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Heterotopic ossification in distal interosseous membrane of the radius and ulna: A rare case

Dr. Harshvardhan Singh Rathore
harshvardhan60390@gmail.com
D. Y. Patil Medical College, Mumbai, Maharashtra

Dr. Nilesh Ingale
drnileshingale@gmail.com
D. Y. Patil Medical College, Mumbai, Maharashtra

Dr. Tulsi Manek
manektulsi@hotmail.com
D. Y. Patil Medical College, Mumbai, Maharashtra

ABSTRACT

Heterotopic ossification is an abnormal formation of true bone within extraskeletal soft tissues. The interosseous membrane (IOM) runs obliquely from radius to ulna and attaches to their respective interosseous borders. It is an occasional site for heterotopic ossification (HO) that involves the development of mature lamellar bone. Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all forearm injurie Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all forearm injuries Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all forearm injuries Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all forearm injury Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all forearm injuries Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all forearm injuries the radius, hence to the ulna and humerus. The posterior relations near the carpus are the anterior interosseous artery and the posterior interosseous nerve. Heterotopic ossification resulting in radio-ulnar cross union occurs in 2% of all firearm injuries. During the routine undergraduate demonstration classes in the department of Anatomy at BLDEU's Shri B. M. Patil Medical College, Bijapur, we found Heterotopic ossification resulting in radio-ulnar cross union occurs in 2 % of all forearm injuries. We report a case of Ossification of the Interosseous Membrane (OIM) in a 17-year-old boy who had a history of trauma 1 month back followed by pain and swelling in the right wrist. The plain radiograph showed OIM in the distal interosseous membrane of the radius and ulna of the right hand. MRI showed bone intensity bridging the distal shaft of the radius and ulna.

Keywords— *Heterotopic ossification, Interosseous membrane, Radius, Ulna*

1. INTRODUCTION

Heterotopic ossification is an abnormal formation of true bone within the extra skeletal soft tissues such as muscles, fascial planes, tendons, other mesenchymal soft tissues. The interosseous membrane of the forearm is a complex anatomic structure responsible for load sharing and stability of the forearm and distal radioulnar joint. This membrane provides surface for attachment for muscles; stabilizes the radius and ulna during forearm rotation and actively transmits forces from the radius to the ulna. Previously, many diseases sharing this common feature were grouped together into the category of myositis ossificans. However, the term has now fallen into disfavor because primary muscle inflammation is not a necessary precursor for such ossification and the ossification does not always occur in muscle tissue. The term heterotopic ossification has now been replaced by myositis ossificans.

2. CASE HISTORY AND IMAGING

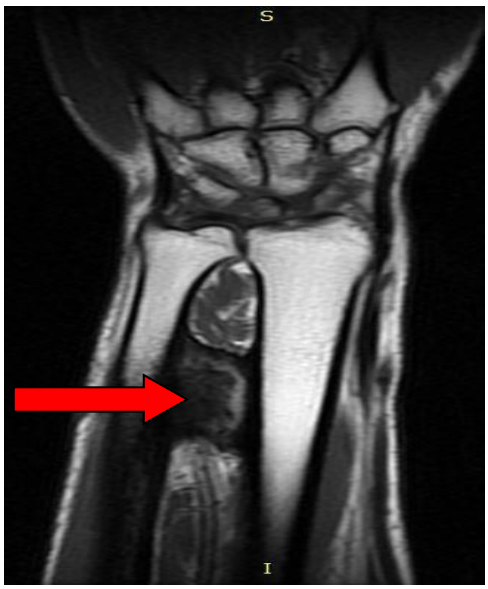
A 17 year old boy presented with history of trauma 1 month back followed by pain and swelling in the right wrist. Initially, the pain was intermittent in nature, but in last 1 week it had increased progressively. The patient was then advised plain radiograph of wrist. The plain radiograph of wrist revealed heterotopic ossification in distal interosseous membrane of the radius and ulna. Owing to the above findings, the patient was then advised MRI for further characterization and confirmation. MRI revealed, a 3.2 x 2.8 cm sized bone intensity bridging the distal shafts of the radius and ulna which appeared hypointense on PDFS and heterogeneously hyperintense on T1W images. Mild fluid signal was seen posteriorly. Linear PDFS hyperintense signal was noted involving the TFCC, just proximal to its ulnar attachment suggestive of sprain / partial tear. Minimal wrist and intercarpal joint effusion was also noted.

3. DISCUSSION

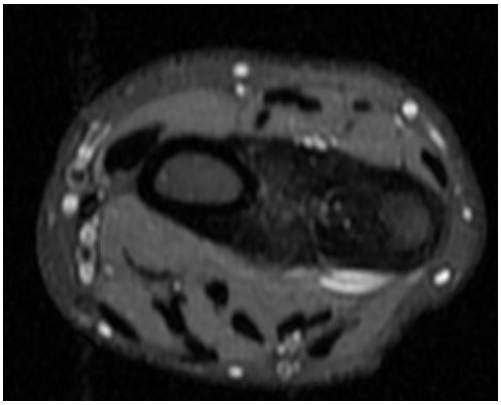
Heterotopic ossification leading to cross union between forearm bones was first described by Gross in 1864. Incidence is higher in monteggia fracture, particularly those involving both forearm bones along with dislocation of radial head Plain radiography is

usually the preferred method of initial assessment. However, it cannot detect the mineralization of HO during the first 1-2 weeks after the trauma or the onset of symptoms. However, radiographs are recommended in all patients with suggested HO to assess underlying bone pathology and exclude other pathology. Bone scanning is the method of choice for earliest detection and, once the diagnosis is established, for assessing the maturity of a known lesion Factors resulting in heterotopic ossification include open fractures, hematoma formation, infection, callus formation. Complications of heterotopic ossification include loss of forearm supination and pronation, which impairs the function of entire upper limb, compression over the anterior interosseous artery and posterior interosseous nerve.

X ray AP and lateral of wrist revelaed ossification in distal interosseous membrane of the radius and ulna



MRI revealed, a 3.2 x 2.8 cm sized bone intensity bridging the distal shafts of the radius and ulna which appeared hypointense on PDFS and heterogeneously hyperintense on T1W images



4. DIFFERENTIAL DIGNOSIS

- Myositis offificans
- Periarticular soft tissue calcification
- Dystrophic calcification
- Neoplasm like osteosarcoma

5. CONCLUSION

A possibility of development of HO at or near any fracture site especially in presence of infection or surgical intervention cannot be ruled out having knowledge of such rare condition is very important for neurophysicians and orthopedists during the management of complication around the wrist and it can be prevented by prophylactic radiotherapy or by surgery.

6. REFERENCES

[1] https://www.jhandsurg.org/article/S1531-0914(01)00012-2/abstract
[2] https://emedicine.medscape.com/article/390416-overview
[3] https://www.hindawi.com/journals/crior/2016/2930324/
[4] https://www.researchgate.net/publication/309099994_Heterotopic_ossification_in_the_interosseous_membrane_of_right_forearm_bones
[5] https://pdfs.semanticscholar.org/11f1/2d9be6e40ebbd4a35fd61c3bfa8a6b2d64b9.pdf
[6] https://www.researchgate.net/publication/244871480_Heterotopic_ossification_in_the_forearm

