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Ayyappan V Nair
Consultant Shoulder Surgeon, Manipal Hospital – Whitefield, ITPL Main Rd, KIADB Export Promotion Industrial Area, Krishnarajapura, Bengaluru, Karnataka, India

Ajit Jangale MS
Ortho, MRCS, Manipal Hospital – Whitefield, ITPL Main Rd, KIADB Export Promotion Industrial Area, Krishnarajapura, Bengaluru, Karnataka, India

Murugesh Kurani Mahadev
MS Ortho, Manipal Hospital – Whitefield, ITPL Main Rd, KIADB Export Promotion Industrial Area, Krishnarajapura, Bengaluru, Karnataka, India

Pramod Kumar Mohan
MS Ortho, Manipal Hospital – Whitefield, ITPL Main Rd, KIADB Export Promotion Industrial Area, Krishnarajapura, Bengaluru, Karnataka, India

Bollabathini Raju
Manipal Hospital – Whitefield, ITPL Main Rd, KIADB Export Promotion Industrial Area, Krishnarajapura, Bengaluru, Karnataka, India

Corresponding Author:
Murugesh Kurani Mahadev
MS Ortho, Manipal Hospital – Whitefield, ITPL Main Rd, KIADB Export Promotion Industrial Area, Krishnarajapura, Bengaluru, Karnataka, India

Sequential presentation of CPPD in shoulder and elbow: A case report

Ayyappan V Nair, Ajit Jangale MS, Murugesh Kurani Mahadev, Pramod Kumar Mohan and Bollabathini Raju

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Abstract
Calcific tendinitis is a self-limiting condition characterized by the deposition of calcium crystals into the tendons, most commonly affecting the Shoulder joint. Calcium hydroxyapatite crystals are often seen, but calcium pyrophosphate dehydrate (CPPD) is a rare variant of crystal deposition in tendons. Calcific deposits at triceps insertion are not a common presentation of calcific tendinitis. A 35-year male patient presented with acute onset elbow pain and swelling with CPPD crystal deposition and calcific tendinitis of the triceps tendon. The patient had a previous history of calcific tendinitis of the shoulder, which was treated with arthroscopy. The patient underwent ultrasound-guided needling for calcific tendinitis of triceps and lavage, followed by physiotherapy. He had excellent results with full return to functions on follow-up.

Keywords: Shoulder and elbow, calcium pyrophosphate dehydrate (CPPD), calcific tendinitis

Introduction
Calcium pyrophosphate dihydrate (CPPD) or Pseudogout is a crystal arthropathy that consists of deposition of calcium pyrophosphate in joints and periarticular soft tissues [1]. Whenever the upper extremity is the site of inflammation (wrist, elbow, shoulder) in a first attack, there should be a strong suspicion for acute CPP crystal arthritis [2]. In contrast to the brief attacks of acute gouty arthritis that typically last for several days to one week, acute attacks of CPPD disease may last for weeks to months [2].
CPPD classically may present as acute, chronic, or asymptomatic CPPD [3]. The typical presentation consists of acute onset of pain without any history of trauma or event, or it may sometimes present as an incidental finding [4]. The mainstay of treatment is conservative [5], but in refractory cases, surgical management may be required [6].
The investigations include synovial fluid analysis, synovial biopsy, x-ray and blood investigations with inflammatory markers and ultrasonography, CT scan [7, 8].
In this case, the patient presented with all the classic symptoms and had a history of right shoulder calcific tendinitis. MRI homogenous calcific deposits were noted in the triceps and treated with ultrasound-guided needling and aspiration.

Case report
A right-handed 35-year-old male presented to OPD with acute, severe pain in the right elbow for four days. He had a history of right shoulder calcific tendinitis associated with rotator cuff tear and underwent arthroscopic debridement and rotator cuff repair.
The affected elbow was inflamed, in 90-degree flexion, and tender at olecranon. (Image 4).
The radiograph of the elbow demonstrated linear hyper-dense opacity near triceps insertion (Image 1). MRI and USG were advised, which showed homogeneous calcific depositions in the triceps tendon near insertion at olecranon with surrounding tissues inflammation (Image 3 and Image 4).

Procedure
Informed consent was taken, and after all investigations and fitness, the patient was posted. The patient was sedated and was given Inter scalene Block. Under aseptic precautions and USG guidance, two 18G needles were inserted into the lesion.

Through one needle, lavage was given with saline, and through another needle, calcific deposits were aspirated. USG confirmed completion of aspiration. The patient was advised for one week of rest, followed by elbow physiotherapy.

Image 1: Soft tissue calcification at insertion of triceps

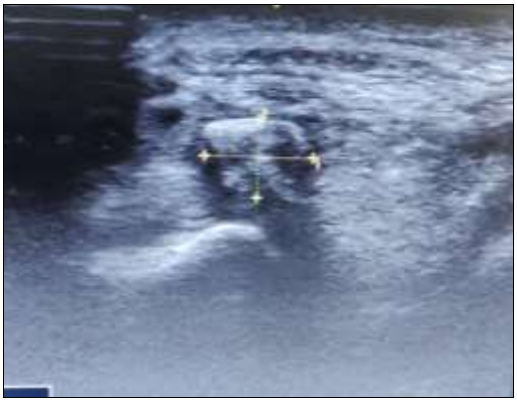

Image 2: Ultrasound showing echogenic lesions suggestive of calcification at triceps insertion.

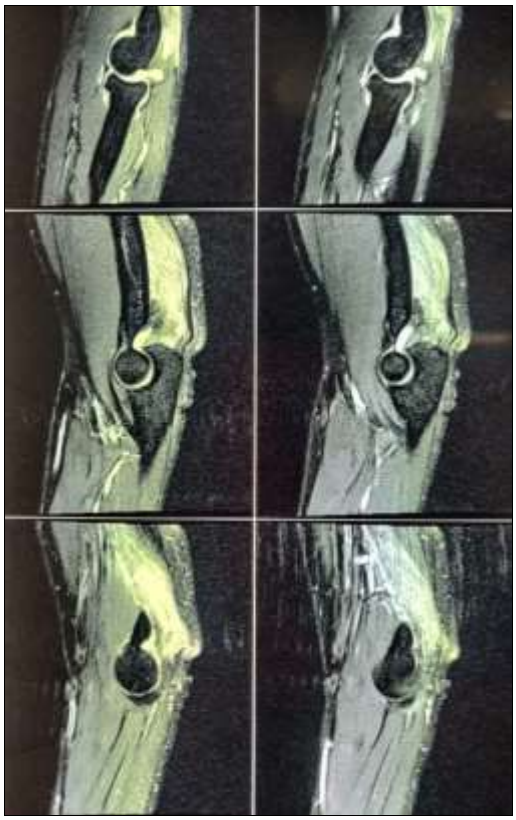

Image 3: STIR images showing oedema of triceps tendon and effusion

Image 4: Inflamed elbow posteriorly

Discussion

Calcific tendinitis of the elbow is uncommon. Calcium deposits around the elbow are generally secondary to massage, trauma or surgery, and endocrine disorders. Our patient previously presented with calcific tendinitis for the shoulder, which was surgically debrided and rotator cuff operated arthroscopically.

Diagnostic criteria for CPPD disease are based upon those initially proposed by Rosenthal, McCarty, and colleagues[3], which highlight the importance of microscopy analysis of synovial fluid and tissue. In our case, we sent the tissues for analysis after the sonographic needling, and it positively showed birefringent crystals by compensated polarized light microscopy.

Tendon calcifications are important findings to diagnose CPPD. These appear as thin linear bands along the tendons' length [9]. In a study by Yang *et al*., tendon calcification around the knee was never present without adjacent chondrocalcinosis and involved the gastrocnemius tendon in 28% and the quadriceps in 8.4% of x-rays [10]. Perreira *et al*. reviewed the prevalence and pattern of tendon calcification in patients with knee chondrocalcinosis and found involvement of Achilles, gastrocnemius, or quadriceps tendons in 21–25% of radiographs [11]. Less commonly observed was the involvement of the triceps tendon near the elbow, the rotator cuff, and the long head of the triceps at the shoulder [9].

Treatment may vary depending on symptoms, location, size, and nature of deposit [12]. In this case, the patient presented with severe pain and restriction of movements, so USG-guided needle aspiration was performed. The patient presented with an 8/10 VAS score, and after the procedure, it was 2/10. His synovial fluid analysis showed CPPD crystals. The patient was immobilized for a week, and a course of NSAIDS and colchicine was given. From the 2nd week, he underwent physiotherapy. At the end of one year, the patient recovered completely.

Conclusion

High suspicion of unusual presentation of calcific tendinitis (with rare presentation and multiple sites involvement) gives more specific aetiology and better outcomes of calcific tendinitis. CPPD may present as calcific tendinitis in the shoulder. If any joint in the upper limb is involved as an acutely inflamed joint, it is prudent to exclude CPPD.

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