

ACUTE CALCIFIC TENDINITIS OF THE ROTATOR CUFF TREATED BY FLUOROSCOPIC GUIDED PERCUTANEOUS ASPIRATION

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Acute calcific tendinitis of the rotator cuff caused by the deposition of hydroxyapatite crystals can result in agonizing pain and disability. Surgical excision of the calcified deposit leads to a protracted recovery course and conservative measures do not provide the desired early results. We report here a case which was successfully treated by percutaneous aspiration of the calcification under fluoroscopic guidance. We found this to be an easy, safe and effective method in removing the calcareous material and in relieving the disabling pain.

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Acute calcific tendinitis caused by the deposition of hydroxyapatite crystals in the tendons of the rotator cuff muscles can result in acute agonising pain. We describe a case successfully treated by percutaneous aspiration under fluoroscopic guidance which is an easy, safe and effective method in relieving pain and in removing the calcareous material.

THE CASE

A 23 years old female engineer presented with 2 day history of acute pain affecting her left shoulder. This was of sudden onset and the pain was intense and got aggravated with movements. She gave no history of trauma. Physical examination revealed acute tenderness close to the insertion of the rotator cuff. There was almost total loss of shoulder function with the patient experiencing excruciating pain on both active and passive movements, the other joints were normal. X-ray of the left shoulder showed a well defined homogenous calcified mass at the site of the supraspinatus tendon (Fig 1). Blood parameters like FBC, ESR, calcium, phosphorus, alkaline phosphatase and uric acid were within normal limits. A diagnosis of acute calcific tendinitis of the rotator cuff was made and she was referred to the first author for percutaneous aspiration of the calcified mass.

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The procedure was undertaken in the Radiology Department. In supine position the calcified mass was approached from the superior anterior aspect of the shoulder. After infiltrating the skin with local anaesthetic, a 19 G needle attached to a syringe was advanced under fluoroscopic guidance towards the centre of the calcification. The arm was rotated to check if the tip of the needle was within the deposit. On aspiration a white cheesy material appeared in the syringe (Fig 2). Another needle attached to a syringe filled with saline was inserted through a different site to reach the calcified mass. This was used to irrigate the site and to flush out the calcified material. Several punctures were also made with the needle in order to facilitate resumption of any remaining calcification. The aspirate was sent for crystal analysis, urate and CPPD crystals were ruled out. Cultures were reported negative.

A radiograph of the shoulder at the end of the procedure showed reduction in size and intensity of the calcified mass as compared with initial x-ray. There was complete relief of pain and total recovery of shoulder function on the second day of the procedure. A follow up x-ray was obtained six weeks after the procedure and this revealed no evidence of any calcification.

DISCUSSION

Calcinosis in the rotator cuff is caused by the deposition of calcium hydroxyapatite crystals. The cause for the deposition is unknown but is thought to be related to avascular changes leading to fibrocartilaginous metaplasia. This causes active shedding of crystals by the chondrocytes¹.

Though calcific deposits are not uncommon they are frequently asymptomatic. The lesion may be brought to attention by an x-ray taken for minor trauma. In patients presenting with acute pain the symptoms are due to the florid vascular reaction associated with calcification resulting in swelling and tension in the tendon. In chronic situations, the symptoms have a gradual onset and the pain is less intense, often due to subacromial impingement.

Treatment modalities often practiced for this acute condition are resting the shoulder in a sling, administration of nonsteroidal anti inflammatory drugs, and physical therapy. These measures take a long time to provide relief and may sometimes fail. Injection of cortico-steroids may help in relief of pain. But there is always an element of risk introducing steroids into the rotator cuff tendon which is already pathological, thus endangering it to possible rupture in future. Quick results with rapid relief of pain can be obtained by needle aspiration or surgical excision. Surgical excision involves a general anaesthetic and is associated with prolonged recovery and rehabilitation. Hence this is best reserved for cases where the deposit is dry, hard and chalky as in chronic situations or where needle aspiration has failed.

Comfort and Arafles reported that Patterson and Darrach in 1937 were the first to use aspiration and irrigation for symptomatic calcific deposits in the shoulder². Nevertheless the procedure was not popular until 1978 when the former two reported in detail their experience with needle aspiration. Following this report, aspiration of calcific deposit has been widely used in Europe and Canada. This technique gives a prompt and significant relief of pain in two thirds of the selected patients with debilitating pain.

The calcific material may be thin like milk, thick like toothpaste or dry and chalky. The former two types are responsive to needle aspiration. Irrigation and aspiration can be tried on dry chalky deposits but if this fails surgical excision will have to be resorted to. Faint milky calcifications with fuzzy contour are usually liquid in consistency and are easily aspirated; while very dense calcification with defined margins are often hard and cannot be aspirated³. The aim of the procedure is the evacuation of maximum calcification and fragmentation of the calcific deposit in order to facilitate resorption and migration of the remaining calcification. The aspiration is usually performed under conventional fluoroscopic guidance which is easily available. Complete removal of the calcific deposit is not possible and infact not necessary because the remaining calcification will undergo spontaneous resorption. This is facilitated by the opening of the calcium containing cavity at the time of needle aspiration.

CONCLUSION

Needle aspiration is an effective technique in treating this excruciatingly painful condition. Other conservative measures do not resolve the condition

quickly. Corticosteroid injections and surgical excision are risky. It is also safe, well tolerated by the patient, provides rapid and effective relief and it is also economical.

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