

CASE REPORT

Bicipitoradial bursitis: A diagnosis challenge!

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Abstract

Bicipitoradial bursitis should be considered in patients with antecubital mass and painful forearm pronation and supination movement. It can be due to several conditions such as calcium pyrophosphate dihydrate deposition, even in young patients. Ultrasound is useful to confirm the diagnosis, determine the etiology and to guide the treatment of bicipitoradial bursitis.

KEYWORDS

bicipitoradial, bursitis, imaging, ultrasound

1 | INTRODUCTION

A 38-year-old man presented with a mass in his left antecubital fossa appearing after forearm movement. The diagnosis of bicipitoradial bursitis was established based on ultrasound findings. It was related to calcium pyrophosphate dihydrate deposition. Aspiration of bursitis followed by steroid injection led to the disappearance of bursitis.

The bicipitoradial bursa is located between the biceps tendon and the radial tuberosity. Bicipitoradial bursitis is scarce. It can be due to several conditions such as chronic mechanical friction, repetitive trauma,¹ partial or complete tears of the distal biceps tendon,² rheumatoid arthritis,³ psoriatic arthritis,⁴ chondromatosis,⁵ and infection.⁶

Signs and symptoms may include a palpable mass in the antecubital fossa, impairment of the range of joint motion, tenderness, and rarely motor and sensory signs suggestive of nerve compression.

The diagnosis can be challenging. Imaging findings are useful to rule out other potential causes and to confirm the diagnosis of bicipitoradial bursitis. Ultrasound is a simple and low-cost tool. It can contribute to making the diagnosis of bicipitoradial bursitis.

Herein, we describe a case of an isolated bicipitoradial bursitis related to calcium pyrophosphate dihydrate deposition (CPPD) in a young man. We emphasize clinical and radiological findings of bicipitoradial bursitis.

2 | CASE PRESENTATION

A 38-year-old man, with a medical history of pacemaker implantation for Brugada syndrome two years ago, presented with a 10-month history of slowly expanding mass in his left antecubital fossa, appearing after forearm pronation and supination movement. He complained of paresthesia in the lateral edge of the forearm and the lateral dorsum of the hand, notably during forearm pronation and supination without muscle weakness.

He was not under any medication. Given his profession as military personnel, he was exposed to repetitive microtrauma and overuse of the upper limbs.

On physical examination, this mass was not easily visible. There were no inflammation signs. Forearm pronation and supination were painful without limitation of the motion range. The vascular status and neurological examination were unremarkable. There was no other joint involvement.

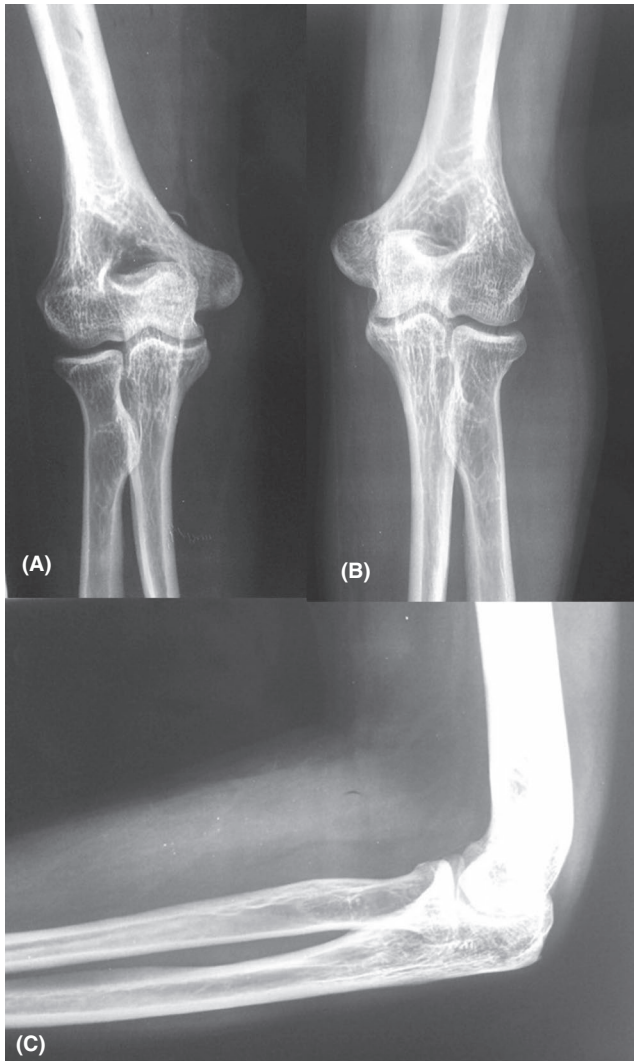


FIGURE 1 Radiograph of the left (A, C) and right (B) elbows: There was no joint space narrowing nor calcification

Elbow radiograph did not reveal joint space narrowing nor calcification (Figure 1).

Elbows ultrasound (US) examination showed an anechoic and compressible fluid collection measuring 3.21×0.92 cm surrounding the distal biceps tendon without power Doppler signal nor synovial proliferation. This bursitis was responsible for a compression of the lateral cutaneous antebrachial nerve (Figure 2).

Differential diagnoses, including tenosynovitis of the distal biceps tendon, benign, and malignant tumors, were ruled out.

A puncture of the bicipitoradial bursitis was performed under ultrasound guidance.

The examination of the fluid by polarized light microscopy revealed calcium pyrophosphate dihydrate crystals.

The knees and shoulders US examination was performed to look for other affected sites. There was no hyperechogenicity of femoral hyaline cartilage, nor synovitis, nor joint effusion.

C-reactive protein, erythrocyte sedimentation rate, and uric acid level were within the normal range.

Serum levels of calcium, phosphorus, magnesium, parathyroid hormone, and thyroid test were within the normal range.

The diagnosis of isolated bicipitoradial bursitis related to CPPD was established.

The patient underwent a steroid injection into bursitis under ultrasound guidance. He did not receive further treatment.

One month later, the patient reported a significant improvement in pain and the ultrasound examination showed complete disappearance of bursitis.

After a seven-month follow-up, the patient remained symptom-free.

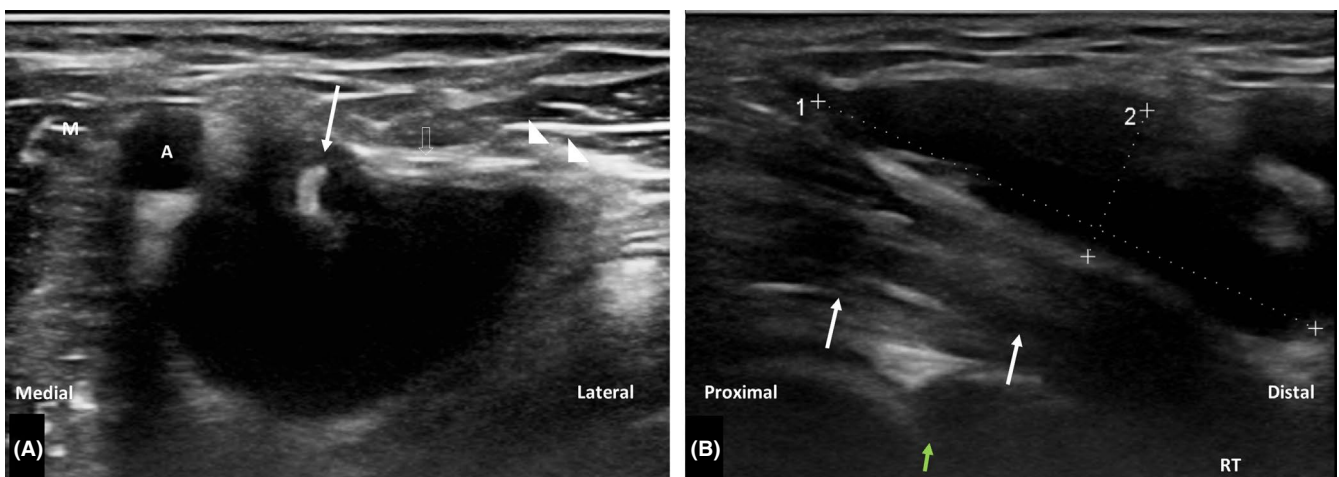


FIGURE 2 Ultrasound examination of the elbow: A, Axial section showing surrounding the distal biceps tendon (white arrow). B, Longitudinal section during forearm supination revealing a bursitis with anechoic content measuring 3.21×0.92 cm. This bursitis was responsible for a compression of the lateral cutaneous antebrachial nerve. Arrowheads: radial nerve; M: median nerve; A: brachial artery, RT: radial tuberosity, green arrow: humeroradial joint; lateral antebrachial cutaneous nerve (open arrow)

3 | DISCUSSION

Bicipitoradial bursitis had been rarely reported in the literature. The bicipitoradial bursa is located between biceps tendon and radial tuberosity. There is no communication between this bursa and the elbow joint.⁷

Bicipitoradial bursitis commonly presents as a painful palpable mass of the proximal forearm with possible restriction of the elbow movement. It can be responsible for compression of the adjacent nerves such as the lateral cutaneous antebrachial nerve as in our case or the radial nerve.

Imaging findings provide better diagnostic accuracy.

Ultrasonography is the first-line examination. It is usually sufficient to make the diagnosis of bicipitoradial bursitis. It shows a collection surrounding the distal biceps. In the early stages, the bursal wall is thin, and the content is anechoic. In the later stages, the wall and the content become thicker and hyperechoic, respectively. Ultrasonography can also guide the aspiration of bursitis.

On computed tomography (CT), bursitis appears as a fusiform lesion with thin or thick walls and low homogeneous density compared to the muscles.⁷ CT with contrast-enhanced images is useful to demonstrate the inflamed bursa adequately.

The magnetic resonance image is the gold standard to visualize bursitis and to assess its relationship with the adjacent structures. The lesion is typically hypointense to muscles on T1-weighted images with enhancement after gadolinium injection, and variable signal on T2-weighted images, with a peripheric rim. MRI can reveal other abnormalities such as hypointense septal structures, adjacent soft-tissue edema, and marrow edema or erosion at the radial tuberosity. Moreover, MRI can be useful to make the etiological diagnosis in patients with bursitis.⁸ In our case, MRI was not possible owing to the presence of a pacemaker.

Differential diagnoses include tenosynovitis of the distal biceps tendon, ganglion cysts, benign tumors (lipoma arborescens of bicipitoradial bursa, lipoma, and schwannoma), and malignant tumors (soft-tissue sarcoma).⁹⁻¹¹

Imaging findings have been shown to accurately rule out these conditions and confirm the diagnosis of bicipitoradial bursitis. However, a histological examination may be necessary.¹²

Bicipitoradial bursitis can be due to several conditions such as chronic mechanical friction, repetitive trauma,¹ partial or complete tears of the distal biceps tendon,² rheumatoid arthritis,³ psoriatic arthritis,⁴ chondromatosis,⁵ and infection.⁶ In our case, it was related to calcium pyrophosphate dihydrate crystals deposition.

We described a case of isolated bicipitoradial bursitis related to CCPD. Although CCPD typically targets the articular structures, periarticular involvement, including

the tendons and bursae, can occur. Isolated bursitis is uncommon.¹³

This diagnosis requires demonstration of CPP crystals.¹⁴

Familial CPPD disease and risk factors of CPPD (hyperparathyroidism, hypomagnesemia, gout, hemochromatosis, hypothyroidism, and hypophosphatasia) should be considered in young patients such in our case.¹⁵ Microtrauma and overt trauma are also associated with CPPD disease.¹⁶

Treatment of CCPD is mainly symptomatic.¹⁷

Regardless of its etiology, the management of bicipitoradial bursitis is often conservative, including rehabilitation, nonsteroid anti-inflammatory drugs, aspiration of the bursa, and steroid injections. Nevertheless, surgical or endoscopic excision may be required in case of resistance to the conservative treatment, recurrence, nerve compression, biceps tendon degeneration, or functional impairment.³

In our patient, aspiration of bursitis followed by steroid injection led to the disappearance of bursitis.

4 | CONCLUSION

Bicipitoradial bursitis is often misdiagnosed. It should be considered in patients with antecubital mass and painful forearm pronation and supination movement. It can be secondary to several conditions such as calcium pyrophosphate dihydrate deposition, even in young patients.

Our case highlights the importance of the US in the diagnosis and the treatment of bicipitoradial bursitis.

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Published with written consent of the patient.

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

MS and NL have substantively revised the work. SR has drafted the work. RD contributed to the interpretation of the figure. IG has made substantial contributions to the conception of the work. LM contributed to the bibliographic research. BL approve the final version.

ETHICAL STATEMENT

Written informed consent was obtained from the patient for publication of the clinical information and any accompanying images.

DATA AVAILABILITY STATEMENT

The datasets used during the current manuscript are available from the corresponding author on reasonable request.

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