Case Report

Synovitis of the wrist joint caused by an intraarticular perforation of an osteoid osteoma of the scaphoid

Praveen Bhardwaj, Chetna Sharma[1], S Raja Sabapathy

Abstract

Uncommon location and atypical presentation of the osteoid osteomas of the scaphoid can pose a diagnostic challenge. Because of its intraarticular location, scaphoid osteoid osteoma can present with synovitis which is the more commonly reported presentation for other intraarticular locations like in hip and elbow and only rarely reported at the wrist. We report a case of perforation of the osteoid osteoma into the wrist joint, resulting in exuberant synovitis. The clinical significance of this report is to reinforce that synovitis can be a presentation of osteoid osteoma and it should be considered in the differential diagnosis of monoarticular arthritis. Prolonged synovitis may cause damage to the other joint surfaces of the wrist and hence carpal osteoid osteoma should be considered for early surgical excision.

Key words: Intraarticular location, monoarticular arthritis, osteoid osteoma, scaphoid, synovitis wrist

Introduction

Uncommon location and atypical presentation of an osteoid osteoma of the scaphoid can pose a diagnostic challenge.[1] Because of its intraarticular location, it can present with synovitis which is more commonly reported for other intraarticular locations like hip and elbow and rarely reported at the wrist.[2] Synovitis of the wrist resulting from intraarticular perforation of the osteoid osteoma of radial styloid has been reported only once.[3] Scaphoid osteoid osteoma can present with synovitis, but following its perforation, the synovitis may be exuberant and may mimic inflammatory pathologies like monoarticular rheumatoid arthritis or tuberculosis. We report a case of the intraarticular perforation of the osteoid osteoma of the scaphoid causing synovitis.

Department of Plastic Surgery, Hand Surgery, Reconstructive Microsurgery and Burns, Ganga Hospital, Coimbatore, [1]Department of Pathology, PSG Institute of Medical Sciences and Research, Peelamedu, Coimbatore, India

Address for correspondence: Dr. S Raja Sabapathy,
Head, Department of Plastic Surgery, Hand Surgery, Reconstructive Microsurgery and Burns, Ganga Hospital, 313 Mettupalayam Road,
Coimbatore – 641 043, India.
E-mail: drpb12@yahoo.co.in

Access this article online	
Quick Response Code:	Website: www.ijoonline.com
	DOI: 10.4103/0019-5413.101051

Case Report

A 15 years old girl presented with complaints of pain and swelling over the left wrist for 3 months. She associated the onset of pain to a direct injury to wrist while playing. The pain was mild to begin with and responded to Ibuprofen. The pain later became severe and did not respond to anti-inflammatory drugs. The patient also noted a swelling on the radial aspect of the wrist. The swelling had been gradually increasing in size [Figure 1a]. The range of movement at the wrist joint at presentation was dorsiflexion of 45° and palmarflexion of 20°. The grip strength of the left hand was 4 kg as compared to 18 kg at the right dominant hand. Her past medical and family history was unremarkable. Serologic workup performed showed a negative rheumatoid factor, a white blood cell count of 6000 cells/mm^3, a C-reactive protein of 0.6 mg/L, and a sedimentation rate of 15 mm in the first hour. The radiographs showed a well circumscribed lytic lesion in the distal pole of the scaphoid [Figure 1b]. Computed tomography (CT) scan of the wrist showed a lytic lesion with a nidus in the center, with cortical perforations [Figure 1c]. Magnetic resonance image (MRI) scan of the wrist showed a well defined eccentric lesion with sclerotic margins and central calcification involving the scaphoid, measuring 5 × 5 mm with inflammatory edema and synovitis of the periscaphoid region and articulations [Figure 2].

Dorsal approach was selected for the excision of the tumor and synovectomy as there was maximum swelling over the dorsoradial aspect of the wrist. On exploration, there was synovitis of the whole wrist joint, which resembled on

naked eye as tubercular synovitis [Figure 3a,b]. There was inflammatory granulation tissue at the scapho-trapezio-trapezoidal joints. Thorough synovectomy was done. The perforation of the osteoid osteoma at the scaphoid was seen as a break in continuity of the surface of the scaphoid and inflammatory tissue protruded through it [Figure 3a,b]. The tumor along with the distal radial corner of the scaphoid was excised. Complete excision was confirmed by intraoperative X-rays [Figure 3c]. The wrist was immobilized for 2 weeks and then mobilization was started. Patient was allowed free use of the hand at 1 month after surgery. The histopathology of the excised specimen confirmed it to be osteoid osteoma and its complete excision. The synovial tissue was reported to be of nonspecific inflammation. The patient recovered uneventfully and was using the hand comfortably at 6 weeks post surgery. At 1 year followup, there was complete resolution of symptoms and patient was back to normal activities. The range of movement at the wrist joint improved to dorsiflexion of 80° and palmar flexion of 40° [Figure 4a,b]. The grip strength of the left hand was 14 kg as compared to 18 kg at the dominant right hand. The radiograph at 1-year followup showed no recurrence of the tumor and there was no significant progression of arthritis at the intercarpal or radiocarpal joint [Figure 4c,d,e].

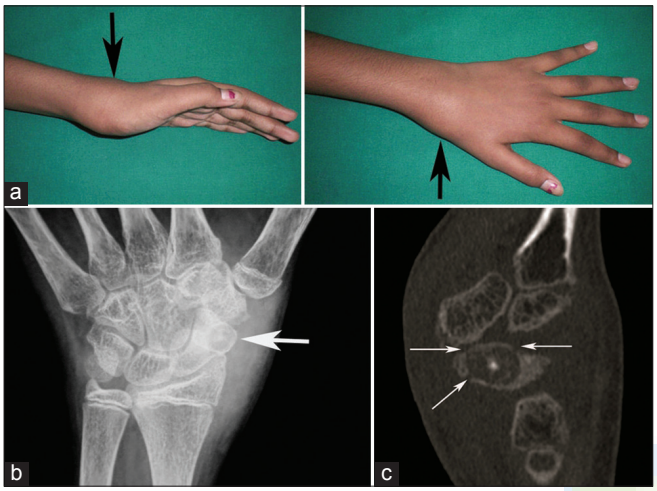

Figure 1: (a) Clinical photograph showing swelling at the dorso-radial aspect of the wrist (arrow). (b) Radiograph of the wrist showing an osteolytic lesion at the distal radial corner of the scaphoid with a central nidus. (c) The CT scan of the wrist showing lytic lesion with a nidus in the center. The arrows show the sites of cortical perforations (white arrow)

Discussion

Delay in diagnosis and missed diagnosis is common for carpal osteoid osteomas because of its rarity and variable presentations. The average duration of symptoms before diagnosis has been reported as high as 15 months.[4] Themistocleous *et al*,[5] reported a case of osteoid osteoma which was treated for a scaphoid fracture before presenting to them. Volpin *et al*,[6] reported three cases of osteoid osteoma of wrist (one case had osteoid osteoma at the radial styloid and another two at the capitate) presenting with symptoms resembling tenosynovitis of wrist. Ozalp[7] reported a case of

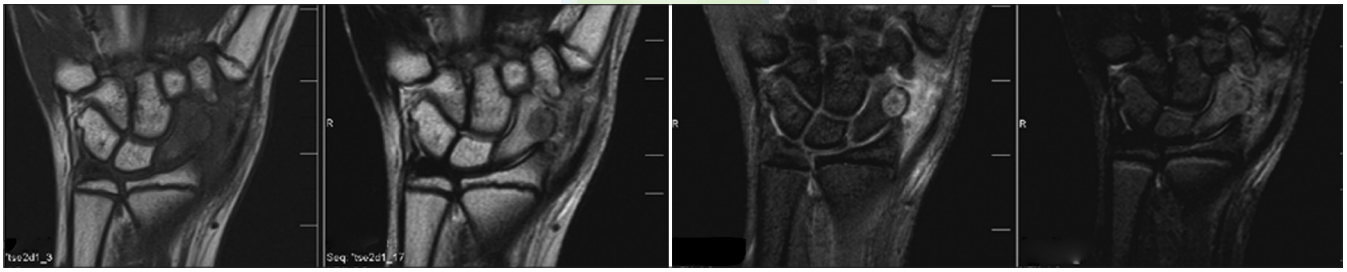

Figure 2: MRI scan of the wrist showing a well-defined T1- and T2-hypointense and gradient echo (GRE) and short-tau inversion recovery (STIR)-hyperintense lesion with a central hypointense nidus in all sequences involving the distal pole of scaphoid with bone marrow and soft tissue edema with synovitis of the wrist

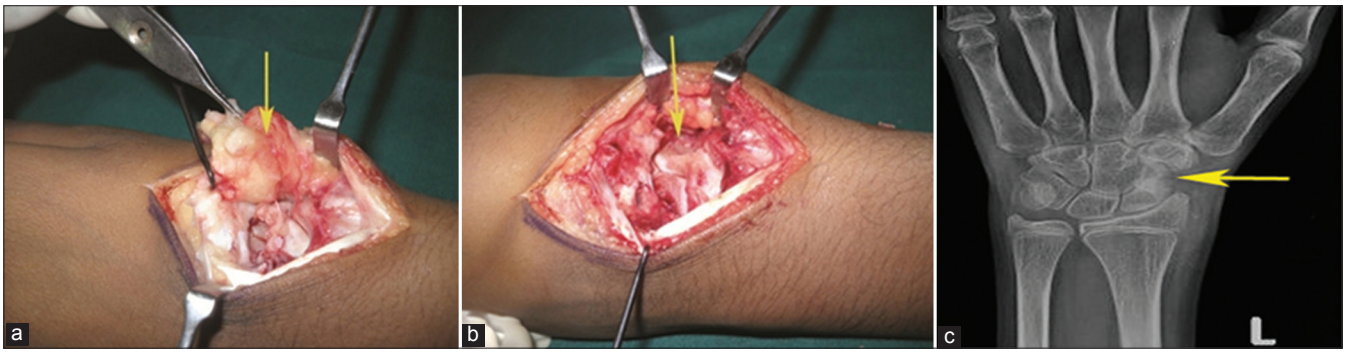

Figure 3: (a, b) Intraoperative picture showing the exuberant synovitis (yellow arrow) and the site of cortical perforation with extruding granulation tissue (yellow arrow). (c) Post-excision radiograph of wrist (anteroposterior view) Yellow arrow showing excised part

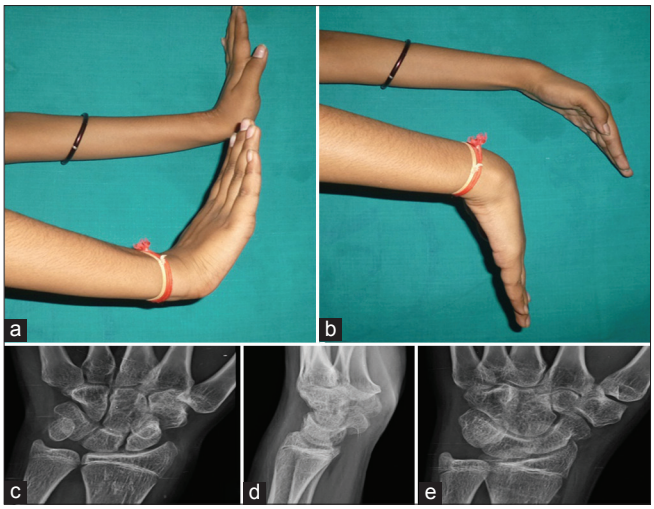

Figure 4: (a, b) Clinical photograph showing range of motion at the wrist at 1-year followup. (c, d, e) Radiograph of the wrist at 1 year showed no recurrence and no significant progression of arthritis

osteoid osteoma that had undergone de Quervain release without relief before the patient presented to them.

Scaphoid osteoid osteomas can present with nonspecific symptoms like pain with swelling (synovitis and effusion), stiffness, and local warmth because of their intraarticular location.[8] They may not cause night pain like the classical osteoid osteoma and may not respond to aspirin. De Smet[1] has reported a case of osteoid osteoma of scaphoid who presented with synovitis. Ozalp[7] reported synovitis at scapho-trapezio-trapezial articulation on exploration for scaphoid osteoid osteoma. Garg and Kapoor[9] reported a case of osteoid osteoma of the scaphoid which presented with nonspecific symptoms and patient was initially suspected to have tuberculosis. However, CT scan of wrist showed classical features of osteoid osteoma. Degenerative arthritis, associated with osteoid osteomas of the carpus, has been described.[2,10] Katolik[2] reported a case of arthritis of the wrist caused by the osteoid osteoma of the scaphoid in a young woman. Chevrot *et al*,[10] reported arthritic changes in the wrist in association with capitate osteoid osteoma in a 22-year-old woman. De Smet[3] reported a unique case of intraarticular perforation of osteoid osteoma of the radial styloid, causing synovitis of the wrist. We could not find any mention of this kind of perforation of scaphoid osteoid osteoma causing wrist synovitis.

Synovitis is a unique feature seen in association with intraarticularly located osteoid osteomas and is not seen in cases where the nidus in located in diaphysis. Its surgical removal results in remission of synovitis.[8] The reason for the synovitis is not yet fully understood. Kawaguchi *et al*,[8] proposed that cyclooxygenase-2 expression in osteoblasts within the nidus activates the arachidonic acid metabolic pathway and production of prostaglandins, which might induce synovitis in the adjacent joint. We suggest that intraarticular perforation as in our case probably results in leakage of more amount of cyclooxygenase-2 into the joint, and hence may result in more prostaglandin production and cause exuberant synovitis.

There have been few reports of spontaneous regression and encouraging results with medical treatment. However, this should be avoided for intraarticular osteoid osteomas of the wrist because delay in treatment may result in permanent damage to the joint due to the longstanding synovitis. Prompt surgical excision could possibly lessen the possibility of articular damage and subsequent degenerative arthritis in these patients.

References

1. De Smet L, Brys P, Fabry G, Baert A. An unusual localisation and presentation of an osteoid osteoma. Acta Orthop Belg 1997;63:128-31.
2. Katolik LI. Osteoid osteoma of the scaphoid presenting with radiocarpal arthritis: A case report. Hand 2009;4:187-90.
3. De Smet L. Synovitis of the wrist joint caused by an intra-articular perforation of an osteoid osteoma of the radial styloid. Clin Rheumatol 2000;19:229-30.
4. Bednar MS, McCormack RR Jr, Glasser D, Weiland AJ. Osteoid osteoma of the upper extremity. J Hand Surg Am 1993;18:1019-28.
5. Themistocleous GS, Chloros GD, Mavrogenis AF, Khaldi L, Papagelopoulos PJ, Efstathopoulos DG. Unusual presentation of osteoid osteoma of the scaphoid. Arch Orthop Trauma Surg 2005;125:482-5.
6. Volpin G, Shtarker H, Oliver S, Katznelson A, Stahl S. Osteoid osteoma of the wrist joint resembling tenosynovitis. [Article in Hebrew] Harefuah 2006;145:885-8.
7. Ozalp T, Yercan H, Guvenir O. Osteoid osteoma of the scaphoid bone. Firat Tip Dergisis 2008;13:59-61.
8. Kawaguchi Y, Sato C, Hasegawa T, Oka S, Kuwahara H, Norimatsu H. Intraarticular osteoid osteoma associated with synovitis: a possible role of cyclooxygenase-2 expression by osteoblasts in the nidus. Mod Pathol 2000;13:1086-91.
9. Garg V, Kapoor SK. Osteoid osteoma of scaphoid. J South Orthop Assoc 2003;12:141-2.
10. Chevrot A, Ben Hamouda M, Vallée C, Gires F, Wybier M, Amor B, *et al*. Arthritis of the wrist disclosing osteoid osteoma of the capitate bone. J Radiol 1987;68:117-22.

How to cite this article: Bhardwaj P, Sharma C, Sabapathy SR. Synovitis of the wrist joint caused by an intraarticular perforation of an osteoid osteoma of the scaphoid. Indian J Orthop 2012; 46:599-601.

Source of Support: Nil, **Conflict of Interest:** None.