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Avulsion fracture of anterior inferior iliac spine complicated by hypertrophic malunion causing femoroacetabular impingement: Case report



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ABSTRACT

INTRODUCTION: Avulsion fractures of the anterior inferior iliac spine are uncommon and such injuries are caused by the sudden forceful contraction of the straight head of rectus femoris muscle while the hip is hyperextended and the knee is flexed.

CASE PRESENTATION: This case report describes the condition of 17 year old male footballer who complained of pain in the right groin for duration of 2 years after being involved in forceful sport activity. Detailed history, clinical examination, X-rays and CT scan revealed hypertrophic malunion of avulsion fracture of anterior inferior iliac spine causing an extra-articular type of femoroacetabular impingement. The patient was surgically treated when conservative management was unsuccessful.

DISCUSSION: This is the first case of hypertrophic malunion of avulsion fracture of anterior inferior iliac spine with femoroacetabular impingement that has been recognized in Qatar. The patient was surgically treated in order to relieve symptoms and avoid osteoarthritis.

CONCLUSION: Malunited avulsion fracture of anterior inferior iliac spine can cause extra-articular femoroacetabular impingement.

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1. Introduction

Avulsion fractures of the anterior inferior iliac spine are rarely encountered and most commonly associated with trauma or overuse [1–4]. This injury occurs most frequently in sports that involve kicking like football, soccer and rugby [5,6].

Femoroacetabular impingement is caused by structural abnormalities on both acetabular and femoral sides that lead to chronic groin pain and progressive degenerative changes [7,8].

However, femoroacetabular impingement due to hypertrophic malunion of avulsed fracture of anterior, inferior iliac spine has rarely been reported [9–12].

2. Case report

A 17 year-old man was referred to our clinic with a 2 years history of persistent right groin pain and inability to return to his sport activity. The onset of pain was sudden after trying to kick the ball forcefully during a competitive game of football. In his medical history, he was treated as a case of adductor strain in a private clinic. Pelvic X-rays, CT scan and MRI were taken and the patient was treated with rest, analgesia, and physiotherapy. The patient continued to have right groin pain and inability to return to his sport activity. The patient was referred to Hamad General Hospital to do bone scan in order to rule out the possibility of avascular necrosis of femoral head and the bone scan result revealed to be negative. Examination of his lower extremities and pelvis showed tenderness at the anterior aspect of hip, painful limitation of flexion and internal rotation, positive impingement sign and positive cycling test. Considering the history, clinical examination and a review of his previous imaging studies, the diagnosis of avulsion fracture of the anterior inferior iliac spine was suspected. New pelvic X-rays were done which revealed an abnormal hypertrophic malunion of the anterior inferior iliac spine fracture causing an extra-articular femoroacetabular impingement (Fig. 1). The CT scan revealed an

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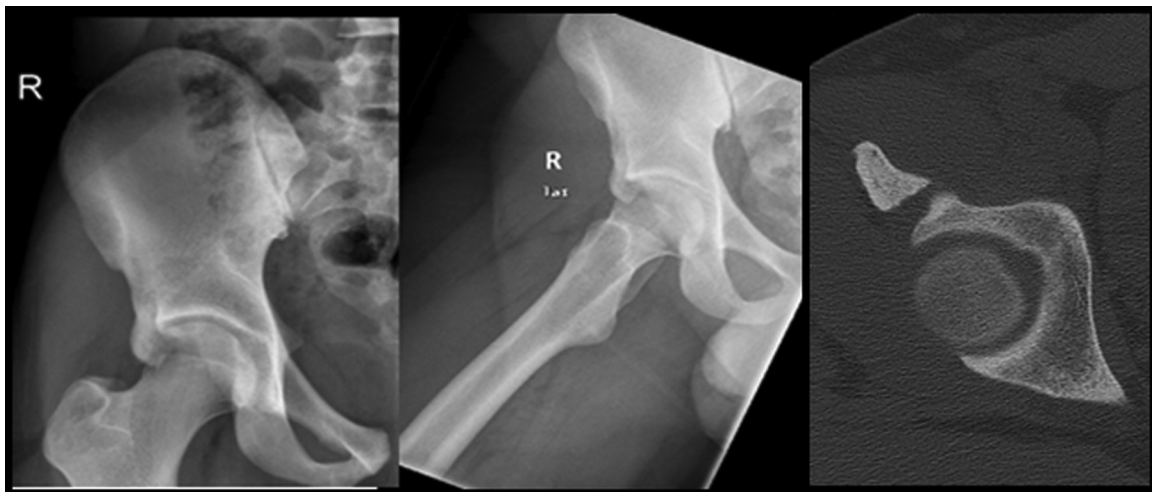


Fig. 1. X-rays and CT films of right hip at initial presentation.

inferiorly displaced bony fragment from the right anterior inferior iliac spine (Fig. 1). Conservative treatment in the form of nonsteroidal anti-inflammatory drugs and physiotherapy was started and continued for 12 weeks but without any response (Fig. 2), then surgical excision of the hypertrophic malunited fragment was done through the anterior hip approach. Postoperative course was uneventful and the patient was discharged from hospital after 3 days. Postoperative physiotherapy in the form of range of movement and strengthening exercises was started after 2 weeks. At 6 weeks follow up, examination of the right hip revealed full

painless range of motion, negative impingement and cycling tests. The patient was followed up as an outpatient for two years post-operatively and the patient was asymptomatic with no sign of recurrence during the follow up period (Fig. 3).

3. Discussion

Avulsion fractures of the anterior inferior iliac spine are less frequent than other pelvic avulsions with an incidence of 14.8–22.1% among acute avulsion fractures of pelvis in young athletes. Pelvic

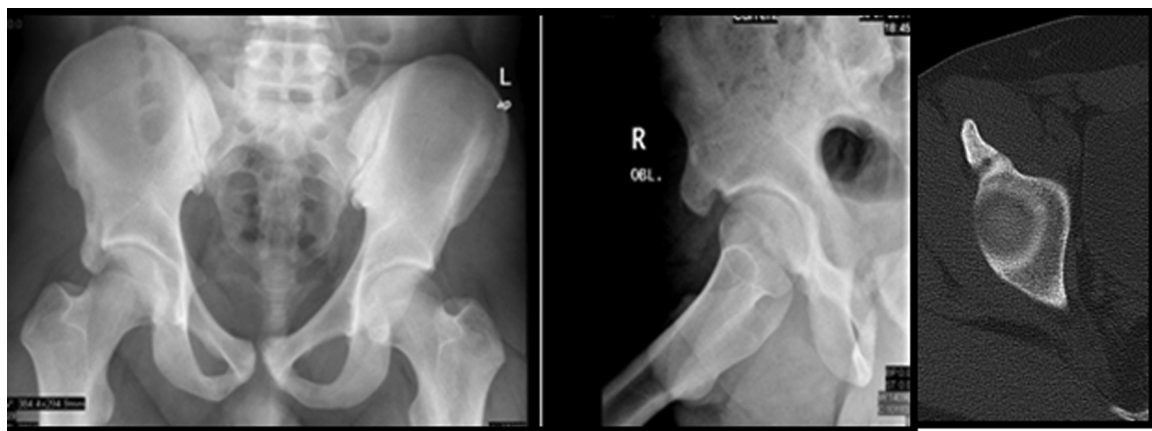


Fig. 2. X-rays and CT films of right hip at initial presentation.

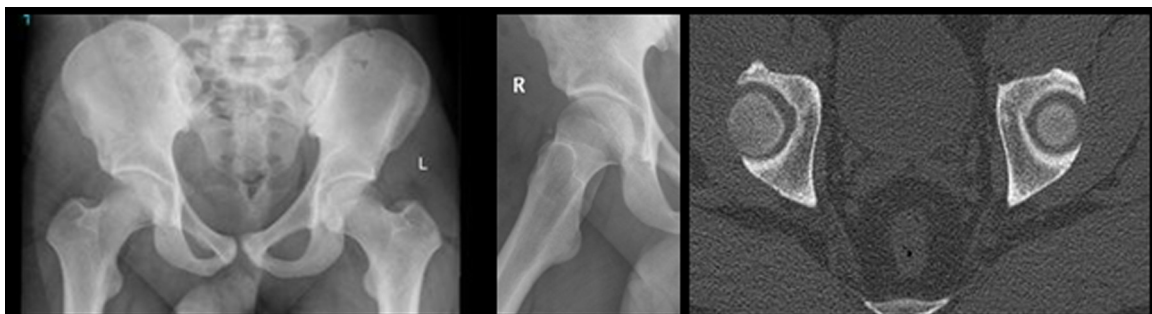


Fig. 3. X-rays and CT films of right hip after surgery.

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