



ORTHO NEWSCAST



Vol 1|Issue 9|2020

Dear Doctor,
Greetings from Micro Labs. We are happy to bring you "Ortho Newscast" which contains latest and interesting news in the field of Orthopaedics.

This issue contains

- Early shoulder stiffness prediction by Glenohumeral synovitis score.
- A Modified Procedure for Locked Posterior Shoulder Dislocation- A case report.
- Portable X ray receives FDA clearance

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

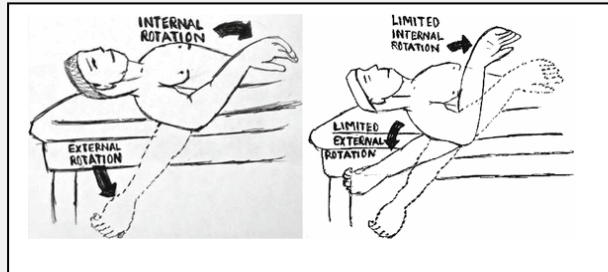
Looking forward to your valuable feedback

Best Regards,
Medical Team,
Micro Labs Limited



Early shoulder stiffness prediction by Glenohumeral synovitis score.

A common complication after arthroscopic rotator cuff repair (ARCR) is Shoulder stiffness. Risk factors for developing postoperative shoulder stiffness following ARCR are preoperative shoulder stiffness, age less than 50 years old, diabetes, hypothyroidism, and coexisting diagnosis of calcific tendonitis or adhesive capsulitis.



Risk factors intraoperatively include single-tendon tears, partial articular-sided tears, and concomitant labral repair.

Glenohumeral synovitis is seen frequently during ARCR, Studies have shown that glenohumeral joint and subacromial space synovial tissue taken at time of rotator cuff repair is associated with increased inflammation, angiogenesis and production of inflammatory mediators.

Aim of the study is to evaluate an association between an intraoperative glenohumeral synovitis score (GHSS) and postoperative shoulder stiffness in patients undergoing arthroscopic rotator cuff repair

Methods:

300 patients underwent primary ARCR for symptomatic partial or full thickness rotator cuff tear.

Patients with revision ARCR, irreparable rotator cuff tear, open rotator cuff repair, concurrent glenohumeral joint stabilization procedure, and inadequate intraoperative photos to generate GHSS were excluded from the study.

Patients with glenohumeral synovitis were graded based on standardized arthroscopic images on consecutive patients. The degree of glenohumeral synovitis was recorded based on the following characteristics: color of capsule (pale, pink, or red); villous projections (none, few, or extensive); capillaries in capsule (scattered or hypertrophied); and axillary recess (normal or contracted). Scores were assigned from 0 to 6. A higher GHSS, indicates a greater degree of synovitis.

Postoperative evaluation was done At 6 weeks, 3 and 6 months and final follow-up patients were seen for evaluation and range of motion was recorded.

Results:

Patients with stiffness at three-months had significantly higher GHSS (mean: 3.3) than patients that did not develop stiffness (2.5; $p < 0.001$).

Grading of hypertrophied capillaries was (34.3% versus 15.5%; $p = 0.02$) and red capsule color (18.8% vs 6.2%; $p = 0.002$) subcategories was statistically associated with postoperative stiffness.

Decreased number of tendons (odds ratio [OR] = 0.48), decreased passive pre-operative external rotation (OR = 0.96), and GHSS grade (OR = 2.26) as the statistically significant independent predictors of post-operative stiffness following ARCR as per multivariate analysis.

An optimal threshold of 3.0 with a sensitivity and specificity of 81.25% and 47.3% respectively as per receiver operating characteristic (ROC) analysis.

Discussion:

Shoulder stiffness is most common complication of arthroscopic rotator cuff repair. Variable degrees of glenohumeral synovitis are observed during ARCR. But synovitis influence on the development of stiffness is not well defined.

In current study, patients with rotator cuff tear and concomitant preoperative shoulder stiffness and did not find capsular release to be protective of persistent stiffness at three-months following surgery. Also suggested that GHSS is an intraoperative risk factor for shoulder stiffness following ARCR.

Conclusion:

Elevated intraoperative GHSS was associated with early postoperative shoulder stiffness after ARCR.

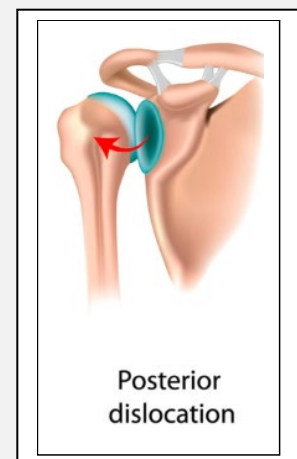
Reference:

Tan Z et al. Glenohumeral synovitis score predicts early shoulder stiffness following arthroscopic rotator cuff repair. J Orthop. 2020; 22:17-21.

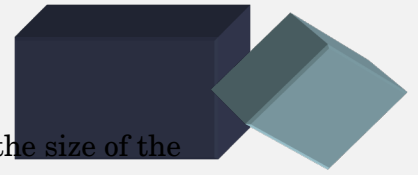
A Modified Procedure for Locked Posterior Shoulder Dislocation- A case report.

Traumatic posterior dislocations of the shoulder is usually an uncommon diagnosis and a challenging clinical problem.

Injuries are caused by high energy trauma, seizure, or electrocution. The initial diagnosis is missed or delayed. In most cases, the posterior edge of the glenoid causes impaction of the anteromedial aspect of the humeral head. This is known as a reverse Hill-Sachs lesion (RHS).



CT scan is essential in establishing the diagnosis and determining the size of the humeral head defect. Posterior instability often requires surgical stabilization.



Soft-tissue procedures are preferred (arthroscopic posterior labrum repair, reverse remplissage) and more complex techniques are reserved for significant bone defect (McLaughlin procedure, bone grafting, and posterior bone block).

Chronic locked posterior shoulder dislocation (CLPSD) is described as a posterior dislocation discovered at least two weeks after the initial event that is not reducible with closed methods.

Treatment options include disimpaction, autogenous bone grafting of the defect, osteoarticular allograft, lesser tuberosity transfer, subscapularis tendon transfer, or shoulder arthroplasty.

Current is a case of posterior dislocation operated with Modified Reverse Remplissage Procedure.

Case presentation:

A 30-year patient was addressed to our clinic 6 weeks after sustaining a closed posterior dislocation of the right shoulder.

This occurred due to electrical weapon shot during a military training. The dislocation was recognized but not reduced adequately, and the patient had started rehabilitation. Patient being right-handed presented with a painful shoulder with limited motion in all directions (anterior elevation 70°, abduction 50°, and external rotation -10°).

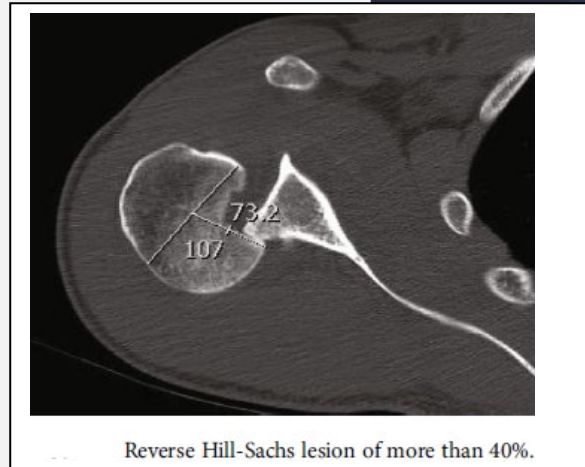
Shoulder radiographs demonstrated a locked posterior dislocation. Computed tomography scan confirmed the presence of a large RHS lesion of more than 40% .

Due to the delay between the trauma and the surgery was significant, not to attempt a closed reduction , to prevent a humeral head fracture.

Surgery: open reduction was achieved through a deltopectoral approach. Release of the rotator interval and the upper quarter of the subscapularis tendon was done to ease exposure and reduction was achieved using a blunt instrument along the glenoid and the humeral head.

RHS lesion engaged at less than 20-degree internal rotation in neutral abduction. The RHS lesion was debrided to stimulate tissue healing, and two Bio Composite Corkscrew 5.5mm were fixed in the cavity: the first in the inferior and medial part and the second in the upper and more posterior part.

Upper $\frac{1}{4}$ th of the subscapularis was slightly released from the anterior glenoid rim; then, the eight strands were passed through the subscapularis tendon and tied to reproduce a remplissage technique.



Subscapularis was repaired with a double-row technique using two Swivel Lock anchors 5.5mm within the bicipital groove. The final insertion of the subscapularis tendon was oblique with a small lengthening of the upper part and a small shortening of the inferior part.

Long head of the biceps was pathological (fraying), and a tenodesis was performed in the inferior part of the bicipital groove, using the remaining sutures in the Swivel Lock anchor. The shoulder remained stable in internal rotation, and there was no excessive restriction in external rotation.

patient's shoulder was maintained in an abduction/ external (30°/10°) rotation brace for 6 weeks; then, physical therapy was initiated. The patient returned to military and sports activities 6 months after the surgery without any limitation.

Last follow-up was performed three years after surgery. The patient presented with a painless shoulder (during daily living activities and work), and no recurrences occur.

Active range of motion of the shoulder good and quite similar to the contralateral shoulder: anterior elevation 150 (vs. 180), abduction 160 (vs. 180), external rotation with arm at side 60 (vs. 80), and internal rotation at T12 (vs. T8).

Shoulder was stable in all directions (no anterior or posterior apprehension, symmetric anterior and posterior drawer test, and negative load-and-shift test).

Overall abduction strength (measured with a dynamometer) demonstrate a slight deficit in isometric (14%) and isokinetic (11.3%) strength compared to the contralateral shoulder.

Functional scores were recorded and qualified as good: Western Ontario Shoulder Instability Index (WOSI) 18.3%, Oxford Shoulder Score (OSS) 34, American Shoulder Elbow Surgeon (ASES) 63.3, and Melbourne Instability Shoulder Scale (MISS) 82%.

Discussion:

Posterior shoulder dislocations are one of the rare injuries in clinical practice. Usual mechanism involved is trauma, such as direct blow to the humeral head, fall on an outstretched arm, or motor vehicle collision.

It is secondary to epileptic seizure or electrocution. A CT scan is used to determine the treatment strategy by quantifying the size of humeral head defect and identifying associated fractures.

Reconstruction of the RHS with Allograft or autograft has higher reoperation rates and complications such as head necrosis and graft resorption.

Arthroplasty (hemi or total) is a valuable option in cases of major reverse Hill-Sachs lesion in older patients.

The current procedure used is modified remplissage technique is easy and reproducible. This is the first report of modified technique. Compared to standard techniques the benefits are a perfect exposure to reduce a locked shoulder, no significant shortening of the subscapularis tendon (only the inferior part), only little reduction in abduction and external rotation, and no need for further surgeries (like subcoracoid space decompression or hardware removal).

This is a good alternative between arthroscopic and large open procedures and avoids jeopardizing the anatomy for potential future surgical treatments.

It should be reserved for very specific patients with a chronic posterior locked shoulder (even with large RHS lesion) and high functional expectations.

Conclusion: A case of posterior dislocation was successfully managed with Modified Reverse Remplissage Procedure.

Reference:

Zwiebel X et al. A Modified Reverse Remplissage Procedure for Management of a Locked Posterior Shoulder Dislocation. Case Reports in Orthopedics. 2020; 8625368: 1-5 pages.

IN THE NEWS

Portable X ray receives FDA clearance



Portable X-ray system that could be particularly useful for quickly obtaining chest X-rays of COVID-19 patient.

Device is around 2.5 Kg and resembles a large digital camera with a touchscreen. It acquires images with the push of a button and can wirelessly transmit them to PACS (clinical image storage system), without the need for a computer.



Battery charges within two hours and can capture up to 300 exposures per charge. Its portability has already made it useful in drive-through screening.

Device is simple to use, and the integrated software and portable features allow them to work outside of the limitations of traditional X-ray solutions.

Reference:

Available at: <https://www.medgadget.com/2020/05/airtouch-portable-x-ray-receives-fda-clearance.html>. Accessed on 22-06-2020.



This scientific input is prepared from the Department of Medical Services, an initiative of M/s Micro Labs Limited under the aegis of Micro Knowledge Academy. The information contained herein is for education purpose only. The content is developed by compiling information from various authentic and published literatures. Although great care has been taken to assure the accuracy of the publication, M/s Micro Labs Limited shall not be responsible or in any way liable for any inaccuracy, errors, or omissions resulting from negligence or otherwise howsoever or any consequences arising there from. In spite of best efforts, the information in this publication may become outdated over time. M/s Micro Labs Limited shall not be responsible in any manner whatsoever, for any action taken, opinions expressed, advice rendered or accepted, any direct, incidental, special or consequential loss and damage caused on the basis of any material or information presented in this publication / update