

A Case Report of Capitate Osteoid Osteoma

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Abstract: *Osteoid osteoma is a benign bone tumor that typically affecting young patient causing sometimes considerable pain and motion limitation that response perfectly to simple nonsteroidal anti - inflammatory medications. The presence of cortical small nidus with surrounding osteosclerotic reaction is diagnostic especially in the spine or long bones; however the carpal involvement is extremely rare creating diagnostic dilemma. That is why we report an unusual case of capitate osteoid osteoma in young patient whom was treated by radiofrequency ablation resolving symptoms he complained for whole year.*

Keywords: CT guided percutaneous thermal ablation, monoarticular arthritis, capitate, wrist pain, osteoid osteoma

1. Introduction

Osteoid osteoma is a benign bone tumor that typically affecting young patient causing sometimes considerable pain and motion limitation that response perfectly to simple nonsteroidal anti - inflammatory medications. The presence of cortical small nidus with surrounding osteosclerotic reaction is diagnostic specially in the spine or long bones, however the carpal involvement is extremely rare creating diagnostic dilemma. That is why we report an unusual case of capitate osteoid osteoma in young patient whom was treated by radiofrequency ablation resolving symptoms he complained for whole year.

2. Case Presentation

A 28 years old medically free gentleman presented to family medicine clinic with recurrent right wrist pain and decrease movement for one year duration. No history of trauma. On examination there is tenderness on carpal region. Range of motion is limited by pain at extremes. The patient was supportively managed and referred to orthopedic clinic. Right hand and wrist plain film, CT scan and MRI was also requested (figure 1 - 6).



Figure 1: Plain wrist radiograph demonstrate nonspecific sclerosis of the capitate bone, however osteoid osteoma diagnosis is difficult in plain film because due to lack of typical nidus.

Non - enhanced CT scan of the same patient showing dorsal capitate rounded lucent nidus which has focus of central faint calcification.



Figure 2: Non - enhanced CT scan of the same patient showing dorsal capitatum rounded lucent nidus which has focus of central faint calcification.

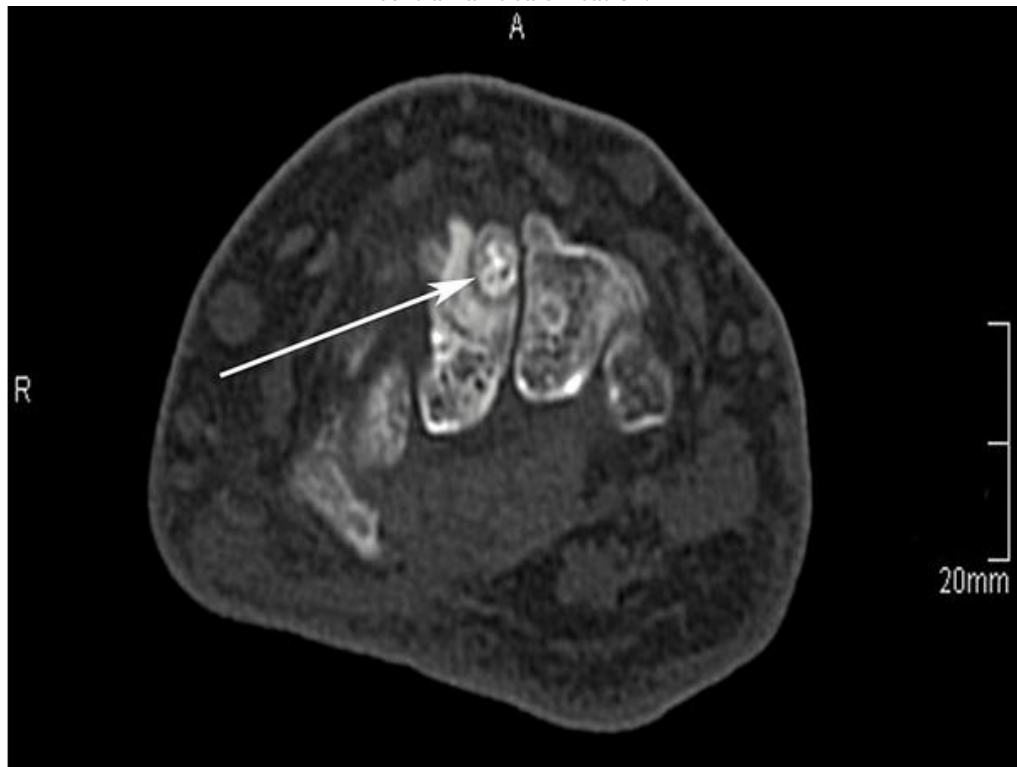


Figure 3: Non - enhanced CT scan of the same patient showing dorsal capitatum rounded lucent nidus which has focus of central faint calcification.

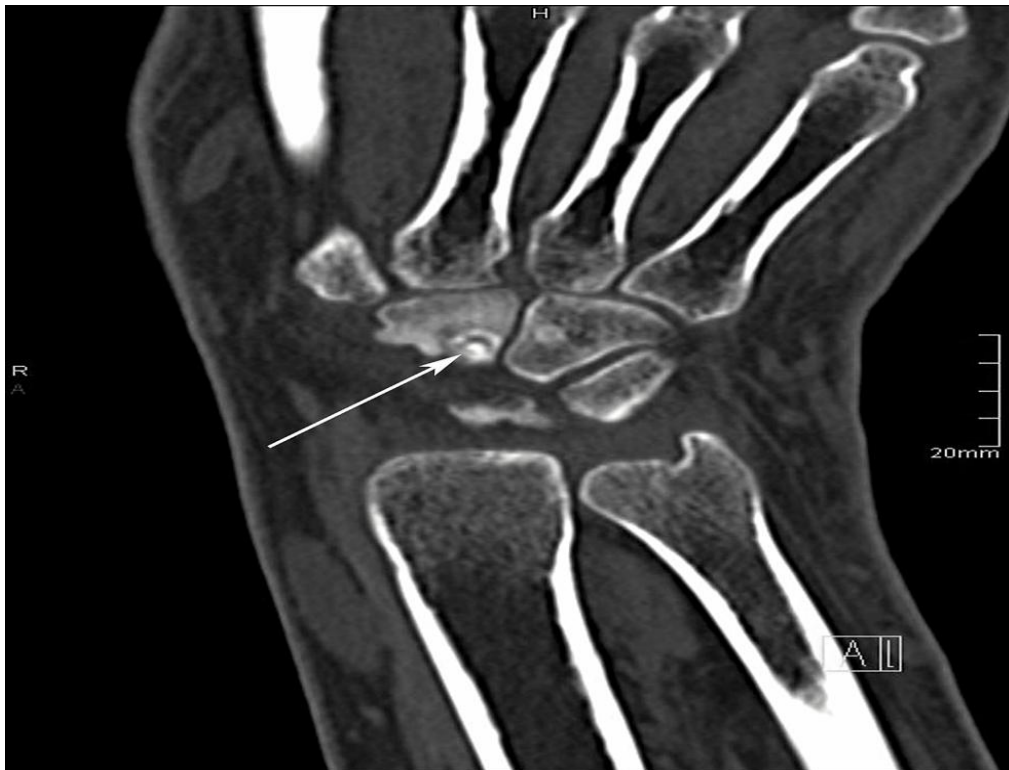


Figure 4: Non - enhanced CT scan of the same patient showing dorsal capitate rounded lucent nidus which has focus of central faint calcification.



Figure 5: T2 weighted image in the coronal plane showing a diffuse capitate oedema with small hypointense rounded lesion involving the dorsal aspect of the mid portion of the capitate.

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Figure 6: T2 weighted image in the coronal plane showing a diffuse capitate oedema with small hypointense rounded lesion involving the dorsal aspect of the mid portion of the capitate.

Bone scans of the same patient (figure 7 & 8).

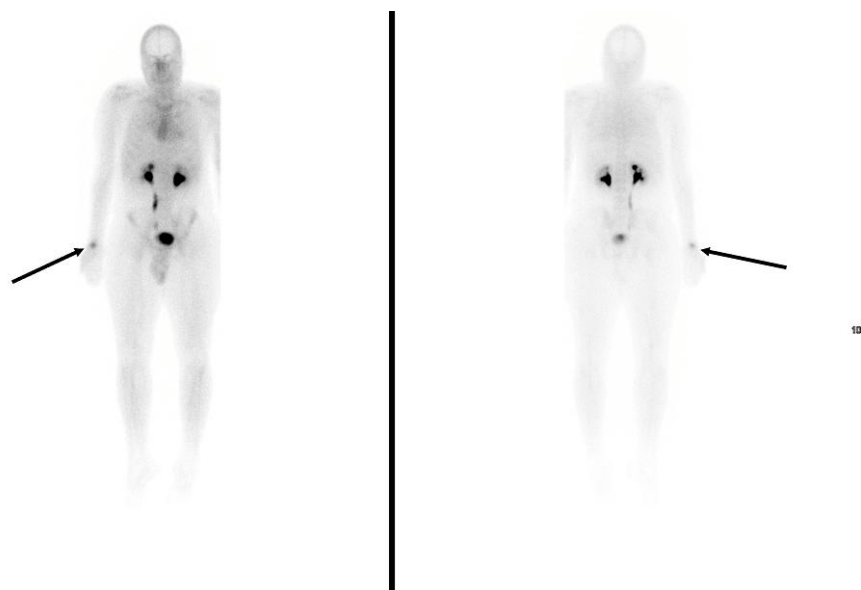


Figure 7: nm



Figure 8: Bone scans of the same patient. ^{99m}Tc - methylene diphosphonate bone scintigraph image of (A) anterior and (B) posterior projections revealed increased focal uptake in the wrist corresponding to the osteoid osteoma lesion on the prior CT and MRI.

Based on the imaging feature and clinical presentation the patient diagnosed as right carpal osteoid osteoma and he was offered radiofrequency ablation treatment after consenting and explanation (figure 9).

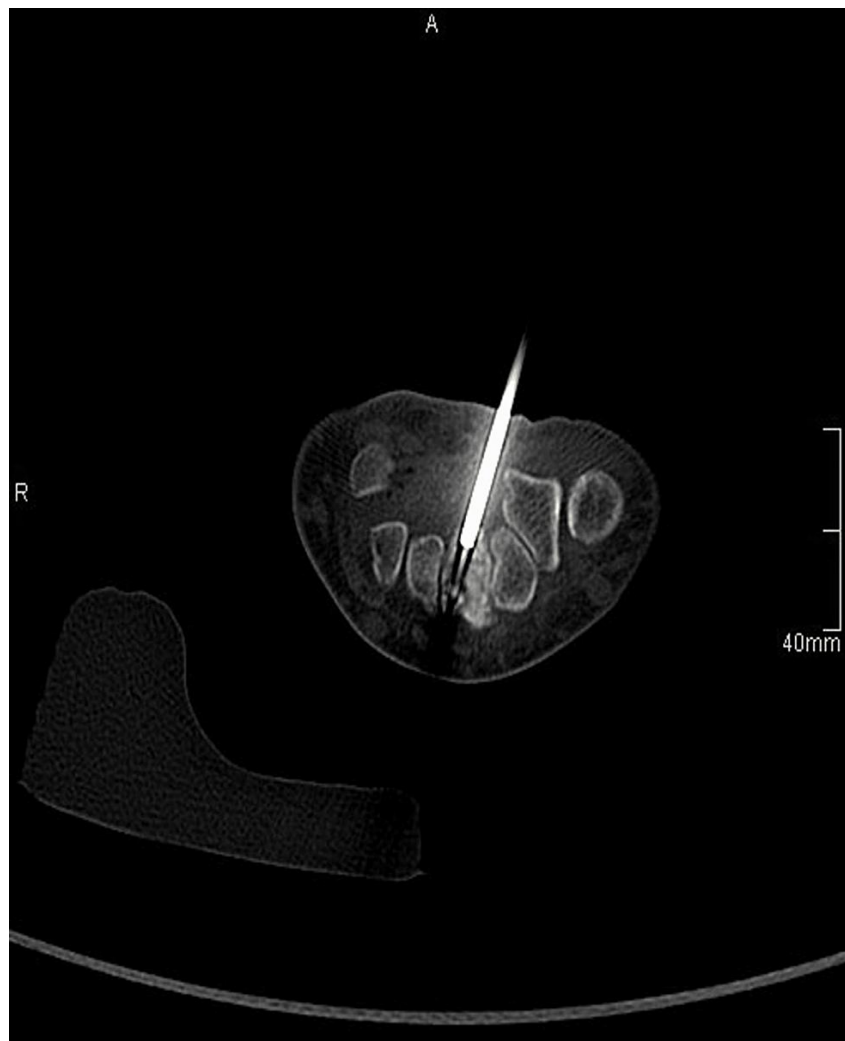


Figure 9: CT - guided percutaneous thermal ablation was performed for the this patient, the axial image shows the needle in place targeting the osteoid osteoma nidus.

Two month after treatment the patient was followed in clinic with complete symptom resolution.

3. Discussion

Osteoid osteoma (OO) is a benign osteoblastic bone tumor which is predominantly affects male in their second or third decades of life in a ratio of at least 2: 1 [14]. It is and unusual to be found in patient over age of 40. It has been reported at different bony skeleton sites, but mostly it is affect the cortex of the growing long tubular bone of the lower extremity [15]. It is typically measures less than 1.5 cm. In the hand it most commonly affect the proximal phalanx, and least commonly affect the carpal bones.

In general, carpal bone tumor is extremely rare, but when it occurs it is most commonly benign (86%). Osteoid osteoma is the most common bone tumor affecting the carpal bones (25%). It most commonly affects the scaphoid bone. OO most commonly present with nocturnal pain that improved with NSAIDs or salicylate. Depending on the location of the OO in the carpal bones, patient can present with nonspecific symptoms including limited range of movement, exertional pain, localized tenderness or swelling as well as synovitis or tenosynovitis [16].

Radiograph can show sclerosis but can be non - diagnostic [17]. CT scan with lucent nidus and surrounding sclerosis or bone scan with typical double density sign can help with diagnosis [18, 19], but contrast enhanced MRI is considered a sensitive modality and should be used early to prevent delayed diagnosis. It shows the extensive disproportional edema surrounding the lesion. When it is near the articular surface it can cause synovitis and joint effusion and it should be considered in differential of monoarticular arthritis [20].

The treatment of OO in the wrist is still controversy including open surgery, cryoablation and radiofrequency ablation [21, 22]. However, people most commonly do complete excision with or without bone grafting and it show very low recurrence rate.

4. Conclusions

Capitate bone osteoid osteoma is extremely rare and difficult to diagnose on simple plain film, however the presence of nonspecific hand symptoms like decrease range of motion and localized pain and tenderness that improve by simple pain killer is suggestive. Further imaging evaluation by hand CT and MRI should be conducted looking for indicative signs of osteoid osteoma and to roll out the presence of other hand pathology.

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