

IAS NEWSLETTER



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ARTICLES IN THIS ISSUE

EXPERTS OPINE



Dr. Sachin Tapasvi

Isolated PL bundle reconstruction
Dr. Miten Sheth, Mumbai

Shoulder dislocations in elderly
Dr. Prahalad, Madurai

WHO GETS WHAT GRAFT IN PRIMARY ACLR?

Decide your graft based on the diameter of the tibial footprint, age & activity levels of the patient & associated injuries.

Choose the graft aiming to reconstruct at least 80% of the native ACL footprint

BPTB indications: Younger athletes, females, those with recurvatum, ligament laxity, with associated collateral ligament injury & for revisions.

Algorithm:

Assess ligament laxity; If Beighton's score < 4 , Plan a standard ACLR using BTB, CQT/Hamstring

If Beighton's score > 4 & Knee hyperextension is more than 10 degrees, Assess Quads thickness on MRI. If thickness is $> 7\text{mm}$ plan for CQT graft & if $< 7\text{mm}$ plan for a BTB.

ISOLATED POSTEROLATERAL (PL) BUNDLE ACL TEAR : DIAGNOSIS AND TREATMENT

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Case:

We discussed an interesting case of a 34 year old active athletic female with a non-contact, skiing injury to her left knee at Vail, Colorado, USA. Her acute post-fall scans and management (including bracing and physiotherapy guidance) were done there. She presented to our clinic four months later. Though she was able to walk comfortably, her predominant complaints were difficulty in running, negotiating stairs and turning directions. We took that as proxies for knee instability.

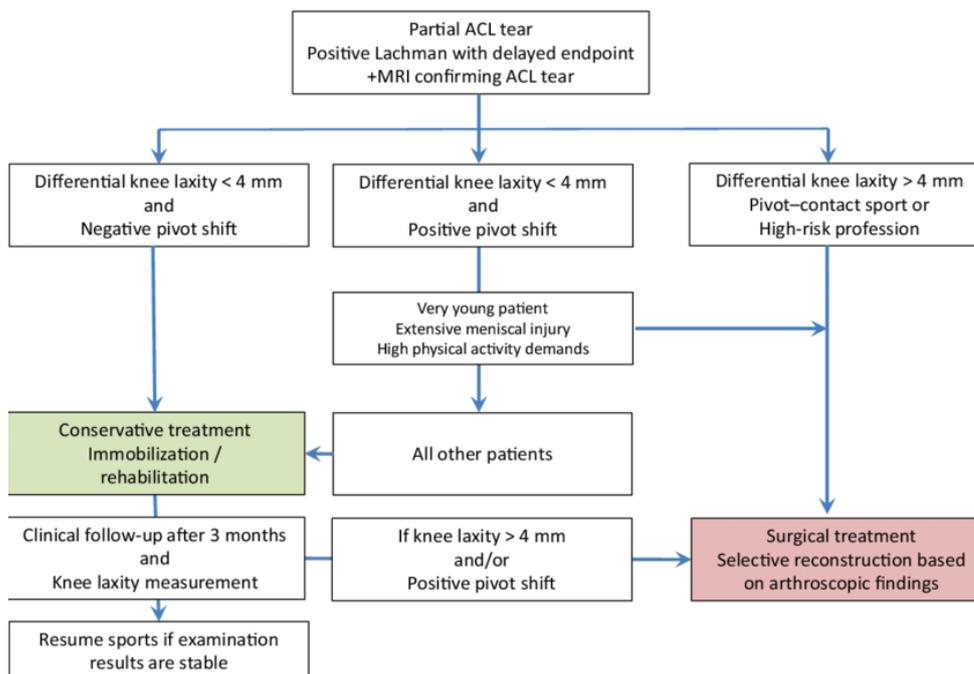
Partial ACL tears can be identified in 10% to 20% of all ACL injuries.

Management algorithm by Sonnery-Cottet is a useful guide in treating partial ACL tears.

On examination:

Patient had a normal BMI, neutral alignment of left lower limb with no hyperextension at the knee joint. The left knee had full, painless range-of-motion, no tenderness and no medio-lateral laxity. Her anterior drawer was similar to the opposite knee, Lachman was grade I-II and a pivot shift was just elicitable. Fresh MRI (1.5T) scans revealed a partial tear/ strain pattern to the ACL fibres, minimal pivot shift injury pattern at the lateral femoral condyle and no anterolateral capsular injury. All other structures appeared to be unaffected.

FLOW CHART FOR PARTIAL ACL TEARS



Images showing a possible PL bundle injury

Under anaesthesia, left knee examination revealed minimal anterior drawer, grade I-II Lachman with a firm end-point with a non-explosive pivot shift.

On diagnostic arthroscopy, in flexion, extension and figure of 4 position the anteromedial (AM) bundle of the ACL seemed morphologically and possibly functionally intact. Posterolateral (PL) bundle fibres seemed to have avulsed from the femur. On probing, the intact ACL fibres seemed to be lax in extension but taut in flexion. Based on the above findings, a decision was taken to go ahead with selective PL bundle reconstruction.

The femoral footprint was judged with different reamers inserted from an accessory AM portal and 7mm seemed appropriate. Next, the semitendinosus graft was harvested with a 2cm incision over the AM tibia. The graft was triplicated and prepared to a size of 7mm at the femoral end and 7.5 mm at the tibial end. An adjustable loop was affixed at the femoral end, and sutures kept free at the tibial end. Inside-out femoral reaming was done (using accessory AM portal) and a 7mm tunnel was prepared to a depth of 20mm. Tip-aiming tibial guide was used with the tip placed behind the AM fibres at the footprint to prepare a 7.5mm tunnel exiting on the AM tibia. The loop followed by the pre-tensioned graft was pulled, from the tibial end, into the joint and then into the femoral tunnel. The graft was then tensioned again and fixed in closer to full extension with an interference screw at the tibial end. The integrity, tension and morphology of the reconstructed PL bundle, absence of impingement and anterior tibial translation, in flexion and extension, were checked at the end of surgery.

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Review of literature:

Literature search suggests that selective PL bundle reconstruction restores knee stability and function(1). Partial ACL tears can be identified in 10% to 20% of all ACL injuries(2). However, a standard definition of a partial ACL tear does not exist, and its diagnosis remains clinically challenging. Noyes et al(3) defined a partial tear on the percentage of ACL remnant while DeFranco and Bach(4) used a multifactorial definition. Preservation of the ACL remnant with reconstruction of the torn bundle seems theoretically beneficial in terms of vascularity, proprioception, and kinematics. Moreover, accelerated graft integration has been recently demonstrated in animal models. The mechanical benefit of preserving the ACL remnant bridging the femur and tibia is difficult to quantify, but several authors have demonstrated that such scar pattern seems to reduce anterior laxity(1).

A direct injury mechanism is probably involved more in an AM bundle tear than in a PL bundle tear. MRI is useful for detection of remnant ACL fibers. Clinically, the incidence of a preoperative grade 2 or 3 positive pivot-shift test is lower in case of an isolated AM bundle tear(5,6). A management algorithm to select treatment for partial tears has been described by B.Sonnery-Cottet and P.Colombet. The theoretical goal of preserving the ACL fibers and consequently partial reconstruction or augmentation is to improve clinical outcomes. This debate is still far from being settled and more research is needed.

Isolated PL bundle tear are rare injuries

ACL Isolated PL bundle reconstruction is done with the aim of restoring the native knee anatomy

Isolated bundle reconstruction versus a regular anatomical ACLR for single bundle tears is still debatable & requires further research

SHOULDER DISLOCATION IN ELDERLY PATIENTS

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Recurrent shoulder dislocations in older patients may have combined pathologies like anterior capsulolabral injuries such as a Bankart lesion or fracture of the glenoid rim and Hillsach's lesions apart from the cuff tear.

Outcome maybe better when additional pathologies are also addressed along with cuff repair.

The geometry of glenohumeral articulation permits great flexibility at the expense of intrinsic stability. This inherent instability makes the shoulder the most commonly dislocated joint in the body, which can lead to recurrent dislocations or subluxations. The shoulder can dislocate forward, backward, or downward, and completely or partially, though most occur anteriorly. Anterior dislocations account for over 95% of shoulder dislocations, nearly half of all shoulder dislocations occur in patients 15 to 29 years old. Anterior shoulder dislocation is also common in elderly population than generally believed. Around 20% of old patients suffer recurrent dislocation as compared to 90% in young and adolescent and 60% have a cuff tear following primary shoulder dislocation as compared to young who have more of capsulolabral pathology (Gumina S et al)(1).

The Incidence of dislocation increases with increasing age in elderly over the age of 50 years & women have a higher incidence, in contrast to men in the younger population(2)

In shoulder dislocation, the lesions associated with it and the frequency of recurrent dislocations are widely studied in younger and middle aged individuals while there is limited literature available on shoulder dislocation in older patients. Here we discuss our experience with shoulder dislocations in elderly patients.

Case 1:

A 65 year old male, sustained injury to his right shoulder and left wrist following RTA as a pillion rider. He was diagnosed to have right anterior shoulder dislocation with left distal end radius fracture. In Stage 1, shoulder dislocation was reduced under GA and distal end radius closed reduction & pinning was done. At 2 weeks follow-up examination, patient was unable to do any active movements though passive ROM were possible. Apprehension test and Jobses test were positive, there were no signs of axillary neuropathy or brachial plexus injury. Thus clinical diagnosis of Pseudo-paralysis was reached as in a pan cuff tear. MRI showed a full thickness tear of supraspinatus and infraspinatus with retraction and tendon gap measuring 1.5 cm. Near complete rupture of long head of biceps and biceps labral anchor with medial dislocation and complete rupture of subscapularis was noted.

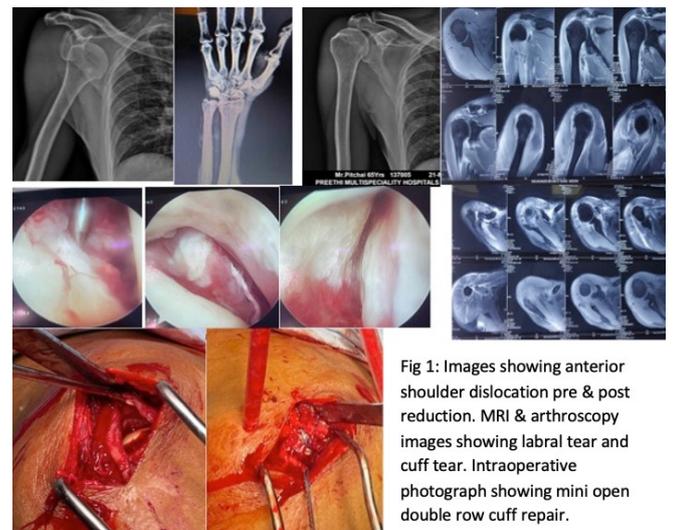


Fig 1: Images showing anterior shoulder dislocation pre & post reduction. MRI & arthroscopy images showing labral tear and cuff tear. Intraoperative photograph showing mini open double row cuff repair.

Patient was taken up for right shoulder arthroscopy, in beach chair position standard posterior, anterior & lateral shoulder arthroscopic portals were made. Massive cuff tear involving supraspinatus, infraspinatus and subscapularis was noted. LHB tendon was found to be torn & non retrievable. However, the anterior labrum was intact. Subacromial decompression was done. Mini open rotator cuff double row repair was performed. Standard rehab protocol for cuff repair is followed

Case 2:

A 60 year old female, sustained right shoulder anterior dislocation following a domestic fall, for which close reduction was done and sling was given. This patient had pre-existing cuff tear before the episode of dislocation. On examination 2 weeks later though pain and swelling reduced, active assisted range of motion was possible only upto 0-80° of abduction and 0-70° of flexion and with restricted rotations. Apprehension test and Jobs relocation test was positive. There were no signs of axillary neuropathy or brachial plexus injury.

MRI showed Full thickness tear of supraspinatus and infraspinatus with retraction measuring 2.4cm with mild atrophy. Partial tear of upper fibres of subscapularis was also noted. The antero-inferior glenoid labrum was also avulsed. Hillsachs defect was also noted with depth of the defect measuring 0.61cm and diameter measuring 1.53cm. Glenoid bone loss index 18%.

Patient was taken up for right shoulder arthroscopy in beach chair position, standard shoulder arthroscopic posterior, anterior and lateral portals made. Biceps anchor was found to be intact, anteroinferior capsulolabral avulsion was present. Bankarts repair, biceps tenotomy, mini open double row cuff repair & subacromial decompression was done. Patient at 4 weeks post op was able to do active ROM upto 90 Abduction and forward flexion.



Fig. 2: Images showing anterior shoulder dislocation pre & post reduction. MRI, arthroscopy & intra-op images showing labral and cuff injury & subsequent repair.

Our data:

We had a case series of 15 cases from 2018, Age wise distribution and procedures done have been summarised in Figure 3 & 4.

All our patients are having excellent outcome, none of the patient has any recurrence, no axillary nerve involvement.

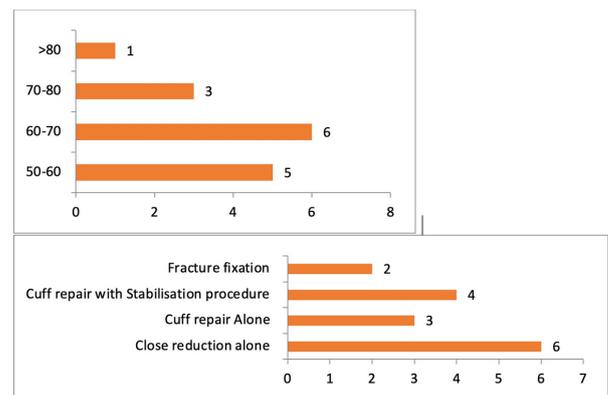


Fig. 3 & 4 show age wise distribution of patients & the treatment given

Review of literature:

Recurrent anterior shoulder dislocation in the elderly is not as exceptional as it was once thought to be. It is well accepted that anterior shoulder dislocation in older patients is caused by a rotator cuff tear. However, in patients with recurrent shoulder dislocations, combined pathologies like anterior capsulolabral injuries such as a Bankart lesion or fracture of the glenoid rim and Hillsach's lesions may coexist(5). Hovelius et al.(6) tried to explain on a patho-anatomic basis for the declining recurrence rate with advancing age. They found low recurrence rate in cases associated with tuberosity fractures, even in young patients. But they are rare in young, which suggests that in youth the initial dislocation disrupts the anterocapsular structures at the glenoid side of the joint, whereas with age disruption may occur at the humeral side. Poor healing predisposes to recurrence due to disruption of anterior mechanism. Araghi et al(7) observed that anterior capsular lesions included capsular tears, rotator cuff interval defects and humeral avulsion of the glenohumeral ligament lesions in patients older than 40 years after shoulder dislocations. Mizuno et al (8) found that 55.6% of patients older than 50 years with shoulder dislocations had complete capsular tears. The prevalence of anterior capsular lesions are common than isolated Bankarts lesion in older patients with shoulder instability.

It is suggested that anterior stabilising structures and rotator cuff should be repaired simultaneously whenever possible. Porcellini et al(9) repaired both capsular and rotator cuff lesions in a series of 50 patients, and postoperative outcomes improved significantly. Ji et al (10) studied patients older than 50 years with shoulder dislocations combined with massive rotator cuff tears and intact labral tissue and arthroscopic rotator cuff repair achieved satisfactory functional outcomes and ROM without recurrence of dislocations. To conclude anterior shoulder dislocation is not uncommon in elderly population, 20% of old patients suffer recurrent dislocation, 60% have a cuff tear following primary shoulder dislocation, around 9% have axillary nerve involvement that recovers most often. Recurrent dislocation may have additional capsulolabral pathologies when addressed appropriately will have satisfactory outcome.

Cuff tear is the most common cause for recurrence after shoulder dislocation in elderly.

Tears of anterior capsulolabral complex, glenoid rim fractures, hill Sachs defect are not uncommon associations.

Addressing these lesions along with cuff repair maybe beneficial to the patient.

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