

Browser's notes

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Poor sensitivity of magnetic resonance arthrography to detect hip chondral delamination: a retrospective follow-up of 227 FAI-operated patients.

Konstantinidis G, et al.
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Operative notes and surgical videos of 229 hip arthroscopies performed on 227 patients (mean age 38 ± 13 years, 52% women) with clinically diagnosed, symptomatic femoroacetabular impingement (FAI) were compared with preoperative 1.5 T MR arthrography (MRA) reports for the presence of acetabular cartilage delamination. Patients undergoing revision surgery were excluded. The majority of subjects (68%) had mixed cam-pincer FAI and were symptomatic for 42 ± 39 months (mean \pm s.d.) prior to surgery. All MRAs were performed at 1.5 T and within 12 months (mean interval 8.4 months) prior to surgery. Imaging was acquired following intraarticular injection of 10–20 ml of “gadolinium saline solution at a 1:100 dilution” (no contrast agent specified); spatial resolution was 3 mm slice thickness and 0.39 mm (coronal) or 0.78 mm (sagittal, axial) in plane. Acetabular cartilage delamination was found at surgery in 169 (74%) of hips, nearly equally distributed between men and women, with a mean size of 3.1 cm, s.d. 1.5 cm. However, only a minority of the cartilage delaminations were mentioned in the radiologists' MRA reports resulting in a sensitivity of only 6% and negative predictive value of 27%, but a high specificity of 98% and positive predictive value of 91%. Cartilage delamination was significantly associated with “older” patients (39.4 ± 13 years vs. 33.2 ± 13 years for those with no delamination) and a higher alpha angle on frog lateral hip radiographs ($60.3^\circ \pm 20^\circ$ for delamination group vs. $52.8^\circ \pm 19^\circ$, no delamination). Since the MRA studies were not retrospectively reviewed by radiologists, the cause of the poor radiological reporting of cartilage delamination cannot be determined. It is not clear if there is a technical limitation of 1.5 T MRA to detect the cartilage delaminations, or if there is a lack in the radiologists'

recognition of, search for, or realization of the importance of the abnormality. The authors indicate both a need to further investigate their data with a retrospective review of the MRA studies, but also to increase radiologists' awareness that reporting these cartilage lesions is important for surgical planning of patients with FAI.

Calcification of the acetabular labrum of the hip: prevalence in the general population and relation to hip articular cartilage and fibrocartilage degeneration.

Hawellek T, et al.
Arthritis Res Ther. (2018); 20(1):104

Post-mortem direct contact radiography (DCR) was used to measure the degree of tissue calcification of the acetabular labra, femoral heads and medial menisci harvested from both hips and knees of 85 individuals (mean age 62 years, range 20–93 years; 55% male) at autopsy. In addition, the extent of hip articular cartilage degeneration was measured using the Krenn-score for fibrocartilage and the OARSI system for cartilage histopathology. While the literature reports the clinical CT prevalence of hip labral calcification at 18%, the more sensitive DCR detected calcifications in all hip labra, 96.5% of femoral heads, and 98.8% of medial knee menisci. Per patient, chondrocalcinosis was bilateral in 100% for hip labra, in 80% for femoral heads, and in 92.9% for medial menisci. The mean total area of calcification was $<1\%$ of the total radiographed area of labral fibrocartilage for 85.3% of hips, and these hips had singular or spotty patterns of calcification. The remaining 14.7% of hip labra demonstrated a streaky calcification pattern with a mean 10% of the area calcified. On average, patients showed 3.0 and 1.3 times larger chondrocalcific tissue areas for the acetabular labrum than the femoral head cartilage and medial meniscus, respectively. In contrast to published data showing basic calcium phosphates are most common in

osteoarthritic knee cartilage, analysis of the labral calcifications showed they were all composed of calcium pyrophosphate. The area of hip labral calcifications correlated with the histological grade of labral degeneration ($r=0.55$), weakly with femoral head cartilage degeneration grade ($r=0.35$), but not with patient age. Even the 5 hip labra judged histologically normal demonstrated chondrocalcinosis by DCR. While chondrocalcinosis in hip labra is commonly seen *ex vivo*, only a minority show

large areas of calcification and the clinical and pathogenetic implications remain to be elucidated.

Abstracted by C. S. Winalski, M.D.

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