Femoroacetabular Impingement Syndrome.

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Femoroacetabular Impingement (FAI) [1,2] is thought to be a major cause of early osteoarthritis of the hip, especially in the young and active patient population. It is characterized by an early pathological contact during hip joint motion between bony prominences of the acetabulum and/or the femur limiting the physiological hip range of motion, typically flexion and internal rotation.

FAI is associated with hip pain, a reduced range of hip motion with positive impingement test at clinical examination and has associated radiological imaging appearances. Dependent on clinical and radiological findings, two types of impingement are distinguished. Pincer impingement is the acetabular cause of FAI and is characterized by focal or general overcoverage of the femoral head. Cam impingement is the femoral cause of FAI and is due to an aspherical portion of the femoral head-neck junction. Examples with schematic animations of each with intraoperative video demonstrations will be shown to help demonstrate and summarize the classic features. Imaging and clinical aspects of FAI have been summarized in a review article [3]. Radiographic and MRI examples are given.

The classical features and imaging signs of impingement will be reviewed. Some radiographic signs on the acetabular side include the “crossover sign”, coxa profunda and protrusio acetabuli and on the femoral head side include femoral offset features, pistol grip deformity, alpha angle and juxtaarticular cysts.

MRI has been shown to be very effective with imaging of the hip [4-14]. At 1.5 T MRI direct intra-articular MRI arthrography technique is considered goal standard for review of labral avulsion and cartilage lesions. Radially oriented proton images can demonstrate bony anatomy. Work at 3T MRI suggests its usefulness especially with high resolution three-dimensional sequences and “biochemical” sequences use [8, 12, 14].

Radiographic technique for optimal FAI imaging will be described. Computerized assisted programmes for correction of pelvic malpositioning, a potential and often disregarded diagnostic pitfall may be useful, such as Hip2Norm [15 - 17].

Important pitfalls and differentials are shown and [18]. Differential entities include hip dysplasia, advanced osteoarthritis and crystal arthropathy of the hip. Additionally, review for sacroiliitis, greater trochanteric enthesopathy with gluteal tendon lesions, hamstring lesions and adductor strain – the “Sports hernia” are worthy of review on a clinical check list.

Some broader clinical aspects are also mentioned [19, 20, 21, 22].


