

# Synovial Chondromatosis of the Sub-Scapular Bursa



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## ABSTRACT

A 42-year-old housewife was admitted to our clinic because of shoulder pain. At X-ray and CT, multiple calcifications and ossifications were seen in the subscapular bursa and glenohumeral joint. MRI findings were consistent with synovial chondromatosis. Surgical treatment was planned but the patient refused. Thus conservative treatment was initiated for pain relief. The shoulder joint is a rare localization in this disorder. Although our patient's symptoms resolved with conservative treatment, we think that it would be better to perform surgical treatment because of the increased size and number of loose bodies and minimal or moderate chondral damage.

**Key words:** Synovial chondromatosis, Subscapular bursa, Shoulder, Conservative treatment

## INTRODUCTION

Synovial chondromatosis is the cartilaginous metaplasia of the subsynovial connective tissue. It is most common in middle age. The disease is commonly monoarticular and affects large joints such as the knee, hip and elbow (1-3). The shoulder joint is a rare localization and only a few cases have been reported in the literature (1,3).

Three phases of the disease were described by Milgram (4). In the diagnosis of the disease, clinical examination, plain X-rays, ultrasonography, CT scan, and MRI with or without arthrography have all been described (1,5,6). In addition, a histological examination has been performed. Diagnosis is often delayed because of non-specific clinical symptoms. Thus the preferred form of management remains controversial. MRI is a valuable tool in detecting synovial chondromatosis in an early phase and in estimating the intrasynovial extent of the disease (1).

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Figure 1. At X-ray, multiple calcifications were seen in the subscapular bursa and glenohumeral joint.



Figure 2. At CT, multiple calcifications were seen in the subscapular bursa and glenohumeral joint.

In the treatment of the disease, surgical removal of the loose bodies and partial or total synovectomy have been suggested (2,3,5). In this paper, we report a case of a rare localization of the synovial chondromatosis that has been managed with conservative treatment for a long time because of the fact that the patient has refused any surgical treatment. The literature regarding this disorder and current treatment options are also reviewed.

#### CASE

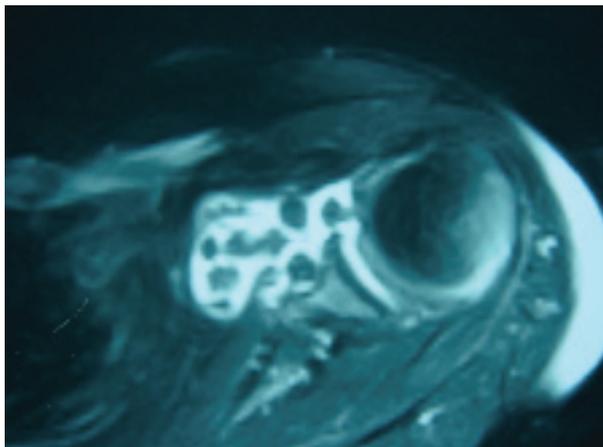
A 42-year-old housewife was admitted to our clinic because of shoulder pain that was radiating to the arm. There was no trauma in her history. On physical examination strength was normal in both shoulders. Shoulder motions were not restricted. All biochemical analyses were within normal ranges. Impingement sign was negative. At X-ray and CT, multiple calcifications and ossifications were seen in the subscapular bursa and glenohumeral joint (Figure 1 and 2). MRI findings were consistent with synovial chondromatosis (Figure 3). Surgical extraction of the calcifications and partial synovectomy were planned but the patient refused any surgical treatment. Thus conservative treatment was initiated for pain relief, such as nonsteroidal anti-inflammatory medication, activity modification and cryotherapy. Pain decreased gradually and the patient was free of pain by the end of three months. At a four-year follow-up evaluation, the patient has had pain that has occurred a few times in a year and relieved by nonsteroidal anti-inflammatory medication.

There was no complaint of restricted joint movement, locking, crepitus, loss of muscle strength, instability, or feeling of a mass lesion. At radiography increased size of cartilaginous nodules/loose bodies and minimal or moderate chondral damage were seen in the affected joint (Figure 4).

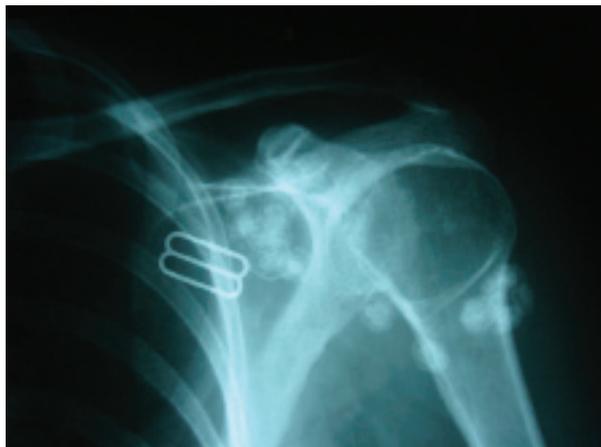
#### DISCUSSION

Synovial chondromatosis is an uncommon disorder characterized by the formation of multiple cartilaginous nodules within the synovium, most commonly affecting large joints such as the knee and hip. Synovial chondromatosis of the bursa around the shoulder joint is a rare entity (6). The disease affects large joints in young adults and results in multiple small, cartilaginous, intra-articular loose bodies as the process matures. In our case, both the subscapular bursa and glenohumeral joint were involved. The subscapular bursa is known to communicate with the joint cavity between the superior and middle glenohumeral ligaments.

Synovial chondromatosis may be confused with low-grade periarticular or juxta-articular chondrosarcoma. A few cases in the literature have associated malign transformation with long-standing synovial chondromatosis, which occurs over a prolonged period. According to Anract, malign transformation is rare and the diagnosis should be suspected when a rapid deterioration of the clinical status occurs and when bone involvement is detected by MRI. However, the danger still lies in the misinterpretation of synovial chondromatosis as chondrosarcoma (7). Although our patient had four



**Figure 3.** MRI findings were consistent with synovial chondromatosis.



**Figure 4.** Increased size and number of cartilaginous nodules in the joint and minimal or moderate chondral damage were seen in a four-year follow-up X-ray.

years of follow-up, no sign of malignancy was observed. The literature provides no information about the incidence of malignancy between conservative and surgical treatments. According to Milgram, synovial chondromatosis is a self-limited process which runs over several years from onset to resolution. He believes that the resorption of intrasynovial nodules is as common as proliferation (4). Swan and Owens reported spontaneous regression for synovial chondromatosis (8). In spite of spontaneous regression, we observed that the size and number of cartilaginous nodules have increased for four years in our case.

Although spontaneous regression has been reported, the accepted method for treating synovial chondromatosis is the removal of the loose bodies with synovectomy (8). This can be performed either arthroscopically or openly. The operative approach (endoscopy or open surgery) is related to the localization and severity of the condition (2). Several authors have described arthroscopy as a means of treating this rare disorder because of the excellent visualization of the glenohumeral joint, decreased morbidity, and early rehabilitation potential (2,3,5,9). Arthroscopic removal of all loose bodies and partial synovectomy appears to be a good method of providing symptomatic relief and an early return to work. However, late recurrence should be anticipated. Buess and Friedrich noted that removal of chondromas might be insufficient in cases of involvement of the bicipital tendon sheath and other recesses of the joint (1). However, there are no long-term studies with which to compare the results of open procedures

and arthroscopic debridement. McFarland and Neira reported the results of conservative treatment consisting of activity modification, nonsteroidal anti-inflammatory medication and cryotherapy in two cases of synovial chondromatosis associated with osteoarthritis (10). They noted that the shoulder symptoms due to synovial chondromatosis can be treated successfully without surgery. In our case, there is no clinical symptom at the four year follow-up. But increased size and number of cartilaginous nodules, and minimal or moderate chondral damage were seen in the affected joint radiographically. In addition, there is a lack of sufficient experience and follow-up results in the conservative treatment of the disease. We think that our patient's good response to conservative treatment is due to the non-weight bearing nature of the shoulder joint and weak existence of the loose bodies (calcifications) in the glenohumeral joint.

In conclusion, the shoulder joint is a rare localization in this disorder. Although our patient's symptoms resolved with conservative treatment, we think that it would be better to perform surgical treatment because of the increased size and number of loose bodies. And surgical treatment can prevent occurring of osteoarthritis earlier.

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