case of small coracoid graft.

Data: Open Latarjet using one-screw fixation achieves a high rate of graft fusion. The percutaneous Latarjet procedure is a surgical option for patients with anterior shoulder instability and is particularly indicated for patients with glenoid bone loss. The efficacy of this surgery is especially related to the fusion of the coracoid graft in good position. With this in mind, it is usually recommended to use 2 screws to obtain a satisfactory bone union. However, the coracoid graft is sometimes small in some patients and the risk of graft fracture is real. In addition, the use of two screws reduces the cancellous surface area, which decreases the cancellous bone contact between the glenoid neck and the graft. The aim of this study was to evaluate the fusion rate of the coracoid graft after mini-open Latarjet using only one-screw graft fixation. Methods: The study design was a retrospective series of 45 shoulders operated for an anterior traumatic shoulder instability with mini-open Latarjet procedure. The coracoid graft was fixed with one 4 mm diameter half-threaded cancellous screw with washer. All patients were operated by the same surgeon. As a postoperative protocol, anteroposterior, X-rays and CT scan were performed 3 months after the surgery for evaluation of the fusion of the coracoid bone graft with the objective to authorize the return to sport activity. All 45 shoulders were assessed by X-rays and CT scan. The criteria for fusion was a complete bone bridge on CT Scan between the coracoid graft and the glenoid neck. Results: The average age of the patients was 32 years (23 to 55). No complications were observed, particularly no coracoid graft fracture happened. The mean time between the surgery and the CT Scan evaluation was 2.7 months. Bone union was achieved in 44 patients (97%). Only one patient did not consolidate his graft at this time. Conclusion: One-screw fixation in the Latarjet procedure is an alternative to double screw fixation. It allows a high rate of fusion at 3 months. This technique can be used safely particularly if the surgeon judges that there is a risk of graft fracture like in case of small coracoid graft. Study level: 4.

Category: Shoulder - Instability

The Long Head Of the Biceps Tendon Does Not Provide A Clinically Significant Contribution To Anterior Glenohumeral Stability Even In the Setting of Glenoid Defects

Abstract ID#: 22433
All Authors: Alexander Otto MD GERMANY
Lauren K Szolomayer MD UNITED STATES
Joshua B. Baldino PharmD UNITED STATES
Mark P. Cote PT, DPT, MSCTR UNITED STATES
ELIFHO OBOPILWE ME, BSc UNITED STATES
Andreas B. Imhoff MD, Prof. Emeritus GERMANY
Sebastian Siebenlist MD, MHBIA, Prof. GERMANY
Augustus D. Mazzocca MS, MD UNITED STATES
Julian Mehl MD GERMANY

Summary: This biomechanical study evaluated the stabilizing effect of the long head of the biceps tendon and observed no clinical relevant contribution to glenohumeral stability.

Data: Purpose: The long head of the biceps tendon (LHBT) has been implicated as a common source of pain in the shoulder, but there is no consensus as to its effect on glenohumeral stability. The purpose of this study was to investigate the stabilizing effect of the LHBT in anterior glenoid defect models to determine if it contributes to anterior glenohumeral joint stability. Methods: Twenty-four frozen cadaveric shoulders (age 60.1–8.6 years) were randomized to 3 different defect groups (isolated soft-tissue Bankart lesion, 10% anterior glenoid defect, 20% anterior glenoid defect) which were mounted in a shoulder-testing system allowing 6 degrees of freedom. Glenohumeral translation was measured in the vulnerable ABER position by a 3D-digitizer as the difference between the start and end positions in the XY-plane after an anterior force was applied. Each specimen was tested under 18 conditions: 3 glenoid states (native, defect, repair), 3 anterior loads (20 N, 30 N, 40 N), and 2 LHBT tensions (0 N, 10 N). A linear mixed-effects model was generated to determine the effect of LHBT tensioning on glenohumeral stability. Results: LHBT load had a statistically significant, but negligible, effect on glenohumeral translation in the anterior-posterior direction, decreasing it by 0.03 mm/N (72(1) = 5.87, p = 0.0154, 95% CI: [-0.06, -0.006]). There was no significant effect of LHBT tensioning in the superior-inferior direction. Conclusion: In the context of soft tissue Bankart lesions and anterior glenoid bone defects up to 20%, load on the LHBT confers some anterior-posterior stability to the glenohumeral joint, although this effect is so small as to not be clinically significant. The LHBT does not contribute to superior-inferior stability. Consequently, biceps tenotomy or tenodesis is a viable treatment for biceps pain in the setting of concurrent instability with a low probability to increase adverse events as glenohumeral instability.

Category: Shoulder - Instability

The Swing Test - Usefulness of a New Functional Examination to Evaluate Change of the Defensive Muscle Tonus of Thorax in Response to Anterior Shoulder Instability

Abstract ID#: 22732
All Authors: Yasunari Fujii MD JAPAN
Hironori Kakoi MD JAPAN
Hideyasu Kaieda Assistant Professor JAPAN
Toshikiko Iizumi MD,PhD JAPAN

Summary: We introduce the Swing test (ST), which is a new functional examination to evaluate change of the defensive thorax muscle tonus in response to anterior shoulder instability. Irrespective of sense of apprehension, in cases with the positive ST, when examiners tried to rock subjects’ shoulder back and forth, their shoulder was not swung at all due to defensively increased thorax muscle tonus.

Data: Purpose: Shoulder disorders, such as rotator cuff tear, throwing shoulder injury, and instability are greatly correlated with scapular dyskinesis and other disorders of thorax, spine, and hip which cause a malfunction of kinetic chain. However, improvement of kinetic chain by conditioning of these disorders has a good effect on keeping a good shoulder condition and preventing shoulder injuries. Proprioceptive function by the central nerve system plays an important role in preventing shoulder instability using the feedforward system which makes shoulder abductor muscles contracted beforehand. We introduce a new functional method, the Swing test (ST) based on this feedforward system to evaluate shoulder instability quantitatively. Methods: We evaluated 25 shoulders with anterior shoulder instability using the ST (the mean of age with 25.3yrs). The ST evaluates change of thorax muscle tonus such as pectoralis major and latissimus dorsi during the anterior apprehension test which is a defensive reaction to avoid anterior shoulder instability. In cases with the positive ST, the thorax muscle tonus at instability side was clearly increased, irrespective of sense of apprehension. When examiners tried to rock subjects’ shoulder back and forth at the anterior apprehension test, their shoulder was not swung so well, while at healthy side, as the thorax muscle tonus was relaxed, their shoulder was swung well. At the time when they feel severe pain and apprehension against passive swing, especially around 90 degrees abduction and external rotation, their shoulder was not swung at all owing to high thorax muscle tonus of thorax and trunk. Increased trunk muscle tonus in cases with the positive ST could be improved as soon as either horizontal abduction or external rotation of the shoulder was slightly decreased, and their shoulder swung well like healthy shoulders. Results: All of the 25 shoulders showed the positive ST result. Especially, at 80–100 degrees’ abducted position they showed thorax muscle tonus was even higher than that at the other abducted position, and their shoulders did not move at all. Discussion: All our 25 all subjects exhibited the ST positive and in order to prevent anterior instability, defensive thorax muscle tonus was clearly increased and their shoulder was not moved against passive swing, especially around 90 degrees’ abducted position. The ST was one of the most useful tests to evaluate anterior shoulder instability functionally and quantitatively by comparing thorax muscle tonus between injured and healthy side during anterior apprehension test. This test enabled not only examiners but also subjects to evaluate change of shoulder swing following defensive thorax muscle tonus together, and so subjects can notice what position makes their shoulder unstable, which plays an important role in prevention of their shoulder anterior dislocation and subluxation.

Category: Shoulder - Instability

Analysis of Bipolar Bone defects Pattern in Anterior Shoulder Instability

Abstract ID#: 23317
All Authors: Maristella Francesca Saccomanno MD, PhD ITALY
Francesco DeFilippo MD ITALY
Marcello Motta MD ITALY
Marco Adriani MD ITALY
Mac Donald Tedah Djemeto MD ITALY