

SURGICAL REMOVAL OF A LARGE LOOSE BODY IN THE SUBACROMIAL SPACE : A CASE REPORT.

Orthopaedics

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ABSTRACT

Synovial chondromatosis is a rare condition characterized by the presence of osteocartilaginous loose bodies in articular joints, bursae, or tendon sheaths. Multiple case reports describe synovial chondromatosis in the knee, hip, elbow, wrist, ankle, and shoulder with the shoulder being the least common of these joints to be affected. All reports describe multiple small loose bodies but rarely describe of a single large loose body. We present a case of a 65 year old female patient who presented to us with painless swelling over the right shoulder with radiological findings of large loose body in the subacromial space and subdeltoid region. After no improvement with conservative treatment subtotal synovectomy and removal of loose body of size 2.5cm was done via anterior approach. At her 1 year follow-up examination she remained asymptomatic and there was no clinical or radiographic evidence of recurrence.

KEYWORDS

shoulder joint, subacromial joint, synovial chondromatosis, loose body removal.

INTRODUCTION

Synovial chondromatosis, also termed synovial osteochondromatosis, is a rare benign disorder characterized by the presence of cartilaginous nodules in the synovium of the joints, tendon sheaths, and bursae. Most common affected joint is knee although it can affect any joint. Beginning as tiny bulge of cartilage, nodules increase in size, detach and become free within the joint.[1] Some tumors may be have size greater than a wheat grain. Occurrence is common in young adult with age ranging from 20 to 50 years. Clinical features may include pain, local tenderness, loss of range of motion, locking and crepitus. The cause of this condition is idiopathic in most of the cases. Treatment may involve surgery to remove the tumor. Recurrence of the condition is common.

Synovial chondromatosis may occur within an otherwise normal synovial joint (primary disease) or within a diseased joint (secondary disease).

Case Presentation

A 65 year old lady right hand dominant presented with painless swelling over the right shoulder noticed by her since 2 months. Her comorbidities included hypertension since 5 years. There was no other significant past medical history.

Physical examination revealed was no erythema, warmth over the swelling. A firm mobile nonpulsatile, nontender, hard mass nonadherent to skin or muscle measuring 3cm x 4cm was palpable 3 cm below acromion process. There was no pain with movement of the right shoulder. There was locking of shoulder forward flexion, abduction and external rotation in the terminal 30 to 40 degrees. She had no crepitus. There was positive Jobe's empty can test. Neer and Hawkins-Kennedy impingement tests elicited pain.

Left shoulder was normal on examination. Radiograph of anteroposterior and lateral view of shoulder (Fig. 1) showed 20 X 20 mm sized well defined discrete radio-opaque loose body in the subdeltoid region with moderate effusion.

Ultrasonography of shoulder showed moderate effusion is noted with intraarticular loose body mainly in subacromial bursa with discontinuity in fibers of the supraspinatus muscle (about 16mm) suggestive of a supraspinatus tear.

Patient was managed conservatively with oral analgesics and range of motion and deltoid strengthening exercises for 1 month. No improvement was seen after which she underwent open surgical removal of the intraarticular loose body.

Subtotal synovectomy and removal of loose body of size 2.5cm x 2.5cm x 2.5 cm (Fig.2) was done via anterior approach. Successful removal of loose body was confirmed using mini C arm fluoroscopy.

Post operatively the patient was started on range of motion and deltoid strengthening exercises. Samples of synovial tissue and loose bodies were sent for histopathological examination that showed discrete hyaline cartilage nodules in various stages of calcification and ossification and chondrocytes with mild to moderate atypia, binucleate cells and occasional mitosis.(Fig.2)

At her 1 year follow-up examination she remained asymptomatic with painfree functional range of motion of the shoulder joint (Fig.3). There was no clinical or radiographic evidence of recurrence. The DASH(Disabilities of the arm, shoulder and hand) Score improved from preoperatively 25 to postoperatively 9.

DISCUSSION

Multiple case reports describe synovial chondromatosis in the knee, hip, elbow, wrist, ankle, and shoulder [2] with the shoulder being the least common of these joints to be affected [3].

We have used plain radiographs and ultrasonography for diagnosis. Calcifications can develop months to years after clinical symptoms; thus caution should be utilized when using only radiographs for diagnosis in the early stages. Cross-sectional imaging, including MRI and computerized tomography, can be used to confirm the diagnosis in early phases of disease [4].

In our case there was a single large loose body seen on plain radiographs of the shoulder. Therefore MRI was not considered as it would not significantly contribute to the diagnosis and operative planning.

Exact timing of surgical intervention has not been defined in the literature, but it is hypothesized that loose bodies within the subacromial space may lead to supraspinatus outlet impingement, acromial spurring, and bursal-sided rotator cuff tears. When conservative therapy fails in terms of symptom control, surgery to remove loose bodies and restore shoulder range of motion is then considered [5].

The loose bodies were commonly found in the joint, which can be divided into three categories: fibrin, fibrous cartilage or bone. The main source is osteochondritis dissecans, synovial osteochondromatosis, osteophytes, articular fractures, meniscal

injuries. The synovial metaplasia on the bodies can form cartilage or bone cells and continue to grow. Sometimes it may have the same activity of articular cartilage. [6]

The first known case of synovial osteochondromatosis in a Sub acromial bursa was reported by Symeonides in 1966 [7]. Since then, some cases have been reported as unilateral, 3–6 while there is only a single report of a bilateral case [8].

All reports describe multiple small loose bodies but rarely describe of a single large loose body. It is considered that in our patient, the inflammation and fibrosis in the synovium had probably been caused by some previous minor trauma and repeated irritation that became a mechanical stimulation to the sub acromial bursa. Over time, metaplasia of the synovium occurred and as a result the large loose body was produced and calcified. Although no symptoms were felt by the patient for several years the large loose body finally caused impingement between the rotator cuff and the coracoacromial ligament, which led to locking in the shoulder.

Extra-articular loose bodies are extremely rare, especially around the shoulder. The extra-articular form of synovial chondromatosis is particularly rare. It may arise from capsular tissues, tendon sheaths and bursae that do not communicate with the joint space. The imaging features are similar to those of the intraarticular form with the distribution of the calcification reflecting the origin of the disease [2]. The loose bodies can be found in the subacromial space, which can shift from the upper subacromial space to the lower visible deltoid. The loose bodies were free to move without tissue adhesion when these were removed. The synovial hyperplasia found intraoperatively may have close relation to chronic synovitis. Articular cartilage damage may be a complication of chronic subacromial bursitis [9-10], the bodies can be generated even in tenosynovitis and synovial bursa [10] The loose bodies can create symptoms via their mass effect after undergoing ossification, and, in some cases, can cause periarticular or intra-articular erosive damage. For removal of loose bodies arthroscopy is commonly used, even for deep joints such as hip. For the distribution of extra-articular loose bodies and a large loose body many surgeons do open surgery.

CONCLUSION:

Extra-articular loose bodies are extremely rare, especially in the subacromial space, which maybe originated in the proliferative synovial bursa. A large single loose body such as in this case should raise suspicion of this disease. The patient was successfully treated with open surgery and her symptoms improved well.

Clinical Message:

Prompt diagnoses by clinical presentation and plain radiographs and surgical removal of the loose bodies is required in a case of subacromial chondromatosis for successful management.

Source of support: Nil

Conflict of interest: Nil

Consent :

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for patient images and other clinical information to be reported in the journal.

Competing Interests:

The authors declare that they have no competing interests.

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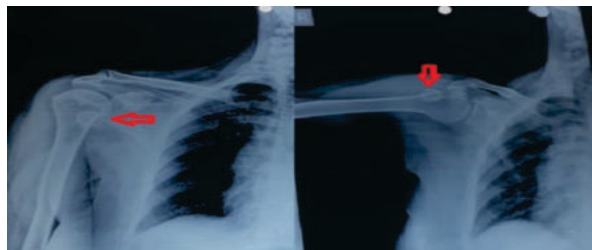


Figure 1: Preoperative radiographs of the shoulder joint.

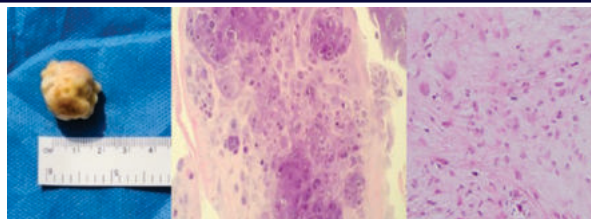


Figure 2: Single cartilaginous loose body of size 2.5 cm showing nodules with cartilage cells on histopathological microscopic examination.



Figure 3: Range of motion of shoulder joint 6 months postoperatively is 160 degree forward flexion and 80 degrees of external rotation.

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