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# Aneurysmal bone cyst of the lunate: Case report and literature review



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# ABSTRACT

The aneurysmal bone cyst (ABC) is a benign osteolytic bone neoplasm. Although most ABC is asymptomatic, in some cases they produce a mass effect, impinging against soft tissues or interfering with joint function. The authors present a rare case report of a lunate ABC successfully treated by curettage and bone grafting, and review the literature of this pathology.

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## 1. Background

Wrist and hand aneurysmal bone cyst are rare, accounting for 6% of all bone tumors.<sup>1</sup> Wrist pain of insidious onset, without trauma history, or acute pain due to a pathologic fracture, should raise suspicion of an ABC in the carpus as a possible diagnosis.<sup>2</sup>

# 2. Case report

A 50-year-old right-handed women, secretary, previously healthy, came to our office for evaluation of an insidious and crescent left (non-dominant) wrist pain with no trauma history, 6 months of duration and that progressively limited her daily activities.

Physical examination showed limited dorsiflexion of the wrist because of pain with tenderness over the scapholunate joint. No edema or major deformity was identified.

Antero-posterior and lateral radiographs and MRI of the patient's left wrist were performed, suggesting ABC diagnosis (Figs. 1 and 2). Curettage of the lesion with bone grafting was proposed to the patient, as treatment.

Under sterile tourniquet and loupe magnification, a longitudinal and dorsal incision centered on the radiocarpal joint was performed (Lister's tubercle and 3rd metacarpal as references). No pathologic alterations were found while isolating the lunate bone

(Fig. 3). A generous window on the dorsal cortex of lunate was made and bloody fluid coming from inside this bone was immediately identified (Fig. 4). Curettage with high-speed burring was used to clean all inner matter of the lunate bone (Fig. 5). Cancellous bone graft was harvested from the ipsilateral radius and impacted into the lunate, followed by soft tissue closure.

An antalgic volar wrist splint was applied for a period of 4 weeks. After that period of immobilization the patient attended a course of daily physical therapy during 1 month.

At 2 years follow-up, the patient was pain free. CT scan showed integration of bone graft (Figs. 6 and 7).

## 3. Discussion

Aneurysmal bone cyst (ABC), an osteolytic bone neoplasm, was first described by Lichtenstein in 1942 but until our days its etiology remains poorly understood.<sup>3</sup> Some authors believe that they can occur when an arteriovenous malformation leads to blood-filled cystic formation and subsequent bone erosion.<sup>4</sup> Histologic characteristics typical of ABC are sponge-like blood or serum filled (normally non-endothelialized) spaces of various diameters.<sup>1,2</sup>

ABC account for approximately 1-2% of all bone tumors, appearing mostly in the metaphysis of long bones and the posterior elements of vertebral bodies.<sup>5,6</sup> They are mainly seen in young people, with 80% occurring in patients with less than 20 years old.1,7

ABC of the wrist and hand are very rare accounting for only 3–5% of all ABC, and most of the times affect metacarpals.<sup>8,9</sup> To the best of our knowledge only 10 cases of ABC in carpal bones have

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**Case Report** 

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Fig. 1. First X-ray showing lunate lesion.



Fig. 2. MRI pre-operative showing lunate cyst lesion.



Fig. 3. Dorsal approach to lunate bone.



Fig. 4. Bloody fluid coming from inside of lunate after dorsal approach.

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