



# Pathologic fracture revealing solid aneurysmal bone cyst of the distal radius

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Case Report

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## Abstract

**Introduction:** Aneurysmal Bone Cyst (ABC) is a rare benign and expansive osteolytic bone tumor that can involve all bone. In less than 5% of cases, ABC is located in the hand and the distal radius. A solid variant is an atypical and unusual form of ABC; it is exceptional and represents often a real diagnostic challenge for clinicians. We report an original observation of a solid variant of ABC of the distal radius revealed by a pathologic fracture in 20-year-old Tunisian man.

**Case report:** A 20-year-old patient, with no medical history, was explored for acute and non-traumatic pain of the lower third of the left forearm with the inability to mobilize his left wrist.

Somatic examination and radiological investigations concluded to an eccentric lytic lesion, blowing and deforming the distal end of the left radius, with heterogeneous content, surrounded by a border osteocondensation (Lodwick type IA osteolysis), and complicated by a pathologic non-displaced fracture. The patient was operated with the diagnosis of a giant cell tumor. He had a complete curettage with spongy graft, and internal fixation by plates. The histopathological examination concluded to the diagnosis of ABC in its solid form.

**Conclusion:** The solid variant of the ABC is particularly rare, and since its initial description by Sanerkin et al. in 1983, only a few sporadic cases have been reported in the world literature. Distal radius involvement remains exceptional.

**Keywords:** Aneurysmal bone cyst, radius, solid variant, pathologic fracture

## INTRODUCTION

Described first in 1942 by Jaffe HL and Lichtenstein L [1], Aneurysmal Bone Cyst (ABC) is a rare benign and expansive osteolytic tumor [2]. It represents only 1% to 2% of all bone tumors, 5% to 6% of benign bone tumors [3], and is particularly common before the age of 20 [3,4].

All bone of the body can be involved by this pseudotumor, the most common locations are proximal humerus, proximal femur, ilium, and calcaneus [4]. In less than 5% of cases, ABC can involve the hand and the distal radius [3].

Solid variant is an atypical and unusual form of ABC; it is exceptional and represents often a real diagnostic challenge for clinicians [5-7].

We report an original observation of a solid variant of ABC of the distal radius revealed by a pathologic fracture in 20-year-old Tunisian man.

## CASE REPORT

A 20-year-old patient, with no medical history, was explored for acute pain of the lower third of the left forearm with the inability to mobilize his left wrist. Pain and functional impotence were spontaneous with no trauma, even minimal.

The somatic examination noted a very painful swelling at the slightest mobilization of the lower extremity of the left radius. The rest of the somatic examination was without abnormalities.

The basic bioassays were within normal limits: leucocytes, platelets, hemoglobin, serum calcium, phosphoremia, alkaline phosphatase, creatinine, C-reactive protein, erythrocyte sedimentation rate, fasting glucose, uric acid, ionogram, transaminases, muscle enzymes, lactate dehydrogenase, and electrophoresis of serum proteins.

Plain anteroposterior and lateral radiographs demonstrated eccentric osteolysis, blowing and deforming the distal end of the left radius, with heterogeneous content, surrounded by a border osteocondensation (Lodwick IA type osteolysis) (Fig. 1), and complicated by a pathologic non-displaced fracture (Fig. 2).



**Fig. 1.** Anteroposterior view of X-ray of the left radius: osteolytic and heterogeneous lesion blowing and deforming the distal extremity of the radius



**Fig. 2.** Lateral view of X-ray of the left radius: cystic lesion expanding and deforming the distal radial extremity, and complicated by a pathologic non-displaced fracture



**Fig. 3.** Anteroposterior view of post-surgery X-ray of the left radius: internal fixation by plates after curettage and spongy graft

The patient was operated with the diagnosis of a giant cell tumor. He had a complete curettage with spongy graft and internal

fixation by plates (Fig. 3). The postoperative course was simple. The histopathological examination concluded to the diagnosis of ABC in its solid variant.

The subsequent evolution was favorable with reduction of bone deformity and absence of local recurrence during five years of follow-up.

## DISCUSSION

Beside classical ABC, atypical and unusual forms of this tumor can be seen and represent a real diagnostic challenge for clinicians: solid ABC, bifocal ABC, multiple ABC, and extraosseous or soft tissue ABC [8,9].

The solid variant of the ABC is particularly exceptional, and since its first description by Sanerkin et al in 1983 [10], only a few sporadic cases have been reported in the world literature [6-8]. This form is considered more common in pediatric patients accounting for 3.4%-7.5% of all ABCs [6,11].

The most frequently reported locations of the solid variant of the ABC are the femur, the ulna, the tibia, the pelvis, and the humerus [6,7]. Distal radius involvement remains exceptionally reported [6] in fact, only two cases of solid ABC were located at the distal end of the radius

in the Ilaslan H et al series of 30 cases of solid ABC collected over a period of 41 years [7].

Radiological examinations are not very helpful to the positive diagnosis of these solid variants of ABC and the confirmation is always histological [4,6].

The differential diagnosis of this pseudotumor includes principally: giant cell tumor, reparative giant cell granuloma, hyperparathyroidism brown tumor, bone malignant primary tumors, and simple bone cyst [6,7]. The treatment of choice for these tumors remains surgical curettage associated with bone graft [6,7].

## CONCLUSION

ABC is a rare benign bone tumor but is characterized by local aggressive compartment and potential risk of secondary malignant transformation. The solid variant of these cysts is exceptional and often represents a real diagnostic challenge for clinicians. The distal extremity of the radius remains an exceptionally reported location of solid ABC.

As rare as it is, this presentation deserves to be known by health practitioners.

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