

## Non-traumatic shoulder instability in an athletic patient with a periglenoidal cyst and a glenoid labral tear

Sven-Oliver DIETZ, Sven LICHTENBERG, Peter HABERMEYER

A 34-year-old patient presented to our outpatient clinic with the chief complaint of shoulder instability, without any history of trauma. Physical examination revealed a painful apprehension test at 60°, 90° and 120° but no objective sign of shoulder instability or hyperlaxity. MRI-scan showed a cyst over the anterior inferior glenoid rim. Arthroscopic findings were an enlarged capsule, a positive drive-through sign, a SLAP I lesion and a sublabral cyst at the anterior-inferior labrum. Detachment of the anterior labrum could be detected with a probe. The cyst's membrane was resected using a whisker shaver. The capsule and the anterior labrum were refixated with a suture anchor. Following capsular shrinking, there was no further laxity and the drive-through sign was diminished. After three months there was full range of active and passive motion. The patient had no subjective instability sensations. MRI showed no residuum of the cyst.

Juxta-articular cysts are a known entity in large joints. There are different types of periarticular cysts. A ganglion cyst of the shoulder associated with glenohumeral instability has, to our knowledge, only been described twice. Our case suggests that mere excision of a juxtaglenoidal ganglion is not sufficient ; reconstruction of the labrum must be performed to restore stability of the shoulder.

Shoulder pain can be caused by a variety of pathologic abnormalities of any of the three joints around the shoulder. Glenoid labral cysts are most often reported to cause a compression syndrome of the suprascapular nerve in the suprascapular fossa (1) or a quadrilateral space syndrome (10). Besides weakness of the supraspinatus, infraspinatus

or teres minor muscle, patients complain of shoulder pain. Instability is a rare finding in patients with a periglenoidal cyst (5). We report a case of periglenoidal, sublabral cyst of the right shoulder in a young right-handed athletic patient who presented with the chief complaint of shoulder instability.

### CASE REPORT

A 34-year-old athletic patient presented to our clinic complaining of instability of the right shoulder. He had a history of weight-lifting activity, but did not practice contact sports and he had no generalised joint laxity. Shoulder instability first occurred after bench-pressing four years previously. Earlier treatment consisted of reduced exercise first and shoulder strengthening physiotherapy afterwards. A presumed biceps tendinitis was treated with nonsteroidal anti-inflammatory drugs. Since this remedy afforded only little benefit an MRI-scan was performed.

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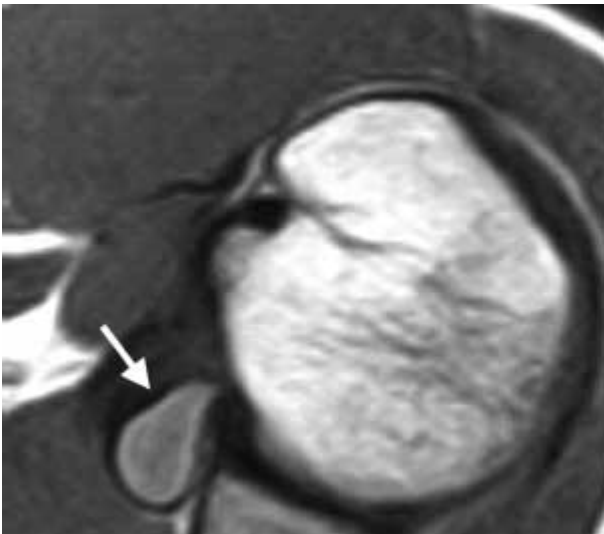
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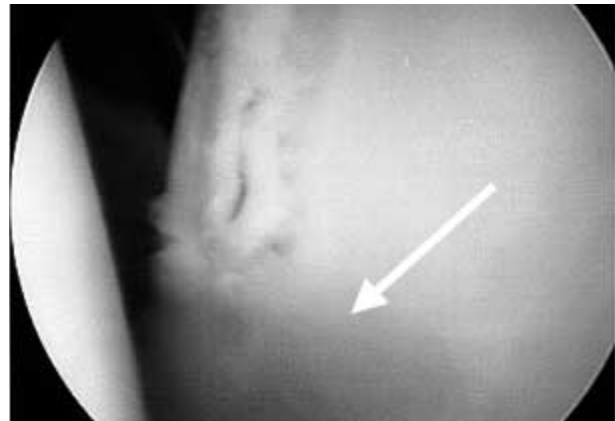


**Fig. 1.** — Axial MRI of the right shoulder. Glenoid cyst on the anterior labrum (arrow).

Inspection showed a muscular shoulder, no atrophy, no anomalous posture, no deformity. Full range of active and passive motion of the right arm was noted. There was no crepitus. Muscular strength for abduction, flexion and external rotation was M 5 / 5. Isometric rotator cuff tests (7) were normal. There was a positive O'Brien test (7) on the right side. There was no positive sulcus sign (7). The anterior-posterior drawer-test was physiologic on both sides (7). The apprehension sign (7) was painful at 60°, 90° and 120° in the right shoulder while negative on the left side. The fulcrum, relocation and push and pull tests (7) were negative. The shoulder score was 65 points on the Rowe Score (9).

Sonographic examination of the right shoulder was performed with a 7.5 Mhz linear ultrasonographic device using a standard technique. It showed a normally configured rotator cuff. The biceps tendon revealed a slight "halo-effect". The rotator cuff interval was without pathologic findings. There was no evidence of calcifying tendinitis. Reduced echogenicity was seen in the plane beneath the subscapularis tendon.

MRI showed a 2.5 × 1 cm cyst on the anteroinferior glenoid (fig 1). There was no capsular alteration and no damage to the glenoid cavity. There



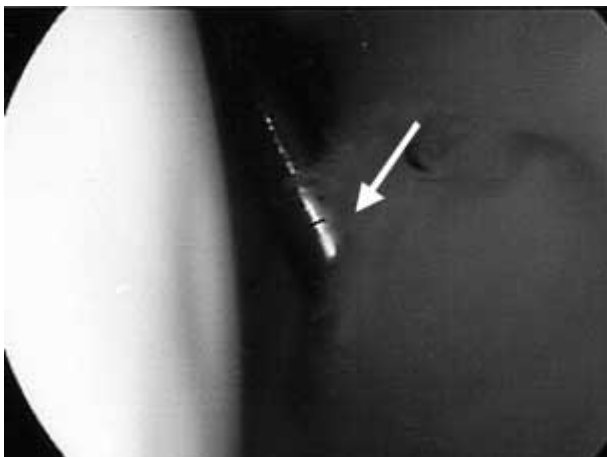
**Fig. 2.** — Arthroscopic penetration of the cyst by the alternating rod. Labral defect (arrow).

was no sign of a Hill-Sachs defect in the humeral head, and there was no bony Bankart lesion.

Arthroscopic treatment was decided. The patient was placed in beach chair position. Examination under anaesthesia revealed a sulcus sign 1+ and a 1+ positive anterior drawer test. Arthroscopy was performed according to standard techniques. Arthroscopic findings were an enlarged capsule, a positive drive through sign, a SLAP I lesion and a sublabral cyst at the anterior-inferior labrum. A detachment of the anterior labrum could only be detected with a probe. This detachment was the entrance to the cyst (fig 2). The inferior glenohumeral ligament was overstretched, the medial glenohumeral ligament was elongated while the superior glenohumeral ligament was normal. The rotator cuff and the biceps tendon were without pathologic finding. No Hill-Sachs defect was detected.

On penetrating the cyst with the alternating rod, gelatinous fluid was evacuated (fig 3). Afterwards, the cyst's membrane was resected with a whisker shaver. The capsule and the anterior labrum were refixated with a Fastak, suture anchor. Following capsular shrinking the drive-through sign was diminished.

The patient returned to our clinic six weeks after operation for routine follow-up examination. There was no painful episode after operation, and no complaint of instability. The apprehension sign was negative at 60°, 90° and 120°. There was no sulcus



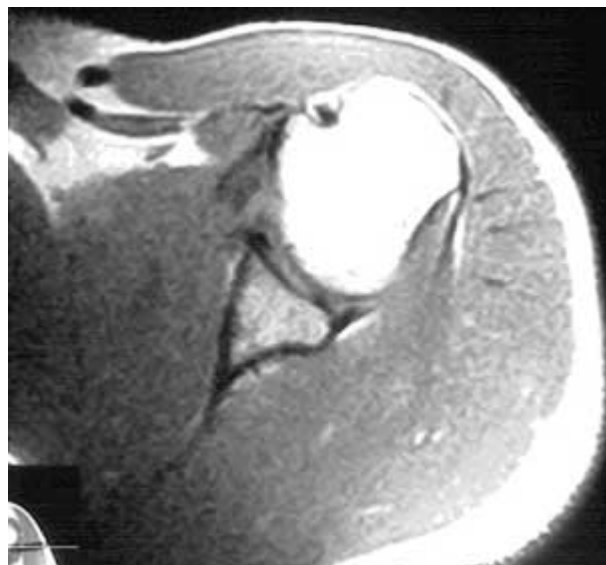
**Fig. 3.** — Cyst on the anterior labrum. Evacuation of gelatinous fluid (arrow)

sign. The drawer test was negative. There was full range of passive motion. After three months, he also had full range of active motion. He had no subjective instability sensations. He scored 95 points on the Rowe Score. The apprehension sign was still negative. MRI showed no residuum of the cyst (fig 4, 5). The patient returned to mild weight-lifting activities.

### DISCUSSION

Juxta-articular cysts are a known entity in large joints such as hip, knee or shoulder (3, 4, 10, 11). Their cause is controversial. On the one hand, it has been reported that these cysts are the result of a primary myxoid degeneration (8). On the other hand, juxta-articular cysts of the large joints have often been reported in association with labral tears (4, 6, 11). Therefore it has been concluded, that there are two different types of these periarticular cysts, with either mechanism taking place in different situations (5).

It has previously been reported that juxta-glenoidal cysts may be associated with compression neuropathies (1, 10, 11). Chochole *et al* (1) described entrapment of the suprascapular nerve with atrophy of the infraspinatus muscle. Sanders *et al* (10) described a quadrilateral space syndrome resulting in a compression neuropathy of the axillary nerve with progressive atrophy of the teres minor muscle.



**Fig. 4.** — MRI 3 months post operation



**Fig. 5.** — MRI 3 months post operation

A ganglion cyst of the shoulder associated with glenohumeral instability has, to our knowledge, only been described twice (5, 11).

Tirman *et al* (11), Ferrick and Marzo (5) and Tung *et al* (12) described a correlation between periarticular cysts and labral tears. Our patient had a tear of the anterior labrum. The cyst was localised at the gap between the labrum and the glenoid rim.

Nevertheless the aetiology of the cyst could not be evaluated. There was no significant trauma. The history of shoulder instability in our patient began after bench pressing. Taking into account an incorrect technique, this episode could be described as a non-direct trauma of the glenohumeral joint with detachment of the anterior labrum. Furthermore our patient had signs of laxity of the shoulder. There was a sulcus sign at the examination under anaesthesia. Arthroscopic findings were a positive drive-through sign and elongation of the inferior glenohumeral ligament. Laxity could be a furthering condition for a sublabral defect.

Other authors described labral detachments as anatomic variants without pathological relevance. Snyder *et al* (13) described a sublabral foramen below the anterosuperior labrum as a normal anatomic variant. It was found in 12% of retrospectively reviewed shoulder arthroscopy videotapes. Cooper *et al* (2) described, in a cadaveric study, "that loosening of the inferior half of the labrum is an abnormality but that mobility and a loose attachment of the labrum proximal to the mid-point of the glenoid are normal findings" and "should not be considered evidence of disease or instability".

Our case demonstrates the interrelation between labral integrity and shoulder stability. Beside the positive apprehension sign, there was no clinical evidence for instability of the shoulder even though the patient had a striking instability sensation. This finding underlines the importance of intact articular components for proprioception. Furthermore this case suggests that excision of a juxtaglenoidal ganglion alone is not sufficient. Reconstruction of the labrum must be performed to restore stability of the shoulder. Arthroscopy seems to be the treatment of choice for a sublabral cyst.

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