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**HISTOLOGICAL ASSESSMENT OF JOINT TISSUE INDUCED
OSTEOARTHRITIS IN THE RAT**

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Summary

Objective: This study focuses on the comprehensive assessment of the condition of the knee joints of rats with induced osteoarthritis caused by various chemical agents. During the study, a histological and histomorphological assessment of changes in joint tissues was carried out, including the degree of cartilage degeneration, pannus condition, narrowing of the joint space, changes in the synovial membrane, bone tissue and the severity of inflammation.

Methods: This study involved 34 mature female white outbred rats, each over 2 years old and weight 250-280 grams. Tested 3 chemical inducers of osteoarthritis administered intra-articularly once: 0.5 ml 10% talc suspension, 0.1 ml 0.1% trypsin solution and 0.1 ml 1% papain solution. Analysis of histological changes in joint tissue after 90 days of observation was carried out.

Results: The most severe damage was observed in the papain-induced OA group, which was accompanied by significant changes in cartilage, subchondral bone and decrease in interstitial homogeneity.

Conclusion: The results of the study demonstrate characteristic changes in joint tissue associated with osteoarthritis, providing histological confirmation of these alterations. The use of enzyme agents such as papain and trypsin as inducers of osteoarthritis to model the age-dependent phenotype, reflecting the effects of aging and senescence, is recommended. This age-dependent phenotype of osteoarthritis accurately mimics the progressive nature of the disease seen in elderly populations. Intra-articular single use of these enzyme agents is a convenient and easily reproducible method to simulate induced osteoarthritis in experimental settings. This approach significantly contributes to a better understanding of the pathogenesis of osteoarthritis and the development of targeted treatment methods. By accurately modeling the age-dependent phenotype of osteoarthritis, researchers can gain deeper insights into the disease's progression and potential therapeutic interventions.

Key words: histological assessment, cartilage, degeneration, induced osteoarthritis

