

Pathohistologic Changes of the Femoral Head in Coxarthrosis: a Study of 37 Patients

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Aim. To examine the suitability of surgically removed femoral head for pathohistologic research, and to evaluate the influence of biomechanical factors on mesenchimal cell differentiation and osteophyte formation.

Method. Pathohistologic changes were found on the femoral head in 37 patients with advanced coxarthrosis, treated at the Department of Orthopedics at the Osijek University Hospital, Osijek. Total endoprosthesis was indicated in all patients. During the surgery, femoral head and neck were removed. Samples of the articular cartilage with subchondral bone were taken from the overloaded areas, as well as from the areas of decreased pressure.

Results. Overloaded areas were characterized by degenerative alterations, such as erosions of the articular cartilage with loss of chondrocytes and the appearance of cystic areas within the subchondral bone. The areas of decreased pressure were characterized by osteophyte formation from the margins of articular cartilage.

Conclusion. Surgically removed femoral head is a highly suitable material for pathohistologic research on coxarthrosis. Osteophyte formation is still an unresolved issue. According to the published data and our observations, changes in the magnitude and direction of the load on a joint may be seen as the ultimate modifiers in the mesenchymal cell differentiation. The destruction of cartilage is therefore accompanied by osteosclerosis and osteophytosis.

Key words: femur head; osteoarthritis, hip; pathology