Femoral Head Subchondral Insufficiency Fracture

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INTRODUCTION:

Subchondral insufficiency fracture has becoming a recognised and unique fragility fracture in patients with osteoporosis. Subchondral insufficiency fracture (SIF) of femoral head is a rare injury. It was first described in 1996. Since then, several studies had focus on the pathophysiology, MRI findings in comparison to avascular necrosis, the location of the exact fracture and treatment strategies.

CASE REPORT:

A 76 years old lady, with dyslipidaemia presented with left hip pain for the 3 months after she cycled back from market. It was mild in nature and progressively worsen. The pain did not radiate and was aggravated with walking.

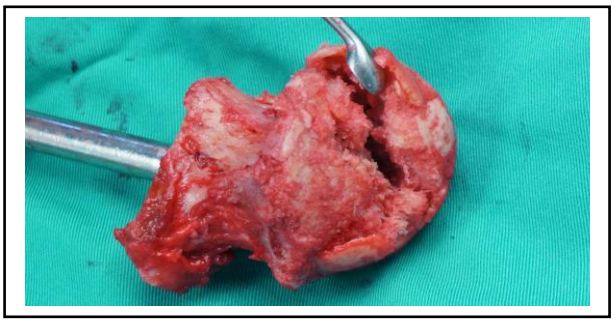
On examination, her left hip was held in flexion. Gait was antalgic. Range of motion was limited with external rotation ranging from 0-45 degrees. Internal rotation was restricted and tender. Neurovascular and systemic examinations were unremarkable.

Radiographs of left hip showed fracture over the subchondral region (Figure 1). MRI showed fluid within the joint space and increased intensity over the femoral head in T1 images.

Patient underwent left total hip arthroplasty. Intraoperatively, there was no signs of infection. Synovial fluid alpha-defensin was negative. Tissue and bone cultures did not grow any microorganism. Histopathological examination revealed degenerated bone tissue with necrosis consistent with fracture.

Figure 1: Pelvis AP radiograph.

Figure 2: Fracture over the subchondral bone.



DISCUSSIONS:

Insufficiency fracture is a type of stress fracture. It is a fracture occurs in bone with reduced elastic resistance under physiological load. SIF can be easily missed in normal radiographs and several authors mentioned the use of MRI for diagnosis. In general, plain radiographs do not reveal any apparent abnormalities except for decrease in bone density. The detection of fracture was made in our patient was due to the displacement of the femoral neck. A T1-weighted MRI of SIF typically shows irregular and disconnected bands parallel to the articular surface surrounded by bone oedema.

CONCLUSION:

SIF can be treated conservatively. Studies showed that the fracture can resolved spontaneously with rest and protected weight bearing. For patient with persistent or worsening pain, reduced joint space or femoral head collapse would benefit from total hip arthroplasty as seen in our patient.

REFERENCES:

1. Kimura T *et al.*, Subchondral Insufficiency fracture of the femoral head caused by excessive lateralization of the acetabular rim. Case Reports in Orthopaedics Volume 2016.