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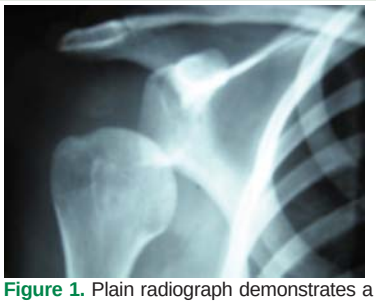

Figure 1. Plain radiograph demonstrates a hazy calcification in the subacromial space and subluxated shoulder joint.

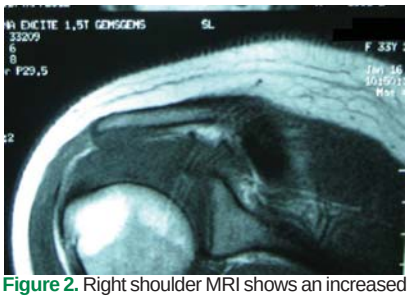

Figure 2. Right shoulder MRI shows an increased distance between the humeral head and the acromion, and there is a low- intensity soft tissue lesion in the subacromial space.

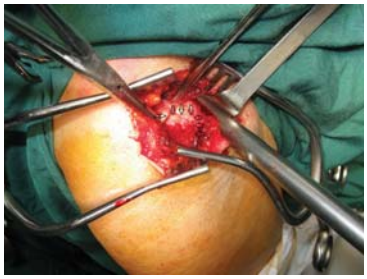

Figure 3. The lesion at surgery (arrows).

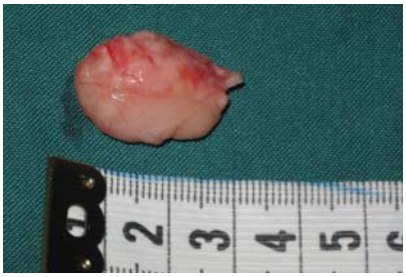

Figure 4. The mass.

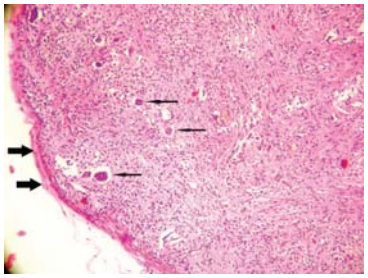

Figure 5. Photomicrograph of the lesion shows a giant cell tumor of tendon sheath with multinucleated giant cells (small arrows) and a well-defined capsule (large arrows). (Hematoxylin and Eosin X 100.)

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A 33-year-old woman had lost active and passive movements of her right shoulder due to an acute onset of a severe pain of one month duration. She had no significant medical or surgical history. She had point tenderness over her greater tuberosity. Plain radiograph of the right shoulder showed a hazy calcification in the subacromial space. The humeral head had a subluxated position (Figure 1). Right shoulder magnetic resonance imaging (MRI) showed that the distance between the humeral head and the acromion was increased and there was a low- intensity soft tissue lesion on T1 and T2 images in the subacromial space. MRI demonstrated neither an intra-articular abnormality nor synovitis in the shoulder joint (Figure 2). Laboratory tests including ESR, CRP, and WBC were normal.

The patient was scheduled for an open biopsy. Through mini-open deltoid splitting approach (Figure 3), the lesion was found in the subacromial space that bulged into the subacromial bursa; it was beneath the deep layer of the subacromial bursa and on the surface of the supraspinatus tendon. The lesion was a well-encapsulated yellow- colored mass measuring 2.5cm × 2cm × 2cm. On palpation, it had a nodular and firm consistency. The underlying supraspinatus tendon and rotator cuff as well as the inferior surface of the acromion were intact. The mass was removed by complete marginal excision (Figure 4). Histopathology showed a well- circumscribed mass composed of polygonal cells with clear to eosinophilic cytoplasm and round to oval-shaped nuclei admixed with the multinucleated giant cells. No fibrosis, hemosiderin deposition, and aggregated foamy macrophages as well as cellular atypia or mitosis were noted (Figure 5).

The patient`s pain was relieved after the surgery. She gained complete shoulder movement one month after surgery. Radiograph of the right shoulder one month after surgery demonstrated a normal position of the humeral head with the glenoid. The patient did not have recurrence of her symptoms in two years of follow-up. We plan to continue a long- term follow-up for any signs of recurrence.

What is your diagnosis?
See the next page

Ahmadreza Afshar MD•[1], Majid Eyvaz Ziaei MD[2]
Authors' affiliation: [1]Department of Orthopedics, Imam Khomeini Hospital, Urmia, Iran, [2]Mehrad Hospital, Tehran, Iran.
•Corresponding author and reprints: Ahmadreza Afshar MD, Department of Orthopedics, Imam Khomeini Hospital, Modaress Street, Ershad Boulevard, Urmia, Iran. P. O. Box: 57157- 81351. Tel: +989123131556, Fax: +984413469939, E-mail: afshar_ah@yahoo.com.
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Photoclinic Diagnosis: **Giant Cell Tumor of Tendon Sheath in the Subacromial Space**

Giant cell tumor of tendon sheath (GCTTS) is a benign fibrohistiocytic tumor. GCTTS is the second most common tumor of the hand after the ganglions. Usually GCTTS is seen in the subcutaneous layer and periartcular tissues of the small joints of the hands and feet.[1–5] The reported cases of GCTTS involving the deeper structures and the larger joints such as hip, knee, and ankle are sparse.[1,5]

In the current case, intralesional calcification broadens the differential diagnosis to include the lesions with intralesional calcification such as calcific tendonitis, synovial chondromatosis, synovial hemangioma, synovial sarcoma, periosteal chondroma, foreign body granuloma, and chronic tophaceous gout.[1] However, a low- signal intensity appearance both on T1 and T2 images was in favor of the lesions composed of dense fibrotic tissue such as pigmented villonodullar synovitis (PVS), GCTTS, and desmoids tumor.[1]

GCTTS grows slowly and may present for a long time before the patient is symptomatic. GCTTS ranges in size from a few millimeters up to several centimeters. Its color is affected by the different amounts of hemosiderin, collagen, and histiocyte cells and ranges from yellow to grayish, orange, and brownish hues. Histologically, GCTTS consists of variable amount of fibrosis, hemosiderin pigmentation, multinucleated giant cells, and polyhedral histiocytes. GCTTS has a close histologic relationship with the PVS. The histologic similarities between the two tumors led some authors to suggest that GCTTS is a localized and nodular type of the PVS which is a diffuse type and commonly seen in the synovium of the large joints.[1,2]

The recurrence rate of GCTTS is estimated between 5% to 50% after primary excision.[1] In addition to an incomplete excision, some GCTTS may have an aggressive behavior. Wu, et al.[3] reported a case of malignant GCTTS. Booth, et al.[4] reported a case of GCTTS with intraosseous invasion. Osseous erosion, tendon and joint capsule involvement, separated satellite lesions, and breach of the tumor`s capsule have a higher potential for recurrence. It has been suggested that histologic atypia such as low collagenized stroma (fibrosis), high cellularity, and presence of mitotic activity may increase the risk of recurrence.[2] In the current case, there was not any of the aforementioned adverse finding. However, she continues her close follow- up.

Pain and tenderness are not the common symptoms of GCTTS.[1] In our patient, the severe shoulder pain may be due to crowding in the limited subacromial space in addition to acute inflammation induced by the mechanical irritation in the subacromial bursa.

In the current case, we did not suspect the diagnosis of GCTTS initially because of its atypical location and presentation.

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