A Case Report of an Acromioclavicular Joint Ganglion Associated with a Rotator Cuff Tear

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Summary: We report a case of subcutaneous ganglion adjacent to the acromioclavicular joint with massive rotator cuff tear [1-7]. An 81-year-old woman presented with a ganglion adjacent to the acromioclavicular joint that had first been identified 9 months earlier. The ganglion had recurred after having been aspirated by her local physician, so she was referred to our hospital. The puncture fluid was yellowish, clear and viscous. Magnetic resonance imaging identified a massive rotator cuff tear with multi-lobular cystic lesions continuous to the acromioclavicular joint, presenting the “geyser sign”. During arthroscopy, distal clavicular resection and excision of the ganglion were performed together with joint debridement. At present, the ganglion has not recurred and the patient has returned to normal daily activity. In this case, the ganglion may have developed subsequent to the concomitant massive cuff tear, due to subcutaneous fluid flow through the damaged acromioclavicular joint.

Key words acromioclavicular joint, ganglion cyst, geyser sign, arthroscopy

INTRODUCTION

A few studies on acromioclavicular joint ganglions associated with a rotator cuff tear have been reported. We report a case of acromioclavicular joint ganglion associated with a rotator cuff tear that responded favorably to arthroscopic surgery, and review the literature.

CASE REPORT

Case: Subject was an 81-year-old woman.
Chief complaint: Mass in the right acromioclavicular joint.
Medical history: Hypertension.
History of present illness: The patient visited a local doctor for an indolent mass present for 9 months in the right acromioclavicular joint. The mass recurred despite 3 repeated needle aspirations. The patient was referred to our hospital, as she desired resection for cosmetic reasons.

Physical findings: The active range of right shoulder motion was 135° of flexion, 60° of abduction, L2 of medial rotation, and 45° of external rotation. Supraspinatus and infraspinatus tests were positive and negative, respectively. Although she was able to perform the Lift-off test, the Belly-press and Bear-hug tests were positive. The Impingement test, Speed test, and Yergason test were negative.

An elastic-soft mass (4 × 3 cm) was found in the right acromioclavicular joint (Fig. 1). The gelatinous contents were extracted by needle aspiration.

Imaging findings: Plain radiography revealed degenerative changes of the acromioclavicular joint, but shoulder joint congruity was relatively favorable. A soft tissue mass was also observed over the acromioclavicular joint.
acromioclavicular joint (Fig. 2).

T2-weighted magnetic resonance imaging showed a homogeneous multilocular mass in the acromioclavicular joint, which was considered to be a ganglion (Fig. 3 A). A rotator cuff tear was also found, and the geyser sign, in which synovial fluid escapes from the glenohumeral joint through the acromioclavicular joint and communicates with the subcutaneous mass, was observed (Fig. 3 B).

Intraoperative findings: Arthroscopy failed to detect the rotator cuff on the upper humeral head, and a massive rotator cuff tear was confirmed. After subacromial bursitis was resected to the extent possible, the joint capsule was curetted from the lower acromioclavicular joint. Exudation of gelatinous contents was confirmed (Fig. 4).
Subsequently, approximately 1.5 cm of distal clavicle was resected using a bone cutter (Fig. 5), and the capsule of the ganglion was also resected as far as possible by placing a superior portal on the acromioclavicular joint. Debridement was performed on the stump alone because the associated rotator cuff tear was untreatable by primary repair.

Neither shoulder pain nor mass recurrence was observed 2 years after surgery (Fig. 6 A, B).

**DISCUSSION**

Some studies on acromioclavicular joint ganglions associated with a rotator cuff tear have been reported [1-7]. Rohit et al. [2] reported that acromioclavicular joint cysts were divided into type 1, without rotator cuff tear, and type 2, with rotator cuff tear. The latter display the so-called “geyser sign”.

The pathology of type 1 is such that synovial fluid...
escapes through a degenerative acromioclavicular joint, resulting in formation of a ganglion. The pathology of type 2, similar to our case, is such that cuff tear arthropathy, including superior migration of the humeral head and injury/degeneration of the acromioclavicular joint capsule, occurs due to a rotator cuff tear; the synovial fluid escapes into the acromioclavicular joint cavity because of formation of a check valve. The geyser sign is seen and a ganglion forms, with extension and enlargement (Fig. 7) [1,2].

Dechen et al. [3] reported that surgery was required in 78% of cases because of recurrence despite aspiration. According to a report by Andrew et al. [1], distal clavicle and subacromial bursa resections should be performed for type 1 cases, while distal clavicle and subacromial bursa resection, shoulder arthrodesis, debridement of rotator cuff tear, humeral head replacement, and total shoulder arthroplasty should be considered for type 2 cases, depending on individual findings.

Conservative treatment is not applicable for recurrences despite aspiration, as in our case, because fluid flow is unidirectional due to a check valve effect in the acromioclavicular joint capsule; therefore, surgical disruption of the check valve may be necessary [4-6].

We chose less invasive arthroscopic surgery for an acromioclavicular joint ganglion associated with a rotator cuff tear; distal clavicle and subacromial bursa resection and rotator cuff debridement were then performed to disrupt the check valve. This resulted in a favorable outcome without recurrence.

REFERENCES