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CASE REPORT

A clunking knee with an unusual cause in an adolescent : A case report

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The authors report an unusual case of a chondral lesion in the knee joint in an adolescent. The lesion produced a clunk in the knee joint on flexion. A low-resolution MRI scan failed to image the lesion. Arthroscopy revealed a unique shape of chondral flap from the weight bearing surface of the lateral femoral condyle, which resembled a meniscal bucket handle tear. Chondrectomy resolved all the symptoms.

This case report highlights the point that special resolution MRI scan sequences are required to accurately assess these injuries and also that clunking in an adolescent can be produced by a chondral lesion.

INTRODUCTION

Chondral lesions are frequently encountered in knee arthroscopy, which could be due to osteochondritis in adolescents, trauma in adults and osteoarthritis in old age. We report an unusual cause of clunking in an adolescent, with normal MRI and an unusual chondral lesion mimicking a bucket handle tear of a meniscus. To the best of our knowledge a chondral lesion of the articular surface of the knee joint mimicking a bucket handle meniscal tear has not been reported in the literature

CASE REPORT

A 17-year-old caucasian girl presented to the Orthopaedics clinic complaining of spontaneous onset of clicking in her right knee, which had been persisting for two months. Clicking was audible and more pronounced on flexion of the knee joint. She was also complaining of occasional pain and giving way of the knee. She denied any trauma to the knee, or any locking. Examination revealed slight patella tilting and mild tenderness over the lateral expansion of the quadriceps ; McMurray's test was negative and the knee was stable. The clinical impression was that she had a discoid meniscus and an MRI scan was performed (fig 1) ; it was reported as normal. Clinically however, a loud clunk could be heard from the lateral aspect of the knee joint. As the patient was still symptomatic, it was thought that this could be due to either a thickened plica or a chondral lesion not visible on MRI scan, and it was decided to proceed with arthroscopy of the knee joint. Arthroscopy revealed a chondral flap (fig 2) from the weight bearing

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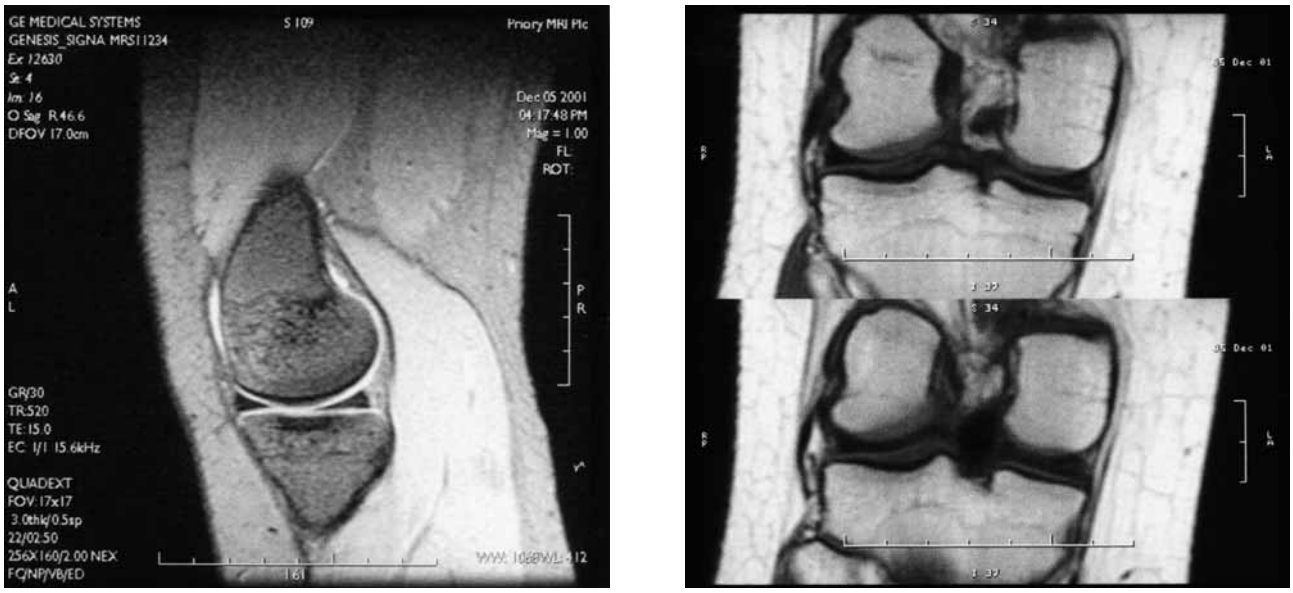

Fig. 1. — Normal appearance of the knee joint on MRI scan.

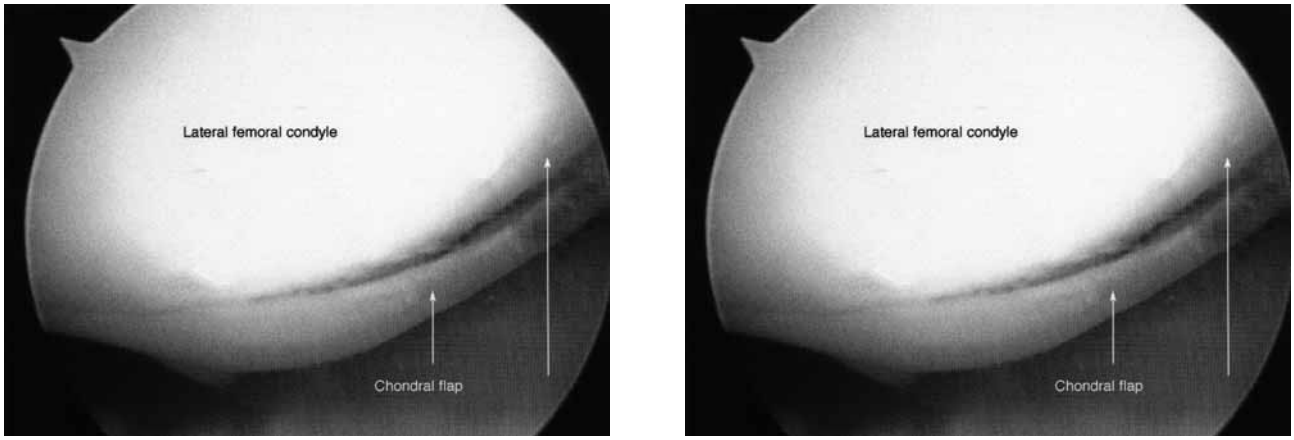

Fig. 2. — Arthroscopic view showing the chondral flap mimicking a bucket handle tear of the lateral meniscus.

surface of the lateral femoral condyle, mimicking a bucket handle tear of the meniscus. On flexion of the knee joint, this chondral flap was abrading on the lateral meniscus and was producing the clunk. The chondral flap was excised (fig 3) and the patient's symptoms completely resolved and she was able to resume normal activities of life as well as sporting activities.

DISCUSSION

Chondral injuries are present in 10 to 12% of all individuals *(8)*, whereas Curl *et al (4)* have quoted this figure to be as high as 63%, following 31 516 knee arthroscopies. The patient may be totally asymptomatic or may present with pain, swelling, catching or locking and impaired joint function *(1)*.

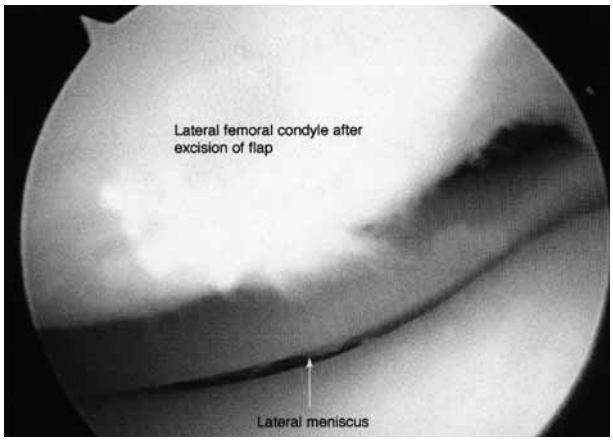

Fig. 3. — Post chondrectomy, lateral femoral condyle and lateral meniscus.

It has been suggested that repetitive loading on the knee joint can extend a vertical cartilage fissure from the joint surface to the calcified cartilage, hence extending the damage and creating chondral flaps and free fragments *(2)*. Chondral injuries are commonly observed in skeletally mature patients and osteochondral fractures in skeletally immature patients *(2)*. Common causes for a clunk in an adolescent are usually a meniscal injury, a discoid meniscus or a plica *(5)*.

The chondral injury in this case was not picked up on the MRI scan of the knee joint and even with the benefit of arthroscopic finding, the MRI scan was retrospectively found to be normal (fig 1). This illustrates the point that adequate imaging of articular cartilage is sometime difficult because of its nonuniform structure *(6)*. Although MRI is the best non invasive method for detecting these injuries, the magnetic resonance imaging sequence most suited for the detection of chondral lesions is controversial. If low-resolution MRI scan is used, these injuries can be missed as in our case. Potter *et al (7)* have shown a satisfactory degree of accuracy with a modified magnetic resonance imaging sequence consisting of proton-density weighted high-resolution, fast spin echo sequence, to evaluate and accurately predict chondral lesion site, size and depth.

Chondral injuries do not heal by themselves and no single surgical management of these injuries is universally accepted. Surgical management of such cartilage lesions can be categorised in three groups: chondrectomy or excision, medullary stimulation (chondroabrasion, microfractures) and restorative technique (osteochondral grafts, chondrocytes transplantation). Compared to the last two methods, chondrectomy is a simple procedure and produces good clinical results. Angerman *et al.* (*1)* claim this is because it reduces synovial inflammation and clears the symptoms related to the loose body. Chondrectomy with smoothing of the edges of the lesion reduces the mechanical stress in the transitional area with normal cartilage and hence prevents further progression of the chondral lesion. This case was unusual as the lesion was not identifiable on the MRI scan. Chondral injuries may present mimicking a meniscal flap tear , but also, as in this case, mimicking the bucket handle tear of a meniscus.

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