

## Case Report

# Osteochondral fracture of the Lateral Femoral Condyle involving the entire weight bearing articular surface fixed with biodegradable screws

Shah Jehan,<sup>1</sup> Mark David Loeffler,<sup>2</sup> Hamayon Pervez<sup>3</sup>

Hull Royal Infirmary, Hull,<sup>1</sup> Colchester General Hospital, Colchester,<sup>2,3</sup> United Kingdom.

### Abstract

Osteochondral fracture of lateral femoral condyle can result from support and other twisting injuries of the knee. Arthroscopy is a better diagnostic and therapeutic tool as standard radiographs can mislead regarding the size and location of the fragment. If fragment is large and displaced, arthrotomy may become necessary. We present a case of large osteochondral fracture of lateral femoral condyle involving the entire articular surface in a 12 year old male. This was treated with open reduction and internal fixation using biodegradable screws. MRI at six weeks after surgery showed satisfactory results. After the surgery full weight bearing was allowed at three months.

### Case Report

A twelve year old boy sustained a twisting injury to his left knee whilst playing football. He presented to the emergency department with severe pain and a large effusion in the knee. On examination, there was generalised tenderness with restricted movements due to pain. No instability was detected. Routine AP and lateral radiographs were initially thought to show a minor avulsion fracture (Figure-1).

The limb was immobilised by the accident and emergency trainee doctor and an orthopaedic outpatient



Figure-1: Initial standard AP and lateral views. The fracture was thought to be minute ACL avulsion fracture.

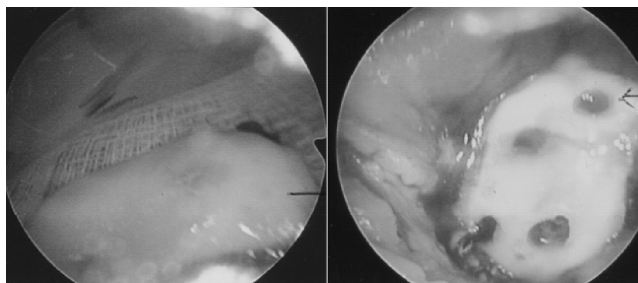


Figure-2: Large osteochondral fragment comprising the entire articular surface (left side figure) reattached to lateral condyle of femur and fixed with four biodegradable screws (right side figure).

follow up was arranged. When reviewed in the clinic one week later an oblique radiograph was taken which showed a significant osteochondral fracture of the lateral femoral condyle.

On arthroscopy of the knee there was a large defect in the articular surface of the lateral femoral condyle involving the entire weight bearing area. A corresponding osteochondral fragment was found in the supra-patella pouch. A lateral arthrotomy was performed and the fragment was correctly orientated and reattached to the femur with four bioabsorbable interference screws (Poly-L-lactic acid).

The patient was allowed to mobilise non weight bearing for six weeks post-operatively. An MRI scan was then performed six weeks following surgery which showed satisfactory union and no collapse of the segment was noted. He has subsequently returned to full weight bearing and normal activities at three months after surgery

### Discussion

Large osteochondral fractures are uncommon and early diagnosis is essential for primary fixation. Dandy and Mathewson<sup>1</sup> recommended early primary repair of large osteochondral fractures as the articular surface begins to fill with fibro-cartilage within ten days of injury.

Standard antero posterior and lateral radiographs can be misleading<sup>2</sup> as our case also illustrates this fact. Orthopaedic texts<sup>3</sup> also recommend tunnel views as mandatory for the diagnosis of osteochondritis dissecans. This case illustrates the benefit of oblique views to view the

profiles of femoral condyles and can be a useful method of immediate diagnosis of these injuries. Needle aspiration of haemarthrosis can show fat globules but there is mild risk of introducing infection to the joint space. MRI, or CT scan are non-invasive and can show these fractures very well, but can only be used for diagnosis. Arthroscopy gives better therapeutic and diagnostic potential<sup>4</sup> but is an invasive investigation.

The aim of primary fixation is to restore the joint surface and prevent secondary osteoarthritis. Fixation of large osteochondral fractures can be achieved with metal pins or screws as well as biodegradable synthetic pins and screws.<sup>5,6</sup> The potential but rare long term effects of using biodegradable screws are synovitis, osteosclerosis, aseptic swelling and osteolytic radiographic changes.

Missed large osteochondral fractures are difficult to treat. The defect is bony as well as cartilaginous and therefore cartilage "resurfacing" or marrow stimulation techniques such as micro-fracture, drilling and autologous chondrocyte implantations<sup>7</sup> are not likely to be successful. The long term outcome of mosaicplasty for a large osteochondral lesion is unpredictable<sup>8</sup> and this technique has donor site morbidity.

## Conclusion

Acute haemarthrosis in an adolescent knee indicates significant injury. These patients should always be referred for early orthopaedic opinion. We suggest that oblique "Judet" views of the knee are a useful adjunct in the diagnosis of osteochondral fractures of the knee. Early fixation of these injuries is likely to give the best results.

## References

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