Ganglia can compress the adjacent structures and in the shoulder they can cause suprascapular neuropathy.\(^1\)\(^2\) We report an unusual case of a ganglion cyst that caused entrapment neuropathy of the inferior branch of the suprascapular nerve mimicking cervical disk disease.

**CASE REPORT**

A 39 year old man presented to our physical medicine and rehabilitation outpatient clinic with neck and left shoulder pain together with weakness of his left arm. His complaints were of nine months' duration. A cervical spinal magnetic resonance imaging (MRI) examination showed diffuse bulging of C4-5 and C5-6 disks and flattening of cervical lordosis. Physical examination showed a loss of muscle strength at external rotation and significant atrophy of the infraspinatus muscle. Initial electromyography and nerve conduction studies (EMG/NCS) restricted to the supraspinatus muscle were normal. Later studies inclusive of the inferior branch of the suprascapular nerve and the infraspinatus muscle, however, showed prolonged distal latency (12 msec) and low amplitude (0.2 mV) responses. Moreover, needle-EMG displayed severe subacutec neuropenic involvement as well as atrophy of the left infraspinatus muscle and partial denervation findings. The EMG/NCS findings for other muscles and nerves were normal. Because findings suggested entrapment of the inferior branch of the left suprascapular nerve at the level of the spinoglenoid notch, a diagnostic injection of 5 ml lidocaine 2% was made at this location, whereupon the pain of the patient was relieved.

MRI of the left shoulder showed a round cystic mass about 2 cm in diameter and consistent with ganglion posterolateral to the glenoid portion of the scapula (fig 1). The patient refused surgery upon relief of his pain. Local injections of lidocaine with 40 mg methylprednisolone acetate were made three times, each with an interval of three weeks. In addition, electric stimulation and isometric and isotonic strengthening exercises were given to the infraspinatus muscle. Follow up MRI at two months after the first injection showed no regression of the cystic mass. Persistence of the symptoms three months thereafter and heavy workload of the patient (which he could not dismiss) led to open decompressive surgery with posterior approach. All symptoms of the patient were relieved after the operation and MRI at three months after surgery showed no residual or recurrent cystic mass.

**DISCUSSION**

The diagnosis of suprascapular nerve entrapment is based on clinical history and physical examination supplemented with EMG/NCS.\(^3\)\(^-\)\(^6\) Patients typically present with longstanding, deep, diffuse posterolateral shoulder pain, which may radiate to the neck, arm, or upper chest wall.\(^7\) In our case, the diagnosis was delayed because of this pain distribution. This sensation of pain is probably referred from the sensory articular branches to the glenohumeral and acromioclavicular joints.\(^7\) On physical examination, there is usually weakness of external rotation. Wasting of the infraspinatus would be present in chronic conditions.\(^1\) Pain relief after an injection of lidocaine into the area of entrapment can be used as a confirmatory diagnostic sign.\(^1\) EMG/NCS should be performed to confirm the diagnosis of entrapment neuropathy of the suprascapular nerve.\(^1\)\(^-\)\(^3\) Nevertheless, such an evaluation should not be restricted to the supraspinatus and should encompass the infraspinatus. Assessment of the infraspinatus, along with supraspinatus, can avoid the failure of diagnosing the compression at the spinoglenoid notch, as documented in our case.

Suprascapular nerve entrapment in the suprascapular notch, especially in the spinoglenoid notch, is a rare entity that must be considered in the differential diagnosis of radicular pain, as well as that of shoulder discomfort.\(^7\) Radiological findings of cervical disk degeneration are widely encountered, increasing with age.\(^7\) Extensive use of MRI results in the frequent diagnosis of cervical disk disease. It should be borne in mind, however, that symptoms of a patient need not be wholly attributable to the presence of cervical disk disease, which might be associated with another condition causing similar symptoms, as in our patient.

In conclusion, extensive use of EMG/NCS should be made in patients with shoulder pain with associated atrophy. Ganglion cysts at the spinoglenoid notch should be included in the differential diagnosis of patients presenting with neck and shoulder pain and weakness.

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**Letters 1025**
Ultrasonographic study of painful shoulder

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Painful shoulder is a very common condition in clinical rheumatology. However, knowledge of the lesions responsible for shoulder pain in most patients has been limited to clinical examination and plain radiography in clinical practice. High frequency ultrasonography is an accurate, non-invasive, and cheap imaging technique available in clinical rheumatology for evaluating patients with painful shoulder. However, dependence on the skill of the operator has been considered to be the main disadvantage of ultrasound. Diagnostic results are affected by the quality of the equipment, examination technique, sonographer experience, and sono-graphic diagnostic criteria.

We compared the ultrasonographic findings in two groups of patients with clinically diagnosed periarticular disorders, with a first flare of shoulder pain—group I: 228 patients (228 shoulders); group II: 110 patients (122 shoulders). Patients with previous trauma or chronic inflammatory arthritis were excluded.

Each group was examined in Italy or in Spain by a different rheumatologist (AI, Rome, Italy and EN, Madrid, Spain) using a different commercially available real time machine (Image Point Hx, Agilent Technologies/HP and Sonoline, Versa, Siemens, Seattle, USA, respectively) with a 7.5 MHz linear phased array transducer. Both rheumatologists used the same scanning technique and the same sonographic diagnostic criteria.

A $\chi^2$ test was used to compare quantitative variables. A value of $p<0.05$ was considered significant.

Group I comprised 132 women and 96 men with a mean age of 45.6 years (range 18–64). The mean duration of symptoms was 3.3 months (range 1–8). Group II comprised 81 women and 29 men with a mean age of 54.5 years (range 25–75). The mean duration of symptoms was 8.6 months (range 0.5–36).

The sonographic pathologic findings in the painful shoulders were similar for both groups ($p>0.05$) (table 1). In most patients various different periarticular structures were affected. Supraspinatus tendon lesions were the most common

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Table 1 Ultrasonographic findings in symptomatic shoulders

<table>
<thead>
<tr>
<th>Shoulder lesions</th>
<th>Group 1 (228 shoulders) % of shoulders</th>
<th>Group 2 (122 shoulders) % of shoulders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supraspinatus lesions</td>
<td>67</td>
<td>66</td>
</tr>
<tr>
<td>Infraspinatus lesions</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Subscapularis lesions</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Biceps tendon lesions</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>Biceps sheath effusion</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>SA-SD bursitis</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>AC-ACL involvement</td>
<td>63</td>
<td>61</td>
</tr>
<tr>
<td>RC calcification</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>GH effusion</td>
<td>12</td>
<td>7</td>
</tr>
</tbody>
</table>

SA-SD, subacromial-subdeltoid; AC-ACL, acromioclavicular; RC, rotator cuff; GH, glenohumeral. $p>0.05$ for all results.

Figure 1 Sonographic imaging of a supraspinatus tear. Transverse sonogram. Note the presence of fluid (F) filling the defect of the supraspinatus tendon (SS). DM, deltoid muscle; HH, humeral head.