

Extensive traumatic heterotopic ossification of the right hip joint in an 18 years old man: A case report

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Abstract: Traumatic Heterotopic ossification occurs in 10–20 % of predisposed patients.. An eighteen years old man presented, who had multiple trauma, head injury and right femoral neck fracture (Garden type I) in a MVA, 2 years ago. Two years later the patient started to show up limitation in his right hip joint range of motion which its physical examination showed 0 degree range of motion in all directions was suggestive for a wide heterotopic ossification of the right hip extending from iliac wing down to the subtrochanteric area with hip joint ankylosis, surgery was suggested for this patient for radical heterotopic ossification removal with anterior iliac osteotomy and proximal femur osteotomy on the subtrochanteric area. His post operative, right hip range of motion was near fully recovered. In our patient, due type I garden fracture with no dislocation, the massive Heterotopic ossification developed. Despite the right hip movement was completely limited, post-operative hip range of motion was almost full.

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1. Introduction

Heterotopic ossification is defined as bone formation in non-osseous tissues. Heterotopic ossification usually occurs in trauma such as fractures and surgical procedures of the hip (1). Traumatic Heterotopic ossification occurs in 10 – 20 % of predisposed patients. Following total hip arthroplasty and acetabular fracture surgery, the incidence can be 2–63 % .Heterotopic ossification does not seem to readily complicate non-operative treatment of acetabular fractures, as case series only report this complication in surgically treated cases. Implant – related series have shown an incidence of 8–90% following cementless total hip arthroplasties; Although, many of the cases are asymptomatic (2). The incidence is the same in case series from the United States and Europe following total knee arthroplasty, the incidence of Heterotopic ossification can be as high as 32 % (3).

Operating on heterotopic ossification is difficult and thus seldom performed; because pain relief is poor and improvements in the range of

motion may not be sustained. The removal of heterotopic ossification is technically difficult because the abnormal bone does not confine itself to the normal tissue planes (4). The more common, acquired form of heterotopic ossification may occur after virtually any type of musculoskeletal trauma (5–6).

Heterotopic ossification includes the specific post traumatic variant myositis ossification in which patients often have soft–tissue ossification at sites of trauma adjacent to long bones (7-8). Following procedures that may be complicated by heterotopic ossification, recommendations indicate that prophylaxis should be given in the form of non-steroidal anti-inflammatory drugs (9-10). Some clinicians would advocate the use of adjuvant radiation therapy in the prophylaxis of heterotopic ossification in individuals considered to be at high risk of developing this condition (11).

2. Case Presentation

An eighteen year-old man presented with multiple trauma, head injury and right femoral neck fracture (Garden type I) in a MVA, 2 years ago. Due to his poor general condition, anesthesia being risky, surgery for his femoral neck fracture fixation was not

possible; thus, he underwent conservative treatments for this fracture in an accident 2 years ago. He was in coma for 2 months and had brain surgery and craniotomy and then discharged after his consciousness level and general condition improved.

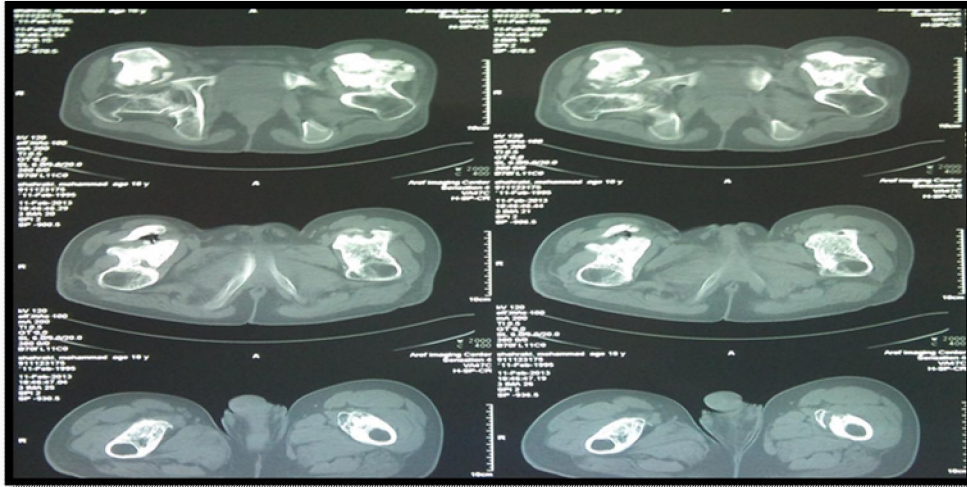


Figure 1: Axial CT scan demonstrates a heterotopic mass appearing to involve the hip

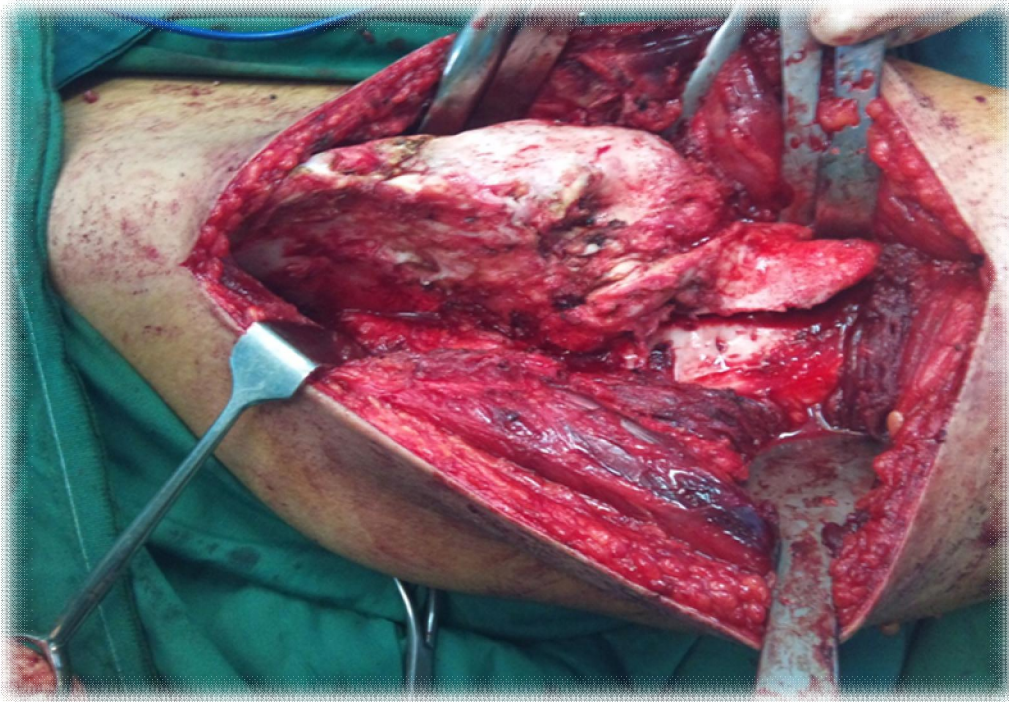


Figure 2: Intraoperative photo demonstrates region of heterotopic mass



Figure 3: Intraoperative photo demonstrates range of motion on the right hip was near amounted 90 degree

Two years later, the patient started to show up limitation in his right hip joint range of motion which its physical examination showed 0 degree range of motion in all directions (flexion, extension, internal and external rotation). He had no pain or tenderness during the examination. AP pelvis and lower limb radiographies and CT scan findings (Figure.1) was suggestive for a wide heterotopic ossification of the right hip, extending from iliac wing down to the subtrochanteric area with hip joint ankylosis, surgery was suggested for this patient for radical heterotopic ossification removal with anterior iliac osteotomy and proximal femur osteotomy on the subtrochanteric area and also cutaneo femoral nerve neurolysis with ligation of ascending branch of lateral circumflex artery.

After general anesthesia in a completely sterilized condition and semilateral position, prep and drape was performed: Then skin and fascia was incised with Smith-Peterson approach and the lateral cutaneous femoral nerve was neurolysed on its way between Tensor fascia and Sartorius muscles. Then muscles were detached from sub periosteal layer of iliac wing and then the ascending branch of lateral femoral circumflex artery was ligated; at this time, the huge mass was exposed between the sub trochanteric areas.

Femoral necks, iliac wing, sub trochanteric and then anterior iliac wing osteotomies (Figure 2) were performed and then the whole mass was excised with femoral artery and nerve being conserved. Right hip range of motion was near fully recovered so drain was fixed and incised anatomic layers were sutured. His post operative range of motion on the right hip was amounted 90 degree flexion,10 degree

extension,45 degree internal rotation and 15 degree external rotation (Figure 3) and he could easily walk though he was planned to take a 5 session course of radiotherapy to prevent re current impair osteogenesis. AP pelvis and lower limb radiographies showed complete removal of the heterotopic ossification.

3. Discussions

Traumatic heterotopic ossification of muscle or myositis ossificans circumscripta results from the proliferation of fibroblast, bone and cartilage usually after an inciting event, although there have been reports traumatic heterotopic ossification, the process is initiated by trauma in 60 to 75% of cases (12). Most cases occur in the first three decades of life. The most common locations include the thigh, hip, upper arm, calf and foot.

Functionally significant deficits typically occur in 10 to 20 % of patients (13). Symptoms tend to be localized and usually consist of localized swelling, tenderness and decreased mobility of adjacent joint. The inciting trauma stimulates and inflammatory response mediated the rough hematoma formation followed by a cascade of events. Complication of mature lesions can occur. Although it is rare, malignant transformation to osteosarcoma has been described (14). Mature lesions may fracture after direct trauma (15). In our patient, symptoms had acutely worsened two years prior to presentation, causing us to consider the possibility of fracture and subsequent nonunion through the base of the lesion. Excision is reserved for mature lesion only, since excision of immature lesions may lead to further trauma, albeit surgical, and local recurrence.

Although much of the evidence supporting radiation therapy to avoid heterotopic ossification, in this case, it may lead to type I garden fracture with no dislocation and subsequently, the massive heterotopic ossification developed. Despite the right hip movement was completely limited post-operative, hip range of motion was near fully recovered.

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