



Radiodiagnosis

POST TRAUMATIC MYOSITIS OSSIFICANS IN THENAR REGION- A CASE REPORT

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ABSTRACT Myositis ossificans is a benign condition of heterotopic ossification occurring in the muscles. It frequently follows a history of trauma, with muscles of the thigh and arm being the most commonly affected. Post traumatic myositis ossificans affecting the thenar muscles of hand is extremely rare. We report a case of post traumatic myositis ossificans affecting the thenar muscles of hand describing its imaging characteristics on Magnetic Resonance Imaging (MRI), surgical intervention and confirmation with histopathology. Conservative management is usually preferred, as myositis ossificans is self limiting and benign. More aggressive approach of surgical excision was done in our case due to limitation of function.

KEYWORDS : myositis ossificans, thenar, hand, post traumatic, MRI MeSH terms: Musculoskeletal diseases, Muscular diseases, Myositis, Myositis ossificans

INTRODUCTION:

Myositis ossificans is a benign condition of heterotopic ossification occurring in the muscles. It frequently follows a history of trauma^[1], with muscles of the thigh and arm being the most commonly affected^[2]. Post traumatic myositis ossificans affecting the thenar muscles of hand is rare^[3].

Case History

A 17 year old male presented with hard, tender swelling in the region of thenar eminence of right hand. He had history of trauma to right hand and forearm 2 years ago due to fall from bicycle, 8 days after which he noticed a small hard swelling over the thenar region of right hand. Initially the swelling was painless and gradually it increased in size. Clinical examination of right hand revealed a tender, firm, warm diffuse swelling over thenar eminence with loss of sensations over ventral aspect of distal phalanx of thumb and ventral aspect of proximal phalanx of index finger. Range of movement of thumb was significantly restricted. There was no history of local discharge, fever or local skin discoloration.

Plain and contrast Magnetic Resonance Imaging (MRI) was done. It showed diffuse swelling and signal abnormality in the thenar muscles with mild inhomogenous post contrast enhancement. An ill defined area appearing hypointense on T1 weighted images (T1WI), heterogenous intensity on T2 weighted images (T2WI) (Figure 1) and hyperintense on PDFS images was noted within the thenar muscles. This lesion showed heterogenous post contrast enhancement (Figure 2). Few irregular hypointense foci suggestive of calcification were evident within this lesion on T1, T2 and MERGE images. This was confirmed with CT scan (Figure 3). Based on these findings, a diagnosis of myositis ossificans was given.

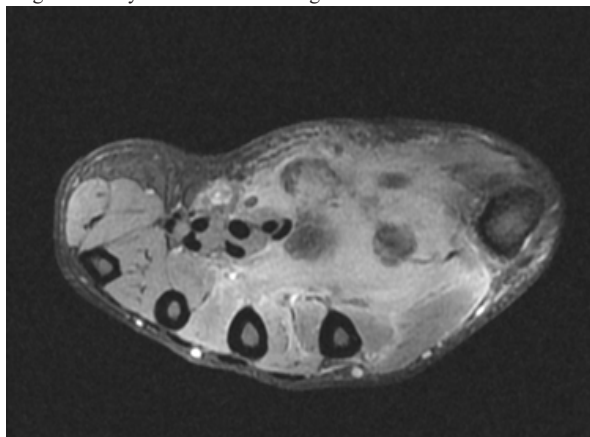


Figure 1 : T2 weighted image showing an ill defined heterogenous intensity lesion within the thenar muscles. Few irregular hypointense foci suggestive of calcification are also seen within.

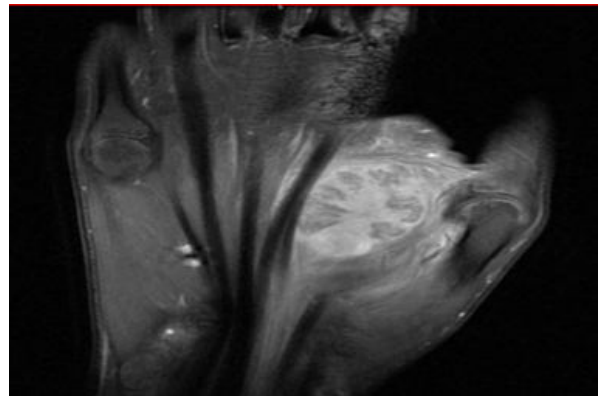


Figure 2 : Coronal T1 Fast Spin Echo Post Contrast Image Showing An Ill Defined Lesion With Heterogenous Post Contrast Enhancement.

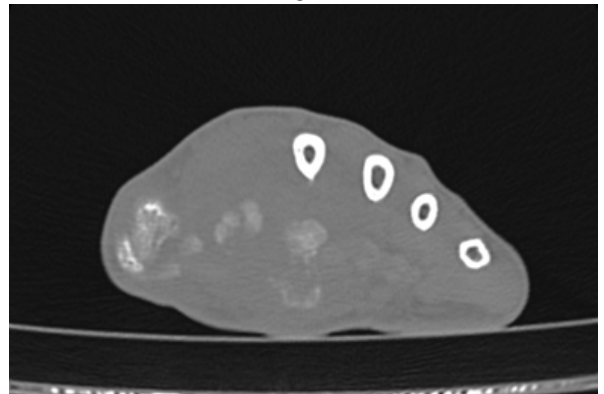


Figure 3: CT Scan Plain Showing Few Irregular Hypointense Foci Within The Thenar Muscles Suggestive Of Calcification.

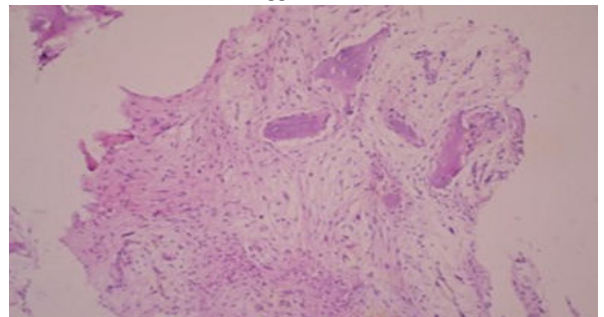


Figure 4: 10X; H&E: multiple Irregular Woven Bony Areas Separated

By Fibrous Stroma Showing Focal Myxoid Change.

Subtotal excision of the lesion was done as the lesion was adherent to underlying tendons and nerves.

Histopathological examination revealed multiple irregular woven bony areas separated by fibrous stroma showing focal myxoid change (Figure 4). Stromal component was cellular, composed of bundles of fibroblastic cells without any atypia or mitosis or necrosis.

DISCUSSION:

Myositis ossificans is characterized by benign heterotopic ossification in muscles. It includes post traumatic myositis ossificans, fibrodysplasia ossificans progressiva, myositis ossificans associated with paraplegia and pseudomalignant myositis ossificans. 60% to 75% of all cases are post traumatic^[3,4,5]. Post traumatic myositis ossificans commonly involves the large muscles of the extremities, commoner being quadriceps and gluteus muscles in lower limb and the brachialis in upper limb^[3]. However manifestation in muscles of the hand is extremely rare with only a few cases reported and confirmed to date^[3,5,6].

MRI in myositis ossificans commonly reveals isointensity on T1W images and slight hyperintensity on T2W images^[7] within the intramuscular mass. Edema extending beyond the myositis ossificans lesion can also be depicted. Rim enhancement is seen in acute phase of myositis ossificans on gadolinium-enhanced T1W images suggestive of zone phenomenon due to active hypervascularized osteoid matrix^[5,8]. Features like presence of viable muscle fibers within the lesion and lack of invasion of adjacent tissues differentiates this condition from neoplastic etiology^[9].

In our case, diffuse swelling and signal abnormality was noted in the thenar muscles with mild inhomogenous post contrast enhancement. The lesion appeared hypointense on T1 weighted images (T1WI), heterogenous intensity on T2 weighted images (T2WI) and hyperintense on PDFS images with heterogenous post contrast enhancement. Few irregular hypointense foci suggestive of calcification were evident within this lesion on T1WI, T2WI and MERGE images. CT scan also showed few irregular calcific foci in the region of thenar muscles.

MRI in previously reported cases of myositis ossificans of hand revealed well-circumscribed mass occupying the hand muscles with peripheral edema and moderate enhancement^[1,10]. MRI in our case revealed ill defined heterogenous post contrast enhancement of the lesion with few irregular foci of calcification within and diffuse swelling of the thenar muscles.

Conservative management is usually preferred as myositis ossificans is self limiting and benign. Surgical excision is done only in cases of intractable pain due to compression of neural tissue and/or limitation of function [6]. In our case, more aggressive approach of surgical excision was done because of significant restriction of thumb movement.

Patient Declaration Statement : Not Applicable

“The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.”

REFERENCES:

- Bredella M, Stoller D, Johnston J. Bone and Soft-Tissue Tumors. In: Stoller DW, editor. Magnetic resonance imaging in orthopaedics and sports medicine, 3rd edn. Philadelphia: Lippincott Williams and Wilkins, 2007; p. 2154–57.
- Tyler P, Saifuddin A. The imaging of myositis ossificans. *Semin Musculoskelet Radiol* 2010;14:201–16.
- Goldblum J, Folpe A, Weiss S. Cartilaginous and Osseous Soft Tissue Tumors. In: Goldblum J, editor. Enzinger and Weiss's soft tissue tumors, 6th edn. Philadelphia: Elsevier Saunders, 2014; p.926–36.
- Ehara S, Nakasato T, Tamakawa Y, Yamataka H, Murakami H, Abe M. MRI of myositis ossificans circumscripta. *Clin Imaging* 1991;15:130–4.
- Parikh J, Hyare H, Saifuddin A. The imaging features of post-traumatic myositis ossificans, with emphasis on MRI. *Clin Radiol*. 2002;57:1058–66.
- Kusuma S, Lourie GM, Lins RE. Myositis ossificans of hand. *J Hand Surg [Br]* 1999;24:128-30.
- De Smet AA, Norris MA, Fisher DR. Magnetic resonance imaging of myositis ossificans: Analysis of seven cases. *Skeletal Radiol* 1992;21:503–7.
- Shirkhoda A, Armin AR, Bis KG, Makris J, Irwin RB, Shetty AN. MR imaging of myositis ossificans: Variable patterns at different stages. *J Magn Reson Imaging*

- 1995;5:287–92.
- Goldman AB. Myositis ossificans circumscripta: A benign lesion with a malignant differential diagnosis. *Am J Roentgenol* 1976;126:32–40.
- Tsutomu Akahane, Naoya M, Yukio N. Myositis ossificans occupying the thenar region: a case report. *Journal of Medical Case Reports* 2015; 9:105