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RESEARCH ARTICLE

CASE REPORT OF SECONDARY SYNOVIAL OSTEOCHONDROMATOSIS WITH TWO GIANT LOOSE BODIES AT THE SUBCORACOID SPACE IN LEFT SHOULDER JOINT OF 43-YEAR-OLD FEMALE PATIENT

Mahmood A. Qoqandi, Emad A. Elansary, Ahmad A. Alsubahi and Mamdouh E. Almasri

MBBS, Medical Resident at Saudi Board of Orthopedic Surgery, Makkah, Saudi Arabia.

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Abstract

Synovial Osteochondromatosis is a rare and benign condition of unknown cause. Although large joints such as the knee are commonly affected, involvement of the shoulder joint is not common. Synovial Osteochondromatosis may occur secondary to preexisting joint disorders. This article reviews detailed history, examination and investigations of 43 years-old female patient known case of rheumatoid arthritis, diagnosed with loose bodies in her shoulder joint. The present report aimed to highlight the occasional involvement of sub-coracoid space of the shoulder as site of loose bodies and indicated arthroscopy for retrieval of the loose bodies with favorable outcome.

Ethical consideration: The patient was informed that data from the case would be submitted for publication, and she gave her consent.

Conflicts of interest: none.

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Introduction:-

Synovial Osteochondromatosis is rare and non-malignant tumor that arises in the lining of a joint (synovium).⁽¹⁾ Originally, it forms when the affected synovium grows abnormally and produces small clumps or nodules of cartilage. These nodules can separate and become loose within the joint, some of it may be no larger than a grain of rice and some of it reach up to being as large as a coin.⁽²⁾ The most common joint involved is knee joint, followed by the hip, elbow, shoulder.^(3,4)

The exact prevalence of synovial Osteochondromatosis is unknown, but the disorder is rare worldwide.⁽¹⁾ Most cases reported in patients aged 20 to 50 years with male-to-female ratio of 2:1.^(1, 2) Researchers indicated that Synovial Osteochondromatosis is not inherited condition.⁽²⁾ The exact underlying cause of synovial Osteochondromatosis is unknown. Some research suggests that Synovial Osteochondromatosis may occur as either as primary (which is rare) or secondary form. Secondary synovial Osteochondromatosis is the common form and often occurs when there is pre-pathological conditions like rheumatological diseases or infectious diseases.⁽⁵⁾ Moreover, trauma may play a role in its development because the condition primarily occurs in weight-bearing joints.⁽³⁾

Clinically, the Signs and symptoms may include joint pain, swelling, a decreased range of motion, and locking of the joint.⁽⁶⁾ Presence of Small bodies lead to locking episodes, whereas larger bodies cause erosion of the cartilage, leading to early onset of arthritis.^(2,7) The amount of loose bodies and their size as compared to the relatively small joint space can lead to them occupying the entire joint. Treatment of may be symptomatic, but if mechanical symptoms are prominent, arthroscopic or open removal of the bodies or synovium is warranted.⁽⁸⁾

Corresponding Author:- Mahmood A. Qoqandi

Address:- MBBS, Medical Resident at Saudi Board of Orthopedic Surgery, Makkah, Saudi Arabia.

In Saudi Arabia, there are low number of synovial Osteochondromatosis cases in shoulder joints. ^(9,10) This is the case report with detailed history, examination of 43 years-old female patient with loose bodies in her shoulder joint. The present report aimed to highlight on occasional involvement of sub-coracoid space of the shoulder as site of loose bodies and challenged arthroscopic surgical techniques that utilized as a surgical management approach for this case.

Report of the case:

Clinical presentation and history:

43 years old female known case of Rheumatoid Arthritis on medications, presented to the orthopedic clinic with a two-year history of progressive left shoulder pain. Her symptom was bad enough to disturb her daily activities and usually she needs help in wearing and donning her clothes. There is no history of trauma and during this time, she did not get any improvements with conservative treatment including medication and physiotherapy.

Examination:

On examination, there was generalized tenderness over the shoulder and affected range of movement; her range of movement was restricted when compared to the other side. Flexion was up to 100 degrees, and external rotation was limited to 50 degrees. Internal rotation was up to the point where the patient's hand touched her back at the level of the iliac crest. Clinical examination of the rotator cuff did not reveal any abnormalities and the rotator cuff power was normal.

Investigations and Procedure:

Initial X ray radiographs revealed that there were findings of glenohumeral arthritis at the left shoulder with no presence of loose bodies (Fig. 1). CT scan and Magnetic resonance imaging (MRI) also showed severe arthritic changes with destruction of the left humeral head. However, the CT scan and MRI (Fig. 2 and Fig. 3) performed for assessing bone stock of glenoid and overall assessment of articular joint and rotator cuff integrity. The advanced radiological imaging showed two giant loose bodies in the sub-coracoid space that had not been seen in plain X rays.

Options were discussed with the patient and she was keen to get her shoulder symptoms improved, as she had failed all non-operative treatment. And due to her age, she was not a candidate for arthroplasty. therefore, A left shoulder arthroscopy was performed, with the patient under general anesthesia, and in beach chair position. Arthroscopic left shoulder debridement along with anterior and posterior capsular release with sub acromial decompression and acromioplasty were performed to relieve patient's symptoms and improve the range of movement. Moreover, biceps tenotomy of inflamed and degenerated long head of biceps was performed. Two large loose bodies at the sub-coracoid space had been removed (Fig. 4) through extended standard lateral arthroscopy portal.

Postoperative Management and Follow-up:

Following the surgery, the patient had a good initial improvement without post-operative complications, with a physical therapy plan aiming for improving range of motion. The patient then developed paresthesia and numbness over left side of the body and she was referred to a neurologist for further investigations that came up of no relation with our procedure. The patient was informed that data from the case would be submitted for publication.



Figure 1:- X-ray radiographs of left shoulder showing glenohumeral arthritis.



Figure 2:- CT scan (3D left, axial right) showed two loose bodies in sub coracoid space of left shoulder with obvious glenohumeral arthritis.

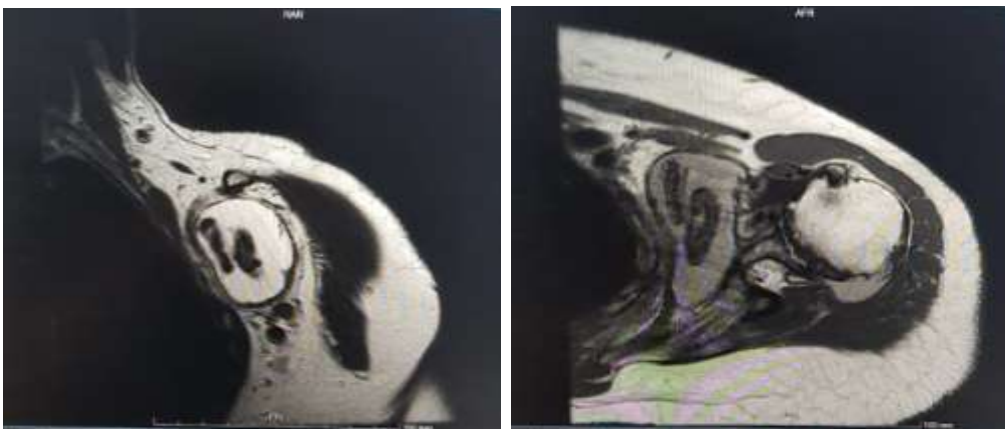


Figure 3:- MRI images of the left shoulder joint with two loose bodies in the sub-coracoid space.



Figure 4:- Two loose bodies of varying sizes after retrieval from the sub-coracoid space of left shoulder joint.

Discussion:-

Synovial Osteochondromatosis is an uncommon condition characterized by the formation of multiple cartilaginous nodules within the synovium; after rigorous literature review, it was cleared that our understanding of this condition primarily is based on case reports and small case series studies.

Synovial Osteochondromatosis most commonly affecting large joints such as the knee and hip, involvement of the shoulder joint is a rare entity.⁽³⁾ Moreover, it has a higher prevalence in the male sex and occurs between the third and the fifth decade.^(1,2) The present case is female in the 40s of her age with pre-existing chronic health condition of rheumatoid arthritis and she had loose bodies in subscapular bursa where the communication with the joint cavity between the superior and middle glenohumeral ligaments. Presence of loose bodies is a contributing factor along with mainly her gleno-humeral arthritis as the reasons behind the chronic progressive joint pain and movement restriction.

The loose bodies' characteristic of this condition are easily confirmed on plain radiographs and CT if they are calcified or ossified,^(11, 12) while MRI is useful in the identification of non-calcified and non-ossified foci.^(13,14) In the present case, the CT and MRI radiological imaging showed two giant loose bodies in the sub coracoid space that not had been seen in plain X rays.

In context of treatment, the classical treatment for synovial Osteochondromatosis is open arthrotomy, synovectomy and complete removal of the free fragments.^(1, 2) For retrieval of loose bodies, there has been considerable debate over whether an arthroscopic procedure is better than an open procedure.⁽¹⁵⁾ However, there is no clear evidence that an open procedure, with or without synovectomy, offers any advantage. On the other side, the advantages of arthroscopic treatment include good visualization, low morbidity, rapid healing and early rehabilitation.⁽¹⁶⁾ Indications for arthroscopic treatment have been extended with recent advances in methods of arthroscopic techniques.⁽¹⁷⁾ Furthermore, removal of loose bodies with partial synovectomy and joint reconstruction of the involved joints results in decreased pain, improved mechanical function, and decreased swelling in most cases. Rare re-occurrence is reported following surgical management with partial synovectomy.^(18, 19) The present patient underwent to arthroscopic left shoulder debridement, capsular release, biceps tenotomy, sub acromial decompression, acromioplasty and removal of loose bodies, future wise she is indicated for arthroplasty. Her clinical condition and her age were considered for total shoulder arthroplasty over reverse total shoulder arthroplasty.

Conclusion:-

Synovial Osteochondromatosis is a health condition that can present with joint pain and movement limitation and is best managed by an orthopedic surgeon. Presence concomitant with joint arthritis is possible and can aggravate symptoms. Plain radiographs alone for diagnosis might not be enough and further imaging modalities would be advised. (i.e. MRI for assessment of non-ossifying loose bodies) Advantages of arthroscopic surgical technique is lesser morbidity, early rehabilitation, and faster recovery compared to open surgery. However, occasionally in certain conditions open procedures may be necessary.

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