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Case Report

Carpal tunnel syndrome: A rare manifestation of distal radius osteoid osteoma

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ABSTRACT

Osteoid Osteoma is a benign bone tumor that normally affects long bones and rarely affects distal radius. Because of its nonspecific presentation in the wrist, it remains a diagnostic challenge. We report an unusual case of Osteoid Osteoma at distal radius having symptoms resembling that of carpal tunnel syndrome. The diagnosis was confirmed preoperatively with X-rays; bone scintigraphy, CT, and MRI, later histological examination confirmed the diagnoses. Surgical excision lead to a dramatic improvement in the condition of the patient.

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1. Introduction

Osteoid Osteoma is a benign tumor described by Jaffe¹ in 1935. It causes pain, which is worse at night. Usually it is seen in the long bones but rarely occurs in the hand.² Isolated distal radius presentation could not be found in literature, even after extensive research. Clinical presentations of these lesions are often uncharacteristic and can lead to misdiagnosis. We report here such a case of Osteoid Osteoma occurring in distal radius in which initial diagnosis was missed but once diagnosis was confirmed, correct surgical excision lead to complete relief of symptoms.

2. Case report

A 25 year old male presented to our Orthopedic OPD with chief complaints of right wrist pain and numbness in right hand for last one and half years. The pain was continuous throughout the day with aggravation of symptoms while working. He also had numbness along the radial border of hand and radial three fingers with increase in symptoms on palmer flexion. Patient was on treatment elsewhere and a clinical diagnosis of Carpal tunnel syndrome was made on the basis of physical findings and clinical tests. Patient was being treated symptomatically with NSAIDs. Patient had relief of symptoms during the course

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Fig. 1 – Pre Op X-ray.

Fig. 2 – CT scan showing nidus.

of treatment and pain recurred as soon as NSAIDs were discontinued. Patient had been on and off on treatment for past one and half years with no significant improvement. Patient also had been advised surgery for the carpal tunnel syndrome. Laboratory data were within normal limits. MRI done (Fig. 3) elsewhere showed a normal study. On presentation to us with the above mentioned history, thorough clinical

examination was done. It was found that along with the above mentioned symptoms patient had a specific tender point along the distal radius portion of his right wrist. We ordered a plain X-ray (AP/Lateral) (Fig. 1) of the wrist. Plain radiographs showed a small round lucency of cortical bone on the ulnar side of the cortex of the distal radius. The bone surrounding the round lucency was sclerotic. Keeping a provisional

Fig. 3 – MRI (Normal study).

diagnosis of Osteoid osteoma CT Scan and Bone scan were ordered. CT scan (Fig. 2) showed a well defined cortical lytic lesion on its medial and volar aspect, measuring 0.7 by 0.8 mm in size and 0.5 cm from the distal articular surface with a central hyperdense calcified area and a sclerotic cortical rim confirming the diagnosis of osteoid osteoma. Bone scan findings were also suggestive of Osteoid osteoma. In view of his paresthesia of right hand a Nerve conduction velocity was done which showed a prolonged distal latency and reduced conduction velocity in right median nerve indicating a moderate (Grade III) carpal tunnel syndrome. Patient underwent surgical excision using volar approach. Median nerve (Fig. 4) was identified and secured; flexor retinaculum was cut in proximal half. Nidus (Fig. 5) was well visualized and complete curettage was done using high speed burr (Figs. 6 and 7) and excised Nidus (Fig. 8) was sent for Histopathological examination which later confirmed the diagnosis. Following surgical excision there was complete relief to the patient.

3. Discussion

Osteoid Osteoma is a benign bone tumor usually localized in or on the cortex of a long bone.³ In hand it is frequently seen in the proximal phalanx; the carpal and metacarpal bones are unusual sites for osteoid osteoma.² This osteoblastic lesion is characterized by a well-demarcated nidus usually less than 1 cm and by a distinctive surrounding zone of reactive bone formation. Histologic features include a nidus of irregular trabeculae with numerous osteoblasts in osteoid, surrounded by highly vascular stroma. The main symptom is pain followed by swelling. The pain is characteristically deep, dull and constant and frequently relieved with non steroidal anti inflammatory drugs especially with salicylate therapy which are believed to inhibit the increased prostaglandin synthesis of the tumor. As time passes the pain become more severe, especially at night.

In hand the diagnosis may be delayed because of these nonspecific symptoms. The average duration of symptoms before diagnosis is 15 months and the tumor is often treated as another disease.⁴ Carpal tunnel syndrome, osteomyelitis,

Fig. 5 – Intra Op – osteoid osteoma before excision.

Fig. 6 – Curettage of osteoid osteoma by high speed burr.

Fig. 4 – Intra Op – median nerve isolated.

Fig. 7 – Bone after nidus curettage.

Fig. 8 – Excised nidus.

stress fracture, avascular necrosis, posttraumatic periosteitis, capsular strain, malignant tumors like Ewing's sarcoma or osteosarcoma, inflammatory arthritis and Brodie abscess are common misdiagnosis hiding the real lesion.³⁻⁶

The prevalence of the osteoid osteoma may be higher than reported due to misdiagnosis and radiographic misinterpretation. If a patient presents with persistent nocturnal pain and nonspecific symptoms, it is important to include osteoid osteoma as a possibility although it is rare. The plain radiographs can demonstrate a well demarcated radiolucent area but the computed tomography is essential to confirm the diagnosis. In the plain radiographs the nidus is commonly concealed by the adjacent area of extensive sclerosis and the diagnosis may often be missed. The CT scan shows the exact localization of the tumor and guides the surgical procedure. The magnetic resonance imaging is the most appropriate technique for the diagnostic. It shows the nidus with a sclerotic rim and the perifocal edema causing the swelling. This observation may be due to the elevated levels of prostaglandin levels in the nidus which lead to an increased permeability of the capillaries.⁷ The treatment of the osteoid osteoma is surgical. Nonsurgical treatment has been reported with long standing use of salicylates (three to four years).³⁻⁸ The curettage of the lesion with ablation of the nidus leads to regression of the symptoms. Motorized burr is useful to clean the cavity and if a large cavity is present cancellous bone graft

is indicated. Percutaneous radiofrequency ablation is used for the upper and lower extremity tumors; however, this technique is not routinely performed in the hand.

4. Conclusion

Osteoid osteoma around wrist represents a diagnostic difficulty because of abnormal presentation and is often misdiagnosed. It may be responsible for considerable pain and functional incapacity. It should be suspected in conditions affecting wrist not responding to proper treatment. Appropriate imaging is necessary to make the diagnosis and includes Radiographs, CT scan and bone scan. Surgical treatment with en bloc resection is the preferred technique, though curettage is acceptable, and generally provides symptomatic relief.

Conflicts of interest

All authors have none to declare.

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