

Ahamed Anjazzallah .M¹,
Dilshan Munidas²

1. (Senior registrar in orthopaedic surgery)

2. (Consultant orthopaedic surgeon – NHSL)

Case report 1

Myositis ossificans of hip: A case report

Abstract

Introduction:

Myositis ossificans is a benign condition in which there is an increased activity of periarticular tissues resulting in intramuscular bone formation. In most of the cases trauma is the leading etiology.

Case presentation:

A 25 year old male with a history of pain and restricted range of motion of the left hip was admitted for further management. His hip motions were restricted with fixed flexion and abduction. There was a history of highway car accident with severe head injury and associated mid shaft comminuted fracture of left humerus. He was given ICU care for a period of two months. The imaging of left hip revealed mature myositis ossificans. The mass was removed surgically and post operatively the patient was rehabilitated with physiotherapy.

Conclusion:

Myositis ossificans is a benign heterotrophic ossification of the muscle tissue. It has a prevalence of less than 1 per 1 million. Trauma is the most frequent etiological factor seen in almost 60 -75% of the cases. Non-traumatic myositis ossificans is very rare. Combination of surgical excision with radiotherapy in the treatment of the myositis ossificans may give satisfactory results.

Key words: Myositis ossificans, Heterotrophic ossification, Trauma Treatment of Undifferentiated IA

Introduction:

Myositis ossificans is a benign condition in which there is an increased activity of periarticular tissues resulting in intramuscular bone formation. In most of the cases trauma is the leading etiology. It may affect any location in the body, which are susceptible to trauma. It commonly involves elbow, hip

and wrist. Biopsy may be required in some cases for diagnosis. This paper presents a case of traumatic heterotrophic ossification of hip.

Case description:

A 25 year old male presented with a history of pain and restricted range of motion of left hip was admitted to ward. He had a history

of highway car accident in 2016 march 16th. He was admitted to ICU for ventilation following a severe head injury with depressed skull fracture. He was given treatment in overseas for a period of two months and transferred to national hospital Colombo for further management. He had mid shaft comminuted fracture of left humerus. It was managed conservatively. On admission to national hospital Colombo, he had left hip fixed flexion and abduction deformity. He underwent CT scan of hip and followed by several manipulation under anesthesia was attempted and failed. Hip motion was restricted with fixed 200 of flexion, 150 of external rotation and 100 of abduction. He was able to walk without support with a wide base gait.

Radiographic evaluation of the patient with X-ray revealed a radiopaque mass extending from the anterior border of acetabulum and from the anterolateral part of obturator foramen to lesser trochanter of the femur (figure 1).



Figure 1 - X Ray AP pelvis including bilateral hip

CT scan revealed a mass which was bridging from anterior aspect of acetabulum to lesser trochanter with a large attachment (figure 2). The mass was osseous in character which was located along the iliopsoas muscles in its craniocaudal extension.

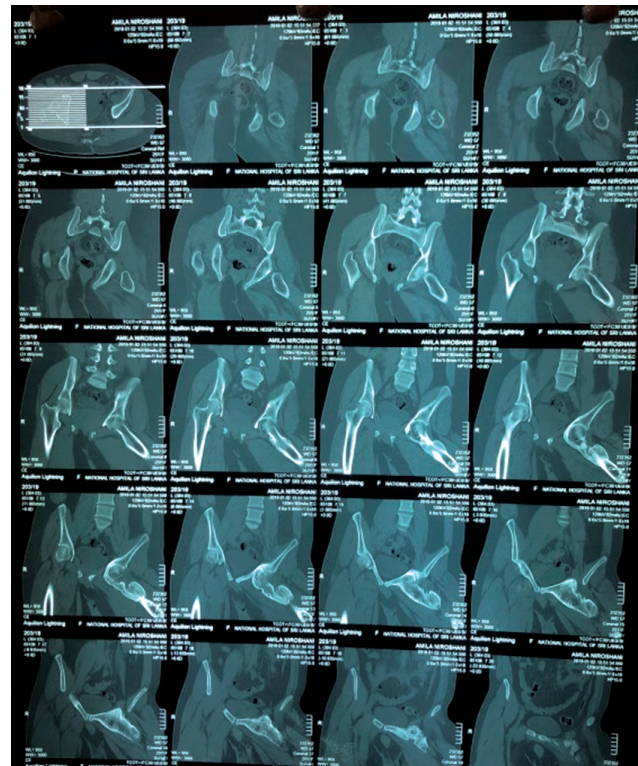


Figure 2 - CT Scan of pelvis and bilateral hip

The mass was removed surgically by using vertical limb of Smith-Petersen approach (figure 3). Intraoperatively, the mass was seen starting from the anterosuperior edge of the acetabulum and extending with a large attachment part to the anterior and medial aspect of femur on the lesser trochanter level. Furthermore, it was building an osseous bridge from anterior aspect of hip joint that was limiting the range of motion of the hip. After removal of the mass the range of motion of the hip was achieved (figure 4).

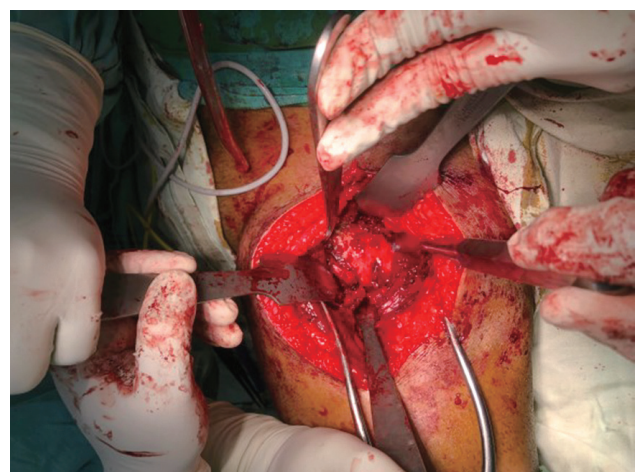


Figure 3 - Excision of myositis - Intra operative image

The biopsy of the lesion revealed mature bone tissue conforming our diagnosis of myositis ossificans. Post operatively the patient was treated with indomethazine (NSAID) and early physiotherapy. There was a decreased in the pain and increased in the range of motion post operatively.

Discussion:

Myositis ossificans is a benign and well differentiated bone formation of the muscle tissue. It has a prevalence of less than 1/1 million. There is no sexual predominance. Trauma is the most frequent etiological factor seen in almost 60–75% of the cases. It is believed that after a distinguishable trauma there occurs a tissue necrosis or bleeding initiating an uncontrolled vascular and fibroblastic activity resulting with bone formation. Although unproven, some other etiological mechanisms were also hypothesized. One of the theories claims osteoblasts that are freed from periost and trapped in the soft tissues as the provocateur of the myositis ossificans. The other

mechanism is the “ectopic calcification islands” theory which accuses periosteal tissue itself to be displaced into the soft tissues because of the impact of the trauma causing myositis ossificans. Tabes dorsalis, syringomyelia, poliomyelitis, paraplegia, tetanus, and hemophilia may play a role as the underlying pathology. In the presence of such conditions myositis ossificans may occur even passive range of motion exercises is carried out. Burns, infections, and drug abuse are other rare conditions which may cause myositis ossificans.

Nontraumatic myositis ossificans is very rare. Repetitive microtrauma, tissue ischemia, and inflammation were addressed as the causal mechanisms of the nontraumatic myositis ossificans. Myositis ossificans of the hip occurs more frequently in patients experiencing palsy, subdural or epidural bleeding, and hip operation. Fibrodysplasia ossificans progressive is another disease which presents with nontraumatic myositis ossificans.

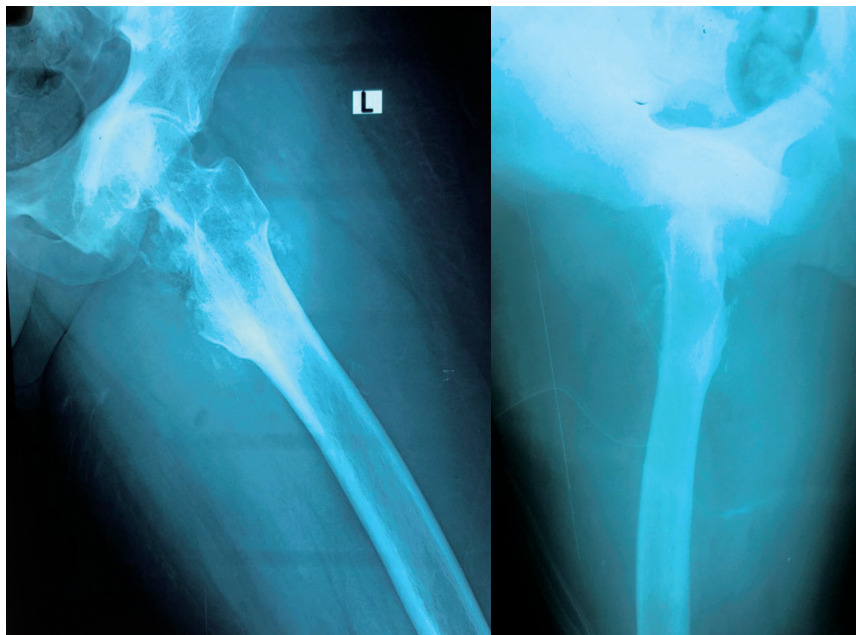


Figure 4 - Postoperative X Ray of left hip AP and cross table view

The pattern of progression in myositis ossificans is pathognomonic by expressing a peripheral to central manner. Histologically collagen producing cells are located in the center and increased osteoblastic activity and immature bone lies in the intermediate zone and lamellar

bone in the peripherally.

Clinically there is a formation of a painful mass at the region of trauma within 7–10 days. Between 10 days and 6 weeks there appear to be irregular osseous fragments in this mass. Cortical

bone production takes place between 6 and 8 weeks. From 10 weeks to 6 months the typical egg shell appearance of central zone is visible. Maturation of the mass takes place between 6 and 8 months and the mass may shrink to some degree. Some lesions decrease in volume and some disappear within 1-2 years.

MRI findings demonstrate heterogeneity due to the histological structure of the myositis ossificans lesions. In the early period of the disease in T2 MRI section there is a dark and nonhomogenous intensity distribution in the central zone. The emergence of a hyperintensive ring around a hypointensive core is the sign of maturation of the mass.

Myositis ossificans is generally self-limited pathology. There is a possibility of the spontaneous regression; thus surgical excision is not the primary choice of treatment by most of the surgeons. Typical lesions may be followed with clinical and radiological observation. Surgical indications

include pain, increasing diameter of the mass, deteriorating local tendon or muscle function, and decreasing functional ability of the patient. Such lesions may be excised after maturation.

Radiotherapy may decrease the diameter of the mass and may increase the maturation of the mass. In the treatment of myositis ossificans, one low dose radiotherapy was performed in many cases and it was seen very effective. Gokkus et al. reported that 24 hours after operation one low dose radiotherapy was effective in their case. In another case report, Pakos et al. showed that radiotherapy treatment with combined indomethacin protocol was an effective treatment in myositis ossificans.

Conclusion:

Myositis ossificans following trauma is common. Combination of surgical excision with radiotherapy, NSAIDS and physiotherapy in the treatment of the myositis ossificans may give satisfactory results.

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