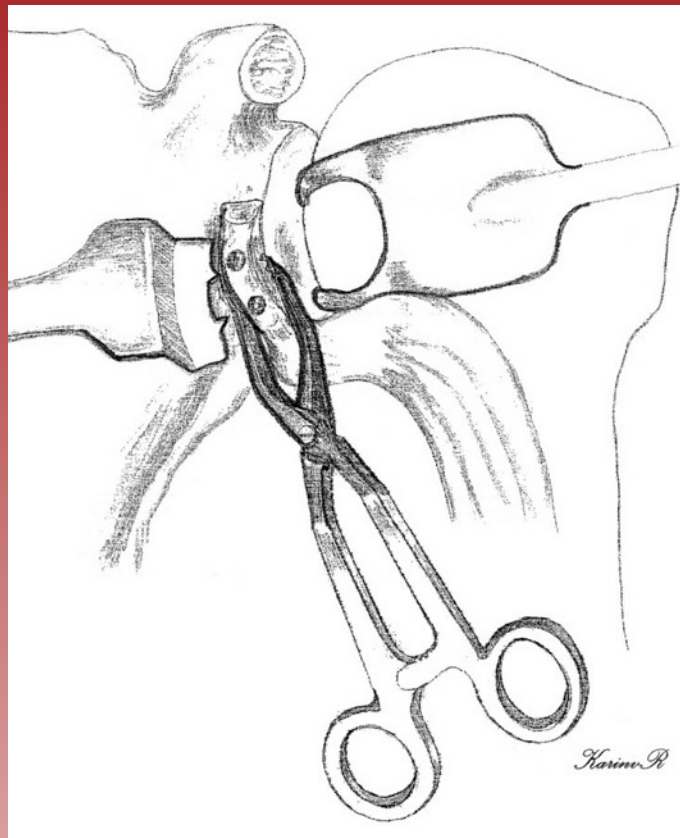


The Cape Town Modified Latarjet Procedure



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24-4315	Coracoid Osteotome, curved	24-6045	CT Glenoid Lever, double, 32mm
24-5914	Subscapularis Spreader	24-8712	Tray for Latarjet Sterilizing Case
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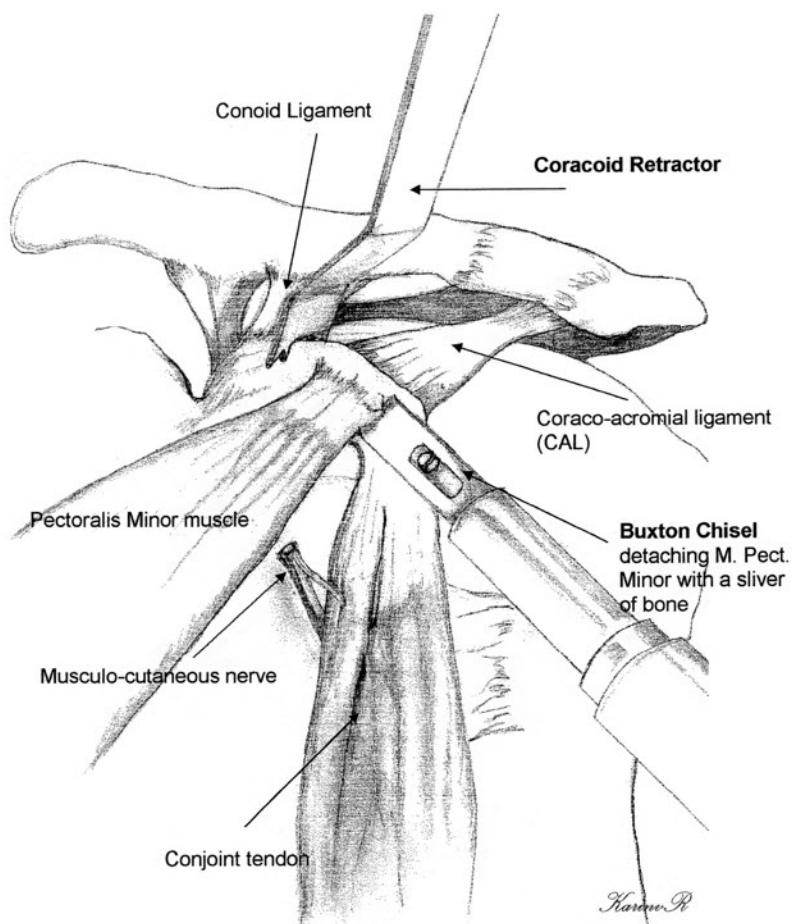
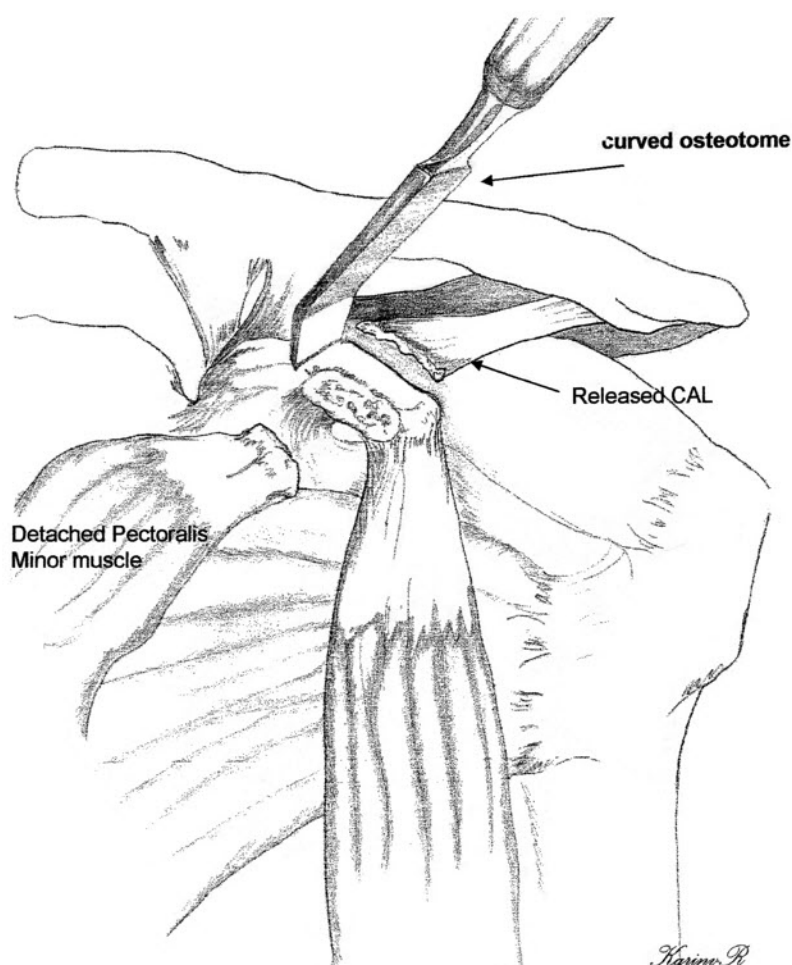


FIGURE 1

Using the Chisel with disposable blade, the pectoralis minor along with its sliver of bone attachment are sharply dissected from the medial aspect of the coracoid. This will provide the necessary bony interface in contact with the glenoid neck when fixing the coracoid graft to the glenoid. The coracoid retractor is placed on the superior surface of the coracoid to retract the soft tissue and aid in the exposure of the coracoid.

FIGURE 2

The curved osteotome is used to do an osteotomy of the coracoid at the most proximal aspect of the horizontal part of the coracoid.



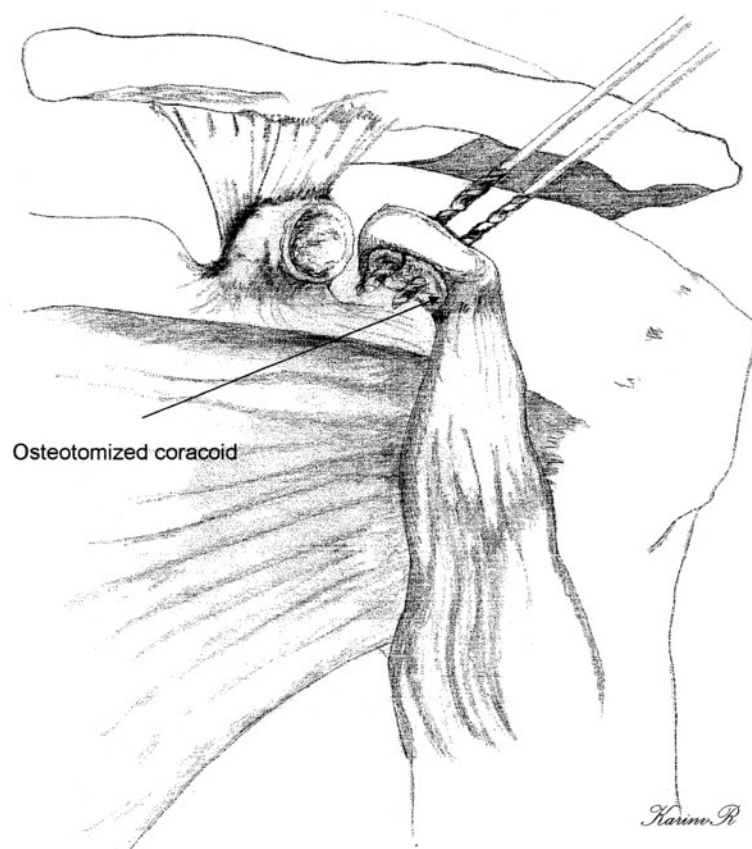


FIGURE 3

Two parallel holes, 2.5–3.0 mm in diameter are drilled through the severed coracoid. The holes are extended into the contact surface of the glenoid neck.

FIGURE 4

Access to the underlying capsule, joint line and glenoid neck is achieved by splitting the subscapularis muscle along its fibers lines using the special Subscapularis spreader.

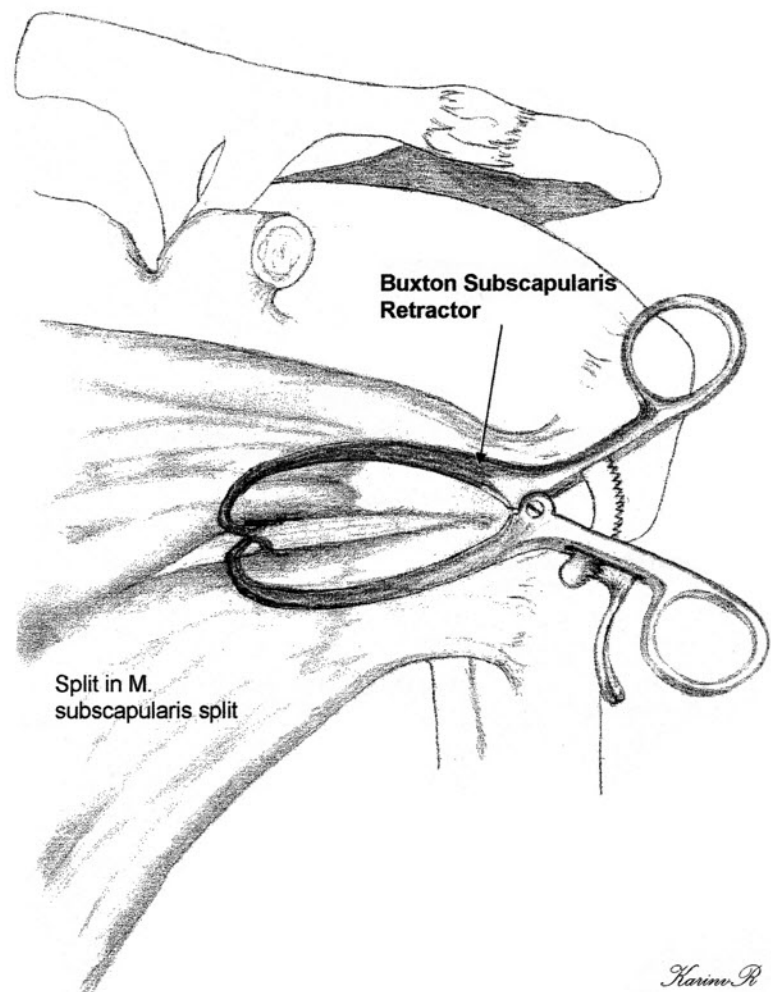


FIGURE 5

The Glenoid Rasp can be an invaluable asset when preparing the bony defect on the glenoid neck.

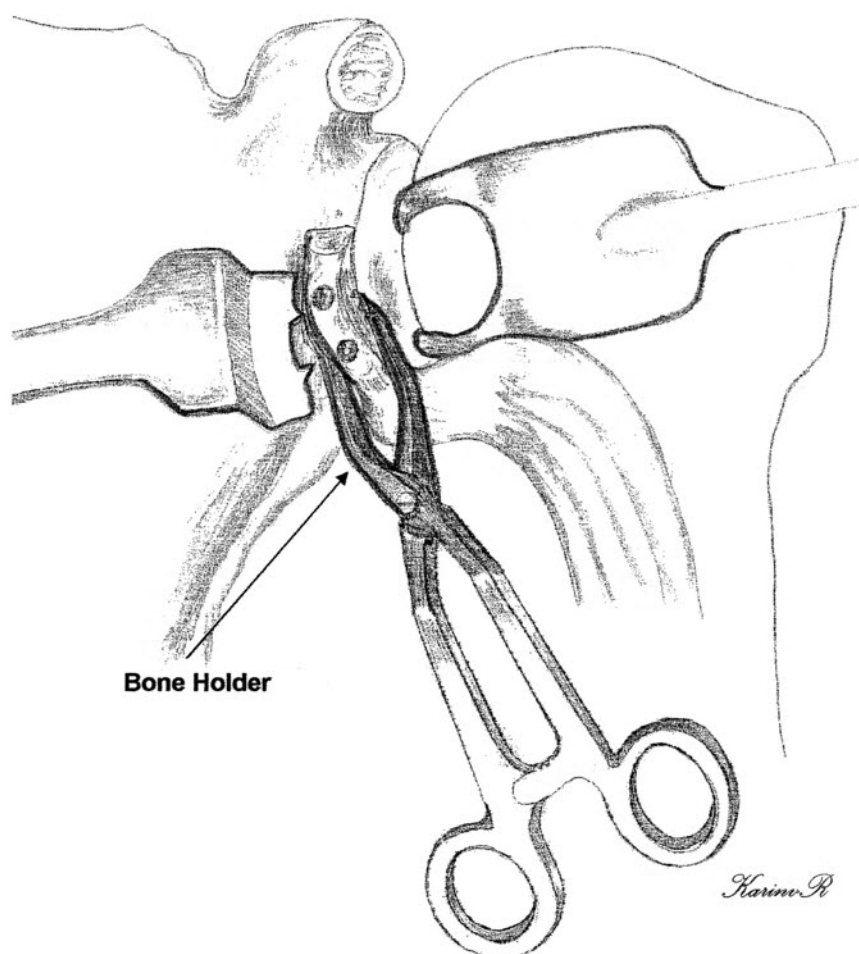
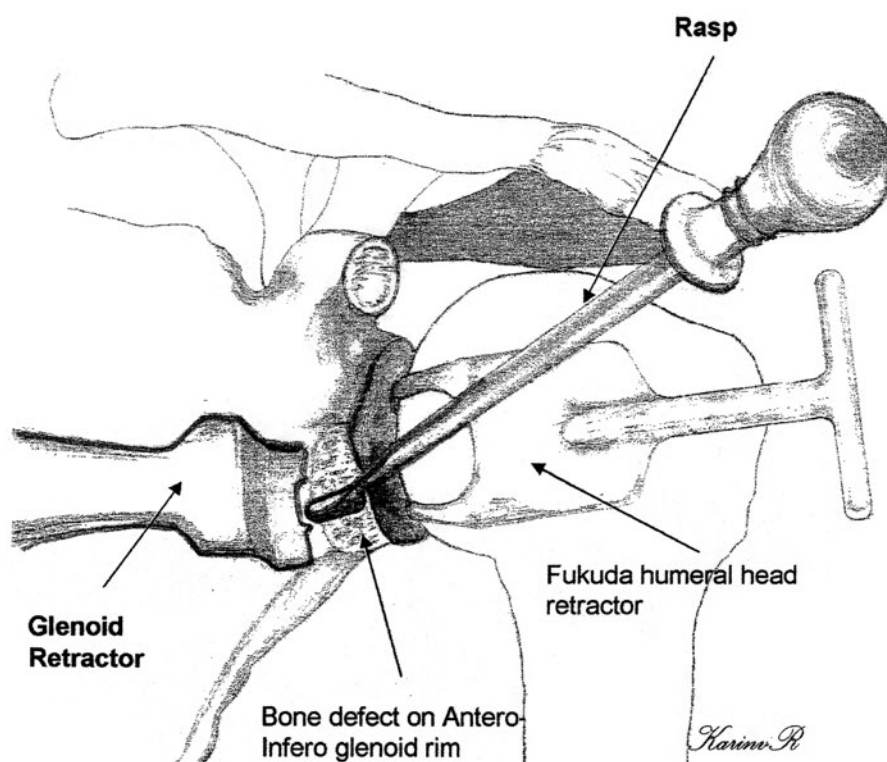


FIGURE 6

The coracoid graft is held in position on the glenoid neck with the coracoid clamp. Two screws are used to fixate the coracoid on the glenoid neck.

THE CAPE TOWN MODIFICATION OF THE LATARJET PROCEDURE

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Historical Perspective

Open stabilization procedures were, and are by many still, regarded as the “gold standard.” Criticism against the arthroscopic procedure is often based on reports of high failure rates¹.

The arthroscopic Bankart Procedure can be very successful in preventing recurrent instability and have a low complication rate. This, however, requires intensive attention to detail². Even if the surgeon masters this procedure, there are cases where the success rate is limited. Those are mainly cases with bony lesions^{3,4,5}, mostly of the glenoid and to a lesser degree of the humeral head.

The success rate of arthroscopic Bankart procedures relies upon:

1. Recognizing associated pathology like bony lesions, HAGL lesions and SLAP lesions.
2. Mobilizing the labrum-ligamentous tissue adequately.
3. Decorticating the glenoid neck.
4. Placing anchors at the glenoid surface, thus avoiding medialization of the repair.
5. Use enough anchors: 3-5.
6. Shifting the tissue superiorly and laterally.
7. Taking adequate bites of tissue – thus rolling the tissue into a “pseudo-labrum” (we refer to this as “labroplasty”).
8. Satisfactory knot tying technique.
9. Confirmation that adequate shifting of tissue has been achieved: Eliminate the postero-inferior pouch and wide rotator interval. These need to be addressed when necessary.

Bony Deficiencies^{3,4,5}

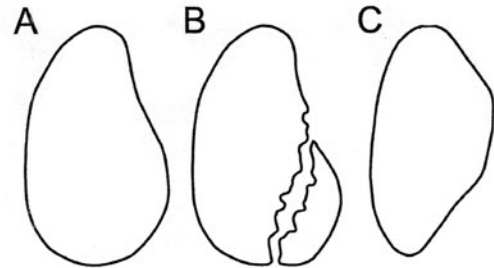
We evaluated the results of 194 arthroscopic Bankart repairs³, utilizing the above techniques, and particularly analyzed the 21 failures (redislocations) in the series. Fourteen of the 21 redislocations had significant bone defects (large “engaging” Hill Sachs lesions or large bony Bankart lesions with an “inverted-pear” configuration to the glenoid) – this compromised the mechanical structural integrity of the shoulder. Our adjusted recurrence rate (for shoulders without significant bone defects) was 4%. On the other hand, we

had 21 patients in the entire series with significant bone deficiencies and 14 of these had recurrent instability for a 67% recurrence rate in shoulders with bone deficiency.

Bony deficiencies are being increasingly recognized in patients with anterior instability. Griffiths et al⁶ showed variable flattening of the anterior glenoid in 42 of 46 shoulders that had previously dislocated. Sugaya et al⁷ examined 100 recurrently unstable shoulders and showed abnormal morphology in 90%. Fifty glenoids demonstrated an osseous fragment and forty had flattening of the anterior glenoid. Lo et al⁸ found an 'inverted pear' configuration of the glenoid in 11 of 53 consecutive arthroscopies undertaken for anterior instability.

Bony deficiency of the glenoid ("inverted pear")

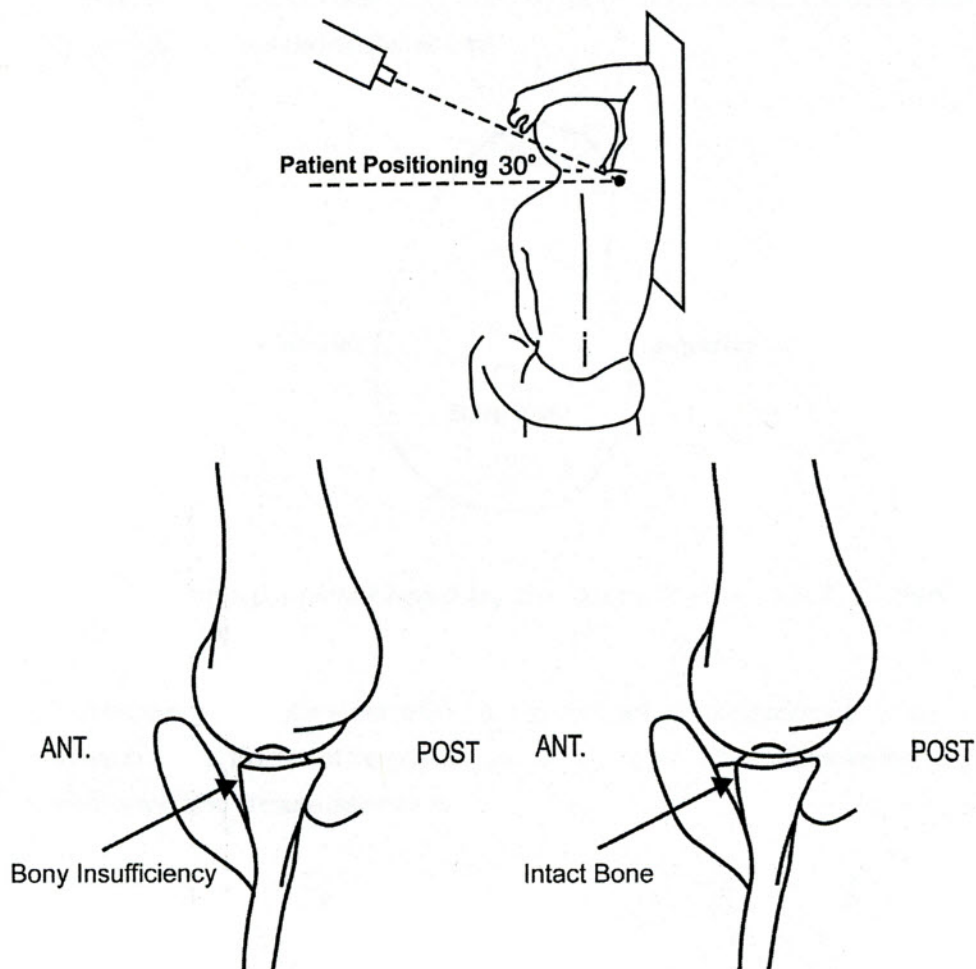
The glenoid, when viewed en face, has the shape of a pear, with the lower half being wider than the upper half (A). With a large bony Bankart lesion the shape can change to an inverted pear with the top half being wider (B). This can also happen with an impression (compression) defect (C).



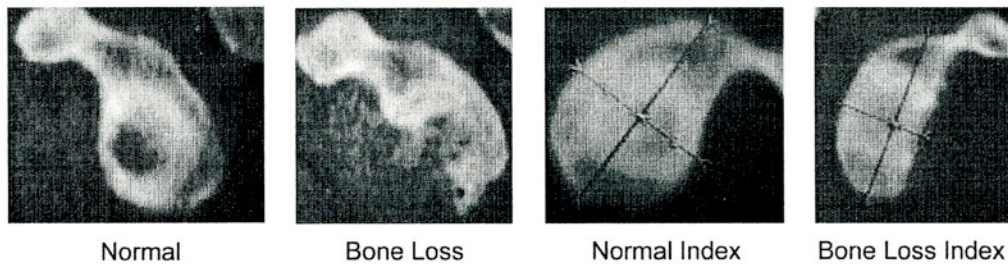
Assessing glenoid bone loss.

1. X-rays

Various views have been described, the Bergeneau view⁹ has been the most valuable to us, but like other X-ray views can be "radiographer dependent."

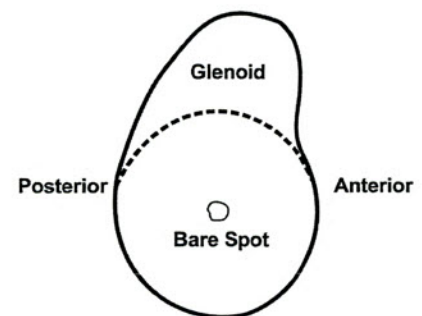


2. CT sagittal reconstruction can be accurate in determining the degree of bone loss:



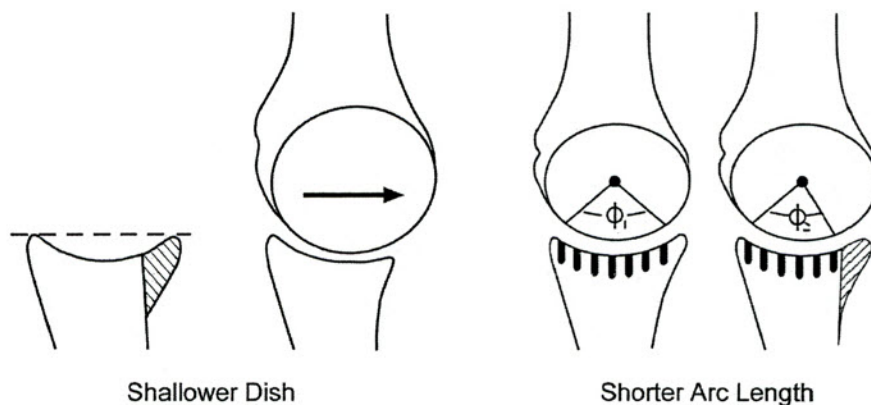
3. Arthroscopy

The bone loss of the glenoid can be accurately evaluated during arthroscopy. This was proven by ourselves in a recent cadaver and arthroscopic study^{10,11}. The bare spot of the glenoid, when viewed arthroscopically, was virtually equidistant to the anterior, posterior, and inferior glenoid rim. That is the bare spot was located in the centre of the inferior glenoid and therefore was a constant central landmark for assessing bone loss of the inferior glenoid. The distance from the centre of the bare spot to the anterior glenoid rim was 11.1 ± 0.91 mm (range, 9.0 - 12.0 mm). The distance from the center of the bare spot to the posterior glenoid rim was 11.4 ± 0.85 mm (range, 9.0 - 12.0 mm). The distance from the centre of the bare spot to the inferior glenoid rim was 10.7 ± 0.98 mm (range, 7.5 - 13.5 mm). The bare spot on the 10 cadaver glenoids revealed similar results.



Containment of the humeral head by the glenoid is a result of two geometric variables:

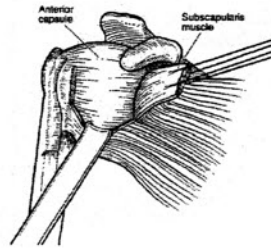
1. The deepening effect of a wider glenoid due to the longer arc of its concave surface – this serves to deepen the dish of the glenoid. Loss of part of the surface will cause the dish to be shallow and tend to cause dislocation:
2. The arc length of the glenoid: Axial humeral forces are resisted by the glenoid until the direction of the force vector passes beyond the edge of the glenoid. Such forces are then concentrated at the bone ligament interface and can cause a Bankart lesion.



Correcting the Inverted Pear: the modified Latarjet Procedure^{12,13}:

We prefer to reconstruct the antero-inferior glenoid with this procedure. A low bra-strap incision is made with a wide subcutaneous dissection to the top of the clavicle. The subscapularis is exposed through the

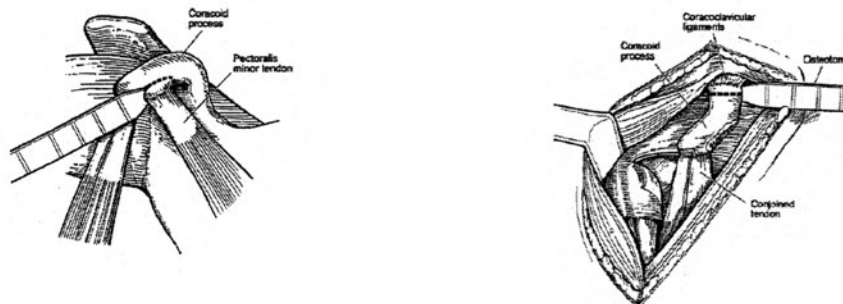
delto-pectoral interval. The top 40% of subscapularis is then divided and dissected from the capsule or the operation can be performed through a split in the subscapularis. In either case the capsule must be separated from the subscapularis to the glenoid neck medially and the six o'clock position inferiorly.



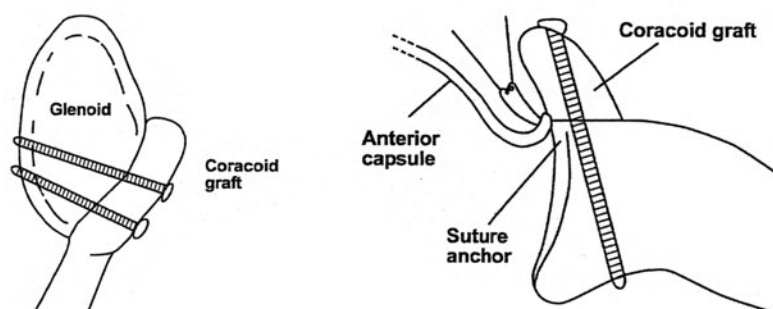
The capsule is then released along the interval and at the level of glenoid rim medially to the six o'clock position.



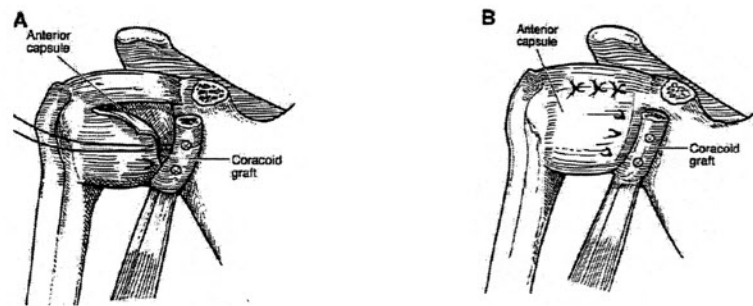
The defect in the antero-inferior edge of the glenoid is then rasped/burred to give a flat, bleeding bone surface. At this point attention is turned to the coracoid. The interval between pectoralis minor and coracobrachialis is open and the musculocutaneous nerve is identified and marked. The coracoacromial ligament is removed from the medial side of the coracoid. Pectoralis minor is then removed from the lateral side of the coracoid with a sliver of bone using a sharp chisel. An osteotomy of the coracoid is then performed between the pectoralis minor insertion and the attachment of the coracoclavicular ligaments.



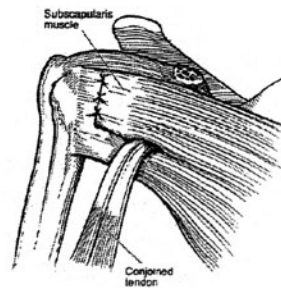
The coracoid graft is rotated about its long axis and the concavity of the coracoid lined up with the joint surface. This coracoid graft (2 – 3 centimeters) is fixed to the glenoid with two bicortical screws. It must be placed slightly medial to the glenoid rim. Here it creates a formidable arc length extension of the antero-inferior glenoid. The conjoint tendon is left attached, thus making it a vascularized graft with the tendon acting as an additional dynamic stabilizing sling during abduction and external rotation.



Suture anchors are placed on the edge of the original glenoid and used to repair the capsule thus placing the graft in an extra-articular position.



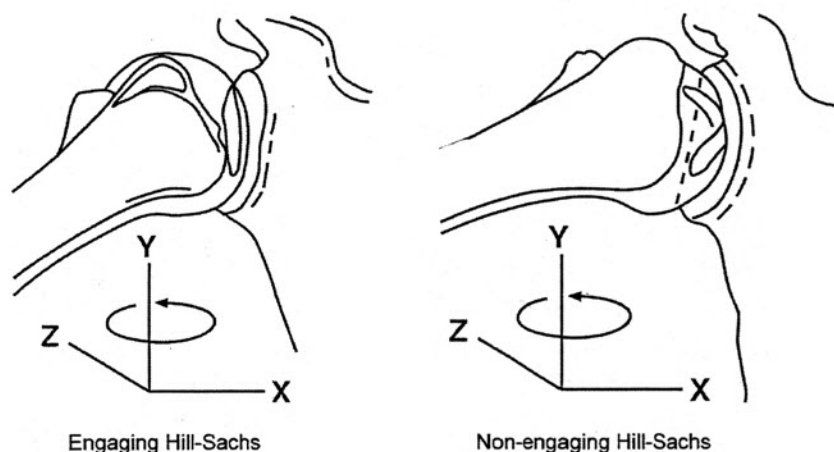
The subscapularis is then reattached to the humeral neck or the split closed. Pectoralis minor is reattached to the coracoid stump with the aim of maximizing functional recovery. This is deemed necessary as the operation is commonly performed in rugby players for whom scapular protraction is especially important.



The humeral side: the Hill-Sachs lesion as a cause of articular arc deficit^{14,15}

An “engaging” Hill-Sachs lesion is one that presents the long axis of its defect parallel to the anterior glenoid with the shoulder in a functional position of abduction and external rotation so that the Hill-Sachs lesion engages the anterior glenoid. This leads to a sensation of catching or popping and although the shoulder does not sublux it does lead to significant apprehension.

In a “non-engaging” lesion its long axis is at a diagonal angle to the anterior glenoid with the shoulder in a functional position of abduction and external rotation.



The engaging lesion can be managed by a capsular shift procedure, which restricts external rotation enough to prevent the engagement. Other options are to insert an osteo-articular allograft or to perform a Latarjet procedure to lengthen the articular arc.

Summary

The arthroscopic Bankart Procedure can be most successful provided that meticulous attention is given to surgical technique. However, bony lesions must be recognized and treated using more appropriate procedures. We can therefore not support the practice of "repair" of bony Bankart lesions based on the above findings.

References:

1. Walch G, Boileau P, Levigne C, Mandrino A. Arthroscopic stabilization for Recurrent Anterior Shoulder Dislocation: Results of 59 Cases. *Arthroscopy* 1995; 2: 173-179.
2. Ungersböck A, Michel M, Hertel R. Factors influencing the results of a modified Bankart procedure. *J Shoulder Elbow Surg* 1995; 5: 365-369.
3. Burkhart SS, de Beer JF. Traumatic Glenohumeral Bone Defects and Their Relationship to Failure of Arthroscopic Bankart Repairs: Significance of the Inverted-Pear Glenoid and the Humeral Engaging Hill-Sachs Lesion. *Arthroscopy* 2000; 7: 677-693.
4. Bigliani LU, Newton PM, Steinmann SP, Connor PM, McIlveen SJ. Glenoid rim lesions associated with recurrent anterior dislocation of the shoulder. *Am J Sports Med* 1998; 26: 41-45.
5. Itoi E, Lee SB, Berglund LJ, Berge LL, An KN. The effect of a glenoid defect on anteroinferior instability of the shoulder after Bankart repair: A cadaver study. *J Bone Joint Surg [Am]* 2000; 82:35-46.
6. Griffith JF, Antonio GE, Tong CWC, Ming CK. Anterior shoulder dislocation: quantification of glenoid bone loss with CT. *AJR* 2003; 180: 1423-1430.
7. Sugaya H, Moriishi J, Dohi M, Kon Y, Tsuchiya A. Glenoid rim morphology in recurrent anterior glenohumeral instability. *J Bone Joint Surg [Am]* 2003; 85(5): 878-884.
8. Lo IKY, Parten P, Burkhart SS. The inverted pear glenoid: an indicator of significant glenoid bone loss. *Arthroscopy* 2004; 20(2): 169-74.
9. Bernageau J. Examen radiologique de l'épaule normale. E.M.C. Paris. *Radio-diagnostic I/II*.
10. Burkhart SS, De Beer JF, Tehrany AM, Parten PM. Quantifying glenoid bone loss arthroscopically in shoulder instability. *Arthroscopy* 2002; 18: 488-491.
11. Tehrany AM, Burkhart SS. The bare spot: A method of evaluating bone loss in glenohumeral instability. Presented at the 20th Annual Meeting of the Arthroscopy Association of North America, Seattle, WA, April 20, 2001.
12. Latarjet M. Techniques chirurgicales dans le traitement de la luxation anterointerne recidivante de l'épaule. *Lyon Chir* 1965; 61: 313-318.
13. Du Toit DF, de Beer JF. Human Anterior Shoulder Instability: How much anatomical horizontal coracoid process is available for a Latarjet Reconstruction? Accepted as a paper for the South African Orthopedic Annual Meeting, September, 2002.
14. Arlet ME, Bojean M, Chavassieux P, Meunier PJ. Bone histology in adults with aseptic necrosis. Histomorphometric evaluation of iliac biopsies in seventy-seven patients. *J Bone Joint Surg [Am]* 1983; 65: 1319-27.
15. Ficat RP. Idiopathic bone necrosis of the femoral head. Early diagnosis and treatment. *J Bone Joint Surg [Br]* 1985; 67: 3-9.

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