

## A Rare Tumor of the Trapezoid Bone in a Patient with Chronic Wrist Pain

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Received: 02 June 2018; Revised: 27 July 2018; Accepted: 15 September 2018

### Abstract

**Background:** Osteoid osteoma (OO) is a benign tumor that rarely occurs in carpal bones. Occurrence of OO in trapezoid is extremely rare. We present a patient with OO of the trapezoid as 7<sup>th</sup> reported case around the world.

**Case Presentation:** A 25-year-old man was referred to our clinic with a 12-month history of pain of his left wrist. He mentioned that he had wrist pain during manual activity and the pain was increasing over time. He did not have history of trauma. He was treated with nonsteroidal anti-inflammatory drugs (NSAIDs) before being referred to our clinic; however, it did not work. Examination showed tenderness over the dorsoradial side of the left wrist. Conventional radiographs of the wrist were normal. Computed tomography (CT) demonstrated a halo radiolucent osteoid tissue surrounded by a sclerotic tissue in left trapezoid. Magnetic resonance imaging (MRI) showed a focal hypointense lesion (nidus) in the trapezoid with 10 mm diameter. A focal increased uptake of <sup>99m</sup>Tc in his trapezoid was shown by bone scintigraphy. According to the clinical and imaging findings, we considered excisional biopsy with the diagnosis of OO of trapezoid bone. Surgery was performed through a dorsal incision. We performed en bloc excision. Histopathological findings confirmed the diagnosis of OO. The patient got pain-free on postoperative day 3.

**Conclusion:** Carpal bones tumor such as OO should be considered in differential diagnosis of patients with chronic wrist pain.

**Keywords:** Acromion; Osteoid Osteoma; Wrist; Tumors

**Citation:** Nejadhosseinian M, Farhoud AR, Dehghani Firoozabadi MJ, Mortazavi SMJ. A Rare Tumor of the Trapezoid Bone in a Patient with Chronic Wrist Pain. *J Orthop Spine Trauma* 2018; 4(4): 77-9.



### Background

Osteoid osteoma (OO) is a kind of bone tumor which usually originates from osteoblast cells. This benign tumor usually occurs in long bones. It usually occurs in patients between ages of 4 to 25 years old and it is more common in males (male/female: 3/1). Pain is the most common presentation of this tumor which can be worsened at night.

Pain usually responds to nonsteroidal anti-inflammatory drugs (NSAIDs) very well. Plain radiography can reveal the tumor with lytic lesion (nidus) surrounded by a distinct zone of sclerosis. The size of nidus is usually less than 1.5 cm. Plain radiography is not always diagnostic, so that computed tomography (CT) scan or magnetic resonance imaging (MRI) should be used for diagnosis of tumor. Tumor can be treated conservatively with NSAIDs, but in refractory bone pain, surgery for removal of tumor should be considered.

About 5-15 percent of all OOs occur in hands (1). OO in hand usually occurs in the proximal phalanges, metacarpals, and carpal bones. There are some reports of OO in carpal bones, but there are only 6 previous reported cases of its occurrence in the trapezoid in the English literature (2-6). The aim of presentation of our case, as the 7<sup>th</sup> reported OO of trapezoid bone, is to be aware of this tumor as a differential diagnosis of patients with chronic wrist pain.

### Case Presentation

A 25-year-old man was referred to our clinic in Imam

Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran, with a 12-month history of pain of his left wrist. He mentioned that he had wrist pain during manual activity, and the pain was increasing over time. He did not have any history of trauma, no constitutional manifestation or other organs' involvement, and no past medical history. He was treated with NSAIDs before being referred to our clinic; however, it did not work.

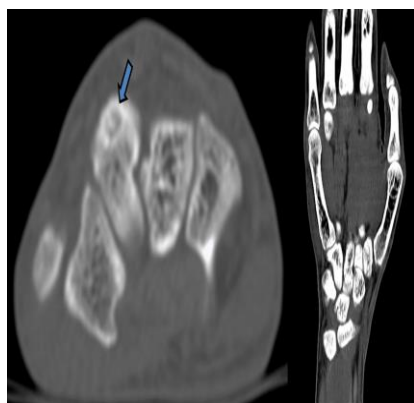
There was tenderness over the dorsoradial side of the left wrist in physical examination. There was no swelling or warmth on his wrist. Other joints were intact. Systemic examination was normal.

Conventional radiography of the wrist was normal (Figure 1).



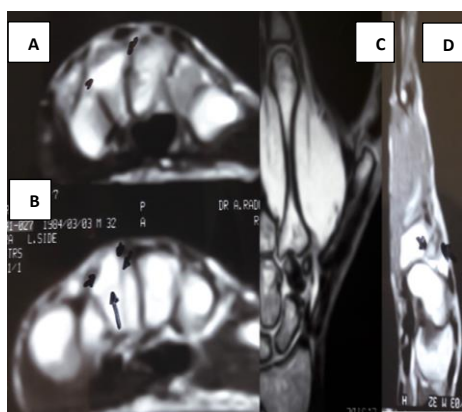
**Figure 1.** Normal radiography of left hand, anteroposterior (AP) and lateral views

CT scan demonstrated a halo radiolucent osteoid tissue surrounded by a sclerotic tissue in left trapezoid (Figure 2).



**Figure 2.** Computed tomography (CT) scan showing a halo radiolucent osteoid tissue surrounded by a sclerotic tissue in trapezoid bone (arrow)

MRI showed a focal hypointense lesion (nidus) in the trapezoid with 10 mm diameter (Figure 3).



**Figure 3.** Magnetic resonance imaging (MRI) showing involvement of the trapezoid bone; A and B: Axial views; C: Coronal view; D: Sagittal view

A focal increased uptake of  $^{99m}\text{Tc}$  in his trapezoid was shown by bone scintigraphy (Figure 4).



**Figure 4.** Bone scan showing increased uptake at left trapezoid area

According to the clinical and imaging findings, we considered excisional biopsy with the possible diagnosis of OO of trapezoid bone. Surgery was performed through a dorsal incision. We performed en bloc excision of the tumor (Figure 5). Histopathological findings revealed the diagnosis of OO. The patient got pain-free on postoperative day 3.



**Figure 5.** Dorsal incision and en bloc mass

## Discussion

Our case was a 25-year-old man with chronic wrist pain, which was diagnosed with OO of trapezoid as a rare site of this benign tumor. Our case was the 7<sup>th</sup> case of trapezoid OO reported around the world.

OO, as a benign tumor, usually occurs in long bones. About 5-15 percent of this tumor occur in the hand (1). OOs in hand, frequently, locate in the proximal phalanges, metacarpals, and carpal bones. There are some reports of OO in carpal bones. Occurrence of OO is extremely rare in the trapezoid and only few cases were reported previously (2-6). OOs may occur at any ages, but in ages between 4 and 25 years are more common. Male to female ratio is 3:1 (7).

Nidus is usually less than 1.5 cm in diameter. The periosteal reaction induced by nidus may obscure it (8). OO is highly irritative and can affect adjacent tissues. These effects may be due to production of prostaglandin by tumor cells. The most common chief complaint of patients is pain, followed by swelling and local tenderness.

Radiographic findings of this tumor are highly characteristic. A small radiolucent nidus is surrounded by dense bone (1). Occasionally, the nidus may be obscured by reactive bone.

MRI or CT scan can show nidus by a small radiolucent center which is surrounded by a radiodense area (9). In our patient, conventional radiography of the wrist was normal. CT scan demonstrated a halo radiolucent osteoid tissue surrounded by a sclerotic tissue, and MRI showed a focal hypointense lesion (nidus) in the trapezoid with 10 mm diameter. Radionuclide scanning is useful for localization of lesion at surgery and also can be used for follow-up after surgery to confirm that tumor has been removed completely. In our patient, bone scintigraphy showed an increased uptake of  $^{99m}\text{Tc}$  in his trapezoid bone.

Because of nonprogressive nature of OO, symptomatic therapy with NSAIDs is recommended. Due to role of prostaglandins in production of symptoms, pain tends to be relieved with NSAIDs dramatically (10). Whenever the symptoms are refractory to conservative therapy, en bloc excision for extraction of the central nidus is recommended. Recurrence rate of tumor after surgery is around 6 percent (1, 11). We removed our patient's tumor through an en bloc excision method, and patient was completely pain-free on postoperative day 3.

## Conclusion

Presentation of this case informed us to consider tumors as a differential diagnosis in patient with chronic wrist pain even with normal radiography.

**Conflict of Interest**

The authors declare no conflict of interest in this study.

**Acknowledgments**

None.

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