the body's general suffering. However, they determine the specificity of individual nosological entities (diseases) and are certainly of great diagnostic value. Typically, in internal non-communicable diseases, the relationship between local pathological processes and general symptoms varies greatly. Many internal non-communicable diseases of animals begin with functional disorders and inflammatory-dystrophic changes in individual organs or systems, while the body's overall response and clinical symptoms of the disease manifest as local pathological processes progress and compensatory mechanisms are disrupted. In such diseases, timely and effective treatment of the local pathological process stops further progression and, in most cases, leads to a full recovery.

However, in autoimmune diseases and non-communicable diseases caused by protein deficiency, vitamin deficiencies, macro- and microelement deficiencies, or excesses in feed, morpho-functional changes in individual organs are a pathological manifestation of the animal's overall suffering, disruption of neurohumoral regulation, and metabolic dysfunction. For example, a deficiency of sulfur-containing amino acids (methionine) and vitamin E (tocopherol) in feed can lead to toxic liver dystrophy and Zenker's disease of striated muscles in young animals. A deficiency of iodine in water and feed can lead to the development of colloid or parenchymatous goiter, infertility, or fetal developmental disorders. In such cases, treatment of local pathological processes will not produce the desired effect; only by eliminating the etiological factor and normalizing metabolic processes can the restoration of affected organs be achieved.

### **DISCUSSION**

A second characteristic feature of many internal non-communicable animal diseases is their characteristic long, latent, compensated period of pathological development. Typically, gradually developing functional impairments and pathomorphological changes in individual organs and systems are compensated for over a more or less prolonged period by the activation of surviving and mobilization of reserve morpho-functional structures, the regeneration of cellular elements, or hypertrophy of affected organs, as well as the enhanced activity of other organs performing a similar function. This explains the frequently observed pronounced pathomorphological changes in certain organs during post-mortem autopsy in clinically healthy animals.

The clinical manifestations of many internal non-communicable diseases of farm animals are associated with the insufficiency of compensatory mechanisms or the inability to restore damaged organs. In fatal cases, multiple organs are typically affected, with severe or irreversible pathological processes developing in vital organs, making the animal's continued life impossible. Furthermore, autopsy findings in animals that died from internal non-communicable diseases are characterized, in the overwhelming majority of cases, by a predominance of inflammatory-dystrophic and proliferative-hypertrophic changes in individual organs and systems, while general changes are mild and uncharacteristic. Only in metabolic diseases, malignant neoplasms, and allergic pathological processes are multiple organs affected.

For example, in bovine osteodystrophy, in addition to bone tissue changes, catarrhal inflammation of the abomasum and small intestine, protein and fatty degeneration of the liver, and hemosiderosis of the spleen are observed. In toxic dystrophy of young animals, along with severe liver damage, gastroenteritis, Zenker's necrosis of skeletal muscles, and myocardial dystrophy are characteristic. However, even with these diseases, a systemic inflammatory-hyperplastic reaction of the lymph nodes and spleen is not observed, and hemorrhagic diathesis is absent or weakly expressed.

## CONCLUSION

Thus, based on the postmortem examination, taking into account clinical data, animal morbidity and mortality trends, and the farm's epizootological status, in most cases it is possible to accurately diagnose internal non-communicable diseases and rule out infectious and invasive diseases. However, it is important to keep in mind that non-communicable diseases are often complicated by autoinfection or are superimposed by invasive and infectious diseases. In such cases, pathological changes in organs caused by the underlying non-communicable disease may be obscured by complications and superimposed infectious diseases. Therefore, in uncertain, complex cases, it is necessary to send the relevant pathological and other material (organ and blood samples, feed and water samples, etc.) for laboratory testing.

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