Arthrography and the Medial Compartment of the Patello-Femoral Joint

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Abstract. In four groups of patients with normal patellar cartilage, synovitis, patellar chondropathy, and degenerative changes of the patellar surface of the femur, the anatomical relationships within the medial compartment of the patello-femoral joint were examined. Clear differences were observed between these groups in the incidence of visualization of the medial alar plica and the mediopatellar synovial plica. As a consequence, an explanation has been sought for the occurrence of patellar chondropathy and degenerative changes of the patellar surface of the femur. It seems probable that a long-standing traumatic synovitis with effusion, attenuation of the synovial membrane, and the composition of the synovial fluid can lead to patellar chondropathy. The degenerative changes of the patellar surface of the femur are usually secondary to those of the load-bearing patellar facet. Insufficient covering of the cartilage by soft tissue may play a role in chondropathy of the nonload-bearing portion of the patella and the femoral condyle.

Key words: Arthrography – Mediopatellar – Synovial plica – Medial alar plica – Patellar chondropathy

Arthrographic examination of the knee joint can be performed for indications other than diagnosis of meniscal lesions. The value of arthrography in the diagnosis of patellar chondropathy and cruciate ligament ruptures has been mentioned in the literature [17, 20, 25, 26]. In recent years arthroscopists have paid special attention to synovial plicae within the knee joints. In an early embryonic phase, the knee joint consists of three chambers lined with synovial membrane: the suprapatellar bursa and the medial and lateral compartments of the joint proper. At about the fourth embryonic month these synovial spaces fuse and the membranes dividing them largely disappear; remnants may persist in the adult as plicae. One of these is the infrapatellar plica (ligamentum mucosum) which extends from the intercondyloid fossa to the Hoffa body. In an arthrogram this plica must be distinguished from the anterior border of the anterior cruciate ligament. This plica is without clinical significance (Fig. 1). The suprapatellar plica is a
The mediopatellar synovial plica is clinically the most significant of the three. This vertically oriented fold courses from the craniomedial angle of the patella to the Hoffa body and thus lies partly

remnant of the division between the suprapatellar bursa and the knee joint space proper. Sometimes a complete septum is present; usually, however, a partial septum is located medially [18, 19]. This plica courses obliquely through the suprapatellar bursa and is often seen well on lateral arthrograms (Fig. 2). Several authors have reported that pathological changes in a suprapatellar plica may give rise to clinical symptoms [10, 18, 27].

Fig. 3A–D. Cross-sections of the left patello-femoral joint. The sections A, B, C, and D are taken 62, 50, 37, and 25 mm proximal to the plane of the knee joint. The proximal side of the sections is depicted. In all sections the mediopatellar synovial plica (arrow) can be distinguished from the medial alar plica. In A and B the mediopatellar synovial fold is narrow. In C it broadens considerably, overreaching the alar fold to the medial patellar surface. In D the mediopatellar synovial plica thickens and it disappears in the next section in the infrapatellar fat body (not depicted).