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# Arthroscopic all–intra–articular decompression and labral repair of paralabral cyst in the shoulder

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**Background:** The purpose of this study was to report the outcomes of all–intra–articular arthroscopic decompression and labral repair in patients with symptomatic paralabral cysts.
**Methods:** From 2005 to 2011, 20 consecutive cases of symptomatic paralabral cysts were included in this study. All surgical procedures were conducted with intra-articular arthroscopic decompression by use of a probe through the site of labral tear for cyst evacuation and suture anchor repair for the associated postero-superior labrum. Clinical scores and magnetic resonance imaging (MRI) were obtained preoperatively and at follow-up. MRI was used to evaluate the size and segmentation of the cyst and the presence of the labral tear.
**Results:** MRI revealed paralabral cysts in association with labral tears in all cases. Cysts were extended in the spinoglenoid notch with a mean size of 2.5 × 2.6 × 2.2 cm on MRI. Cysts were nonsegmented in 5 cases (25%) and had multiple segments in 15 cases (75%). Mean follow-up was 42.8 ± 21.22 months. The mean visual analog scale score for pain, the American Shoulder and Elbow Surgeons score, and the Simple Shoulder Test score significantly improved at the last follow-up ($P < .001$, $P < .001$, and $P = .001$, respectively). The postoperative MRI study performed at a mean of 6 months for 18 of 20 cases (90%) revealed complete cyst removal. The satisfaction level with surgery was good to excellent in 18 patients, fair in 1 patient, and poor in 1 patient. No complication was related to the surgical procedure.
**Conclusion:** Arthroscopic all–intra–articular decompression and labral repair of paralabral cyst can be a simple and effective treatment, regardless of segmentation or size. It also resulted in complete removal of the cyst at a mean of 6 months postoperatively as revealed by MRI. An additional subacromial procedure might not be necessary for complete decompression.
**Level of evidence:** Level IV, Case Series, Treatment Study.


**Keywords:** Shoulder; spinoglenoid paralabral cyst; arthroscopy; labral repair; intra-articular decompression technique

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Paralabral cyst around the spinoglenoid notch has been associated with posterosuperior labral tears on the glenoid.[3,5,20,23,24] Treatment of paralabral cysts around the shoulder is recommended when paralabral cysts exhibit persistent symptoms, such as pain and discomfort, and show neurologic signs of infraspinatus muscle atrophy.[4,28] The nonoperative treatment options are varied and include observation, oral medications including nonsteroidal anti-inflammatory drugs, and percutaneous needle aspiration. Symptomatic paralabral cysts that fail to respond to conservative treatment may be treated surgically by open excision or arthroscopic decompression.[1,7,11-13,25,26,28]

With advances in arthroscopic instrumentation and techniques, arthroscopic decompression of the paralabral cyst in the shoulder has become favored, and good results with minimal soft tissue damage have been reported.[1,7,12,16,25,26] Modalities include a labral tear approach through the torn hole of the labrum connected with the cyst,[1,5] a capsulotomy adjacent to the cyst,[12,16,27] and an approach through the interface between the supraspinatus and infraspinatus after subacromial bursectomy in the subacromial space.[6,14] However, there is no definite consensus on the optimal arthroscopic approach, especially intra-articular vs subacromial or decompression under direct vision vs indirect decompression of a paralabral cyst.

This study reports the clinical outcomes and the disappearance rate on magnetic resonance imaging (MRI) of all–intra–articular arthroscopic decompression and labral repair in patients with symptomatic paralabral cysts. Our hypothesis was that the intra-articular decompression indirectly by blunt instrumentation of the cyst and labral repair would lead to complete disappearance of the cyst and a good clinical outcome.

## Materials and methods

### Patient selection

From October 2005 to December 2011, 20 consecutive cases of symptomatic paralabral cysts with arthroscopic decompression by an intra-articular decompression technique and labral repair were included in this study.

Inclusion criteria of this study were (1) a paralabral cyst around the shoulder proven by preoperative MRI or magnetic resonance arthrography, (2) symptoms lasting more than 3 months despite proper conservative treatments, (3) patients who underwent arthroscopic all–intra–articular decompression mainly by use of the probe and labral repair, and (4) patients who were available for minimal 2-year follow-up after the index surgery. Patients with concomitant pathologic conditions that required a subacromial approach, such as rotator cuff tear that needed to be repaired, impingement syndrome with subacromial bursitis, or acromial spur, were excluded. Patients with any history of surgery around the affected shoulder (fracture, dislocation, infection, or arthroplasty) and inflammatory arthropathy were also excluded.

### Clinical and MRI evaluation

Detailed histories, including symptom duration and physical examination findings, were reviewed.

For clinical outcome measurement, the visual analog scale score for pain, the American Shoulder and Elbow Surgeons score, and the Simple Shoulder Test score were assessed preoperatively and at final follow-up. The patient's satisfaction with surgery was evaluated at final follow-up as excellent, good, fair, or poor.

Routine simple radiographs including shoulder anteroposterior, true anteroposterior, scapular Y, and axillary views of the involved shoulder were performed in all patients. Preoperative MRI or magnetic resonance arthrography was also performed in all patients. In each case, the extent and size of the cyst were evaluated in the coronal oblique, sagittal oblique, and axial planes (Fig. 1), and the presence of a labral tear correlated with a paralabral cyst was evaluated on the MRI scans. At 6 months postoperatively, MRI scans were obtained and evaluated to determine the cyst status and the presence or disappearance of the cyst.

### Surgical technique

All surgical procedures were performed by a single experienced senior surgeon (J.C.Y.) with the patient in the lateral decubitus position under general anesthesia and with an adjunctive interscalene block. Range of motion of forward elevation, internal rotation, and external rotation was assessed. Traction of 6 to 8 lb (STaR sleeve traction system; Arthrex, Naples, FL, USA) was applied with the arm in 30° of abduction and 20° of flexion.

A standard posterior portal was made 1 cm medial and 2 cm inferior to the posterolateral margin of the acromion, and an arthroscope was introduced into the glenohumeral joint. An anterior portal was made through the rotator interval with the aid of a spinal needle to ensure proper portal placement in an ''outside-in'' technique. Fifteen routine arthroscopic anatomic points are examined through the posterior and anterior portals. During routine diagnostic examination, the labrum was thoroughly examined with use of a probe and tested circumferentially. Labral tear or superior fraying of the labral undersurface demonstrated detachment of the labrum from its insertion (Fig. 2, *A*, and Video 1). All surgical procedures were conducted with intra-articular arthroscopic decompression for cyst evacuation and conventional suture anchor repair for the posterosuperior labrum (Video 1). Most procedures used the posterior portal as a working portal and the anterior portal as a viewing portal. If necessary, an additional anterosuperior portal (placed through the lateral aspect of the rotator interval) was used in 7 (35%) of 20 patients. The decision regarding this additional portal was dictated intraoperatively by the location of the labral pathologic process to facilitate the appropriate anchor insertion and working angle, especially in case of the more anterosuperiorly extensive pattern of the labral disease. When the torn site of the labrum correlating with a paralabral cyst was identified, the probe was introduced into the cyst toward the spinoglenoid notch, and the cyst was gently but thoroughly decompressed indirectly by stirring and probing with the blunt probe (ConMed Linvatec, Largo, FL, USA). During these indirect, all–intra–articular decompression procedures, a viscous, gelatinous, and yellowish fluid gushed out into the glenohumeral joint. The decompression procedure was complete when the cystic fluid was evacuated as much as possible so the