Is MRI Subchondral Acetabular Edema or Cystic Change a Contraindication for Hip Arthroscopy in Patients with FAI?

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Objectives: Arthroscopic treatment for femoroacetabular impingement (FAI) generally has good results, but the outcome can worsen with increasing arthritis, largely defined as joint space narrowing. There remains a subset of hips with maintained joint space but with subchondral edema and cystic change of the acetabulum on MRI, with unknown outcome. Therefore, the purpose of this study was (1) to determine if postoperative outcome was worse for patients with subchondral edema on preoperative MRI compared to a matched control group and (2) to identify risk factors on MRI leading to inferior outcome.

Methods: A review of patients who underwent arthroscopic hip surgery for FAI between 2007 and 2013 identified 530 patients. Of these, 39 patients had evidence of subchondral edema or subchondral cyst on the preoperative MRI with maintained joint space on preoperative radiographs. Lesions were characterized by grade, location and type using an established radiographic MRI classification system. A matched cohort of patients without evidence of subchondral edema or cyst was identified, and 2:1 matching was based on patient age, surgeon, surgery year within one year, surgical procedure, Tegner activity score, and Tonnis grade osteoarthritis changes on preoperative x-ray. Outcome was compared using the Hip Outcome Score and Modified Harris Hip Score between the two groups. Risk factors were then analyzed for type of lesion, grade and location of bone marrow lesion.

Results: Thirty-nine patients (20 males, 19 females) showed preoperative MRI evidence of subchondral edema, and were followed for a mean of 23 months postoperatively (range, 12 - 60 months). Patients had an average age of 41 years (range, 19 - 67) and a preoperative Tegner score of 3.8 (range, 1 - 9). 87% of patients with subchondral cystic change had evidence of a grade IV full thickness cartilage lesion at the time of hip arthroscopy. Average Modified Harris Hip Scores were inferior for the subchondral group (79.9 ± 18.7) compared to the control group (86.6 ± 12.5; p = 0.027). In addition, Sport subscales of the Hip Outcome Score showed significantly lower scores for the subchondral group for both score (69.1 ± 27.0 vs. 79.5 ± 21.4, p = 0.018) and rating (66.7 ± 27.5 vs. 78.0 ± 20.8, p = 0.044). No radiographic risk factors, including type, location, or size of lesion were significant predictors of outcome. Two patients in the subchondral group were later converted to a total hip replacement.

Conclusion: The presence of a subchondral acetabular cyst on MRI is indicative of a full thickness cartilage lesion at the time of arthroscopy. These patients have inferior outcomes for arthroscopic treatment of FAI compared to patients with similar age and activity level without MRI subchondral changes. Therefore, we recommend caution with consideration of hip arthroscopy in this patient subset.