Anterior Shoulder Instability – What I do and why

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History

- In many cases diagnosis of shoulder instability established by history alone

- Injury factors:
  - injury mechanism (arm position, extent of force involved)
  - subluxation versus dislocation and whether reduction required
  - incidence ‘dead arm’ / neurologic symptoms
  - treatment if any
  - interval symptoms / number of recurrences

- Patient factors :
  - age (especially adolescent)
  - hand dominance (often non-dominant arm)
  - current sports participation (contact / collision sport, where in season)
  - plans for future sports participation

Examination

- Only finding may be pain +/- apprehension in provocative arm position (reproduction of patient symptoms)

- Examination factors:
  - ROM and strength of rotator cuff
  - neurology especially axillary nerve function
  - assessment of laxity contralateral side
    (Beighton score, sulcus sign, Gagey hyperabduction sign)
  - assessment of stability ipsilateral side
    (anterior and posterior apprehension and relocation, O'Brien's test)

- • Generally do not find other tests helpful in the awake patient

Plain Radiographs

- Always want plain radiographs (pre and post reduction)
- Standard views (scapula AP, lateral, axillary) can be augmented with additional views but I never request these



- Advanced imaging studies usually always required in order to allow accurate assessment of joint and in surgical decision making

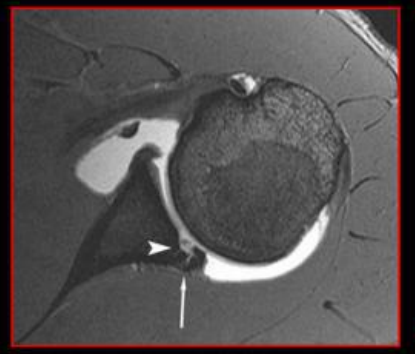
What I Know

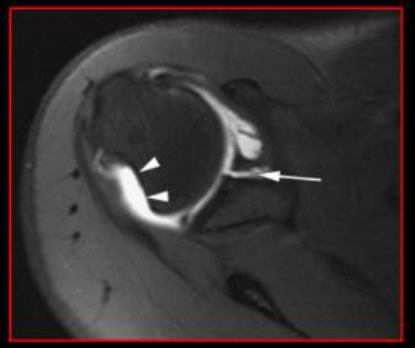
- Not all patients will report a history of subluxation or dislocation event
  - usually from a direct impact shear type of injury to shoulder
  - usually will report a dead arm
  - usually will have non-specific symptoms and signs

- Instability pathology more variable and complex than previously reported

- Bony lesions almost always present

- Associated pathology not uncommon

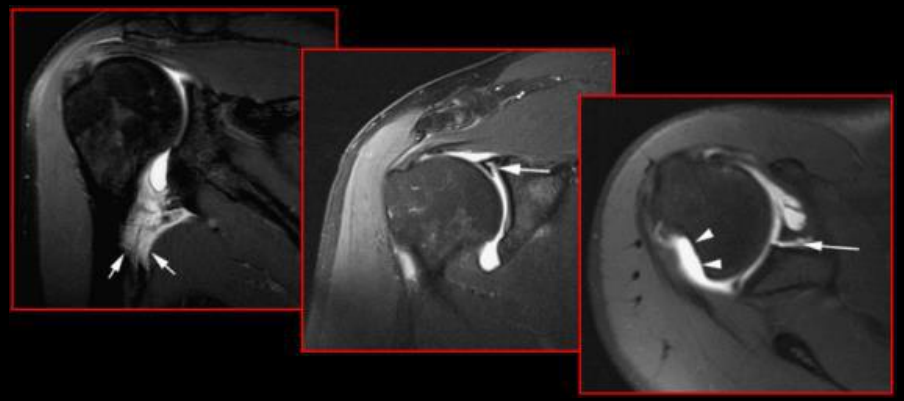




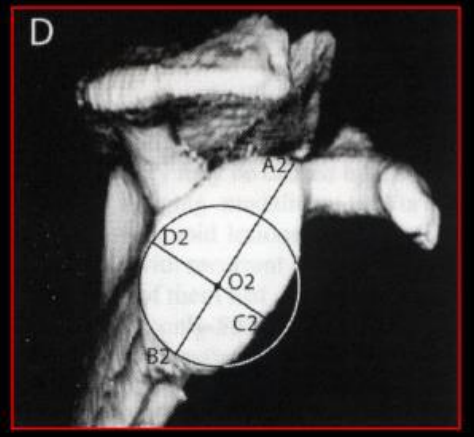
MR Arthrography

- • Undertaken in majority of patients, especially for first time instability events, cases with no ‘documented’ dislocation, and in patients with multiple recurrences
- Used to assess extent of structural damage in joint, occasionally to assist with surgical indication but mostly to assist with surgical planning
  - primarily for soft tissue definition but also helpful even for bony elements

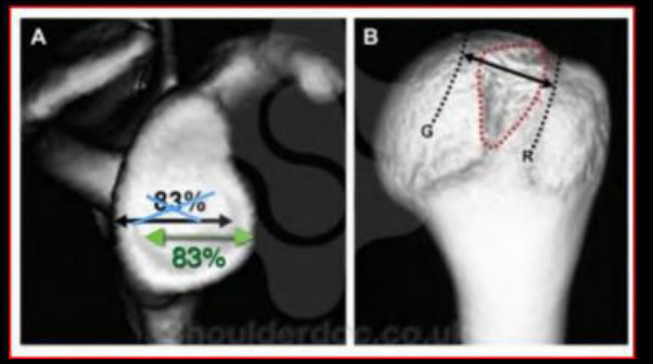
- Spectrum of abnormalities may be seen (distinguish from normal anatomical variants)
- Need high index of suspicion as certain labral lesions can be subtle or negative



CT Scan



- Appreciate that CT scan (ideally with 3D reconstruction +/- bilateral enface views of glenoid) best for assessment of glenoid and/or humeral head bone loss
- Also best for determination of glenoid track



<u>However</u>

- Do not obtain CT scan routinely in cases of anterior instability (cf. posterior) (only if feel need to better define areas of bone loss)
  - additional cost and radiation exposure
  - do not think of glenoid bone loss in terms of strict percentages
  - do not think of Hill Sachs lesion in terms of glenoid track

First Time Dislocation

- Immediate surgical management not indicated in all patients
  - no clear guidelines regarding patient selection
- Patient age, type and level of sport, presence and extent of structural pathology on imaging studies important
- Majority of patients will want to trial nonoperative treatment in first instance (often I do not even see them)
- Surgical treatment good option for high risk patients and professional athlete
  - sporty adolescent, representative contact/collision athletes, elite athletes

My Thoughts

- • Conditions for surgery optimal after first dislocation
  - ideal healing environment for soft tissue repair
  - reduced capsular stretch
  - reduced collateral pathology
  - technically more straight forward
  - lower recurrence rate compared to athletes with multiple dislocations

- Early surgery also prevents progressive bone loss and damage to other structures that invariably occurs with multiple recurrences

- Many of these patients will be suitable for arthroscopic repair

Recurrent Instability

- Decision making complex and multifactorial
- My aim has always been to identify and treat all aspects of a patients pathology in a way that allows a reliable return to all normal activities
- In the past this usually meant an arthroscopic soft tissue stabilisation procedure, even in the contact/collision athlete

<u>However</u>

- In the last 5 years my management on this has changed ….

My Experience

- No question that arthroscopic stabilisation does provide a better return to sport and better subjective perception of the shoulder compared to open and/or bony procedures

<u>However</u>

- No question that recurrence rate after soft tissue stabilisation procedures (arthroscopic or open) much higher than when compared to bony procedures, especially in younger age groups

- Results also tend to deteriorate over time

Last 5 Years

- Better understanding of my own patient population - majority contact/collision athletes

- Better understanding of glenoid and/or humeral head bone loss
  - important cause of failure after soft tissue repair
  - associated with age at first dislocation (adolescent), recurrent dislocation, number of dislocations, male gender, and type of sport
  - even small deficiencies in contact/collision athlete significant

- Better understanding that soft tissue repair alone may not be adequate for long term stability in certain patient groups

My Thoughts on Age

- Young age is a significant risk factor for recurrence

- Most likely to be due to patients ‘maturity’
  - less developed co-ordination
  - less developed proprioception (non-dominant arm)
  - less developed muscle strength
  - inferior techniques during contact/collision events
  - poorer compliance with post-operative rehabilitation

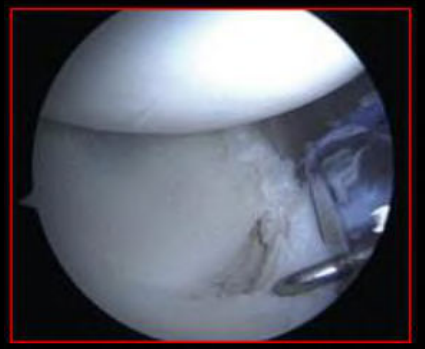
- Also greater likelihood of off-track bipolar shoulder bony lesions (seem to get more significant pathology)

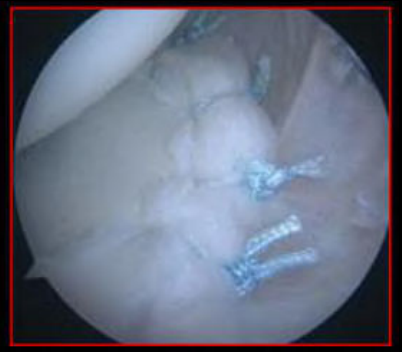
What I Do Now

Low Risk Patients

- Arthroscopic stabilisation still has role
  - impact shear type injuries (labral lesions without inherent instability)
  - first time dislocation events
  - posterior and combined labral tears > 270 degrees
  - low demand patients > 20 years who do not participate in contact/collision sport and have no significant glenoid bone loss

- Key to success relies on identifying all pathology and appropriate surgical technique



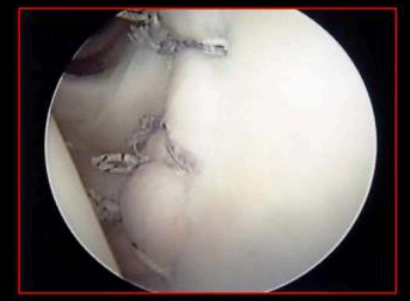


My Technique

- Always perform surgery in beach-chair position

- Always perform “balanced” repair
  - trans-subscapularis 5 o’clock portal for anchor insertion
  - minimum 3 anchor repair anteriorly
  - double loaded tied anchors below 3 and 9 o’clock
  - posteroinferior anchor plication in majority
  - posterior portal closure

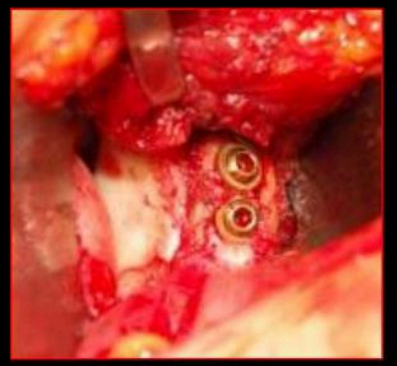
- Ignore small Hill Sachs lesions
- May add arthroscopic remplissage for moderate sized non-engaging Hill Sachs lesions (in non-throwers)

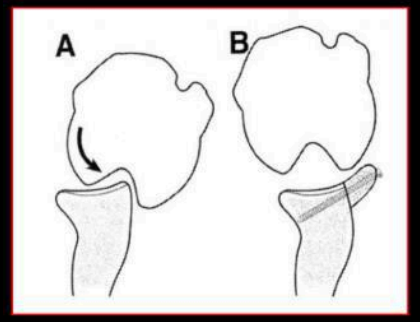


What I Do Now

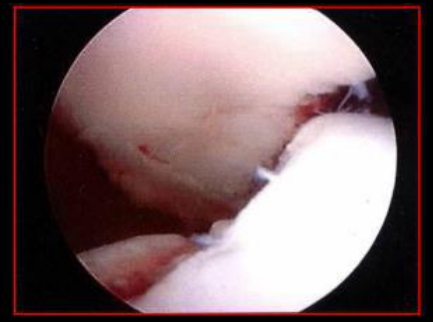
<u>High Risk Patients</u>

- Prefer open Latarjet procedure
  (many contact/collision athletes now ask for)
  - age < 20 years and playing contact/collision sport,
    especially if non-dominant arm
  - elite athlete
  - history of multiple dislocations requiring reduction
  - ALPSA lesion
  - glenoid bone loss or erosion > 10%
  - large and/or medial Hill-Sachs lesion
    (widens glenoid track to prevent engagement)
  - almost any revision procedure (especially if my own)

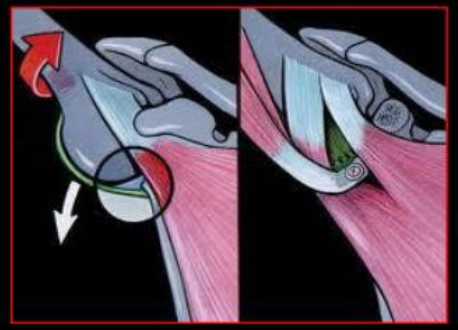




My Technique



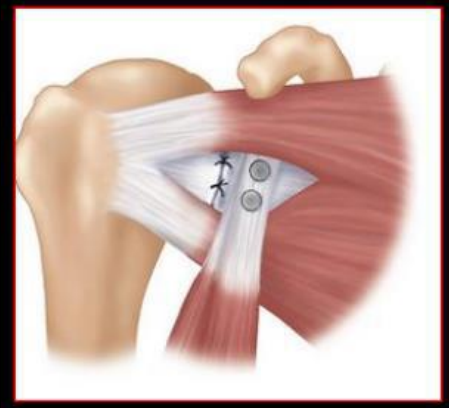
- Always perform initial arthroscopy to assess joint and deal with any concomitant pathology



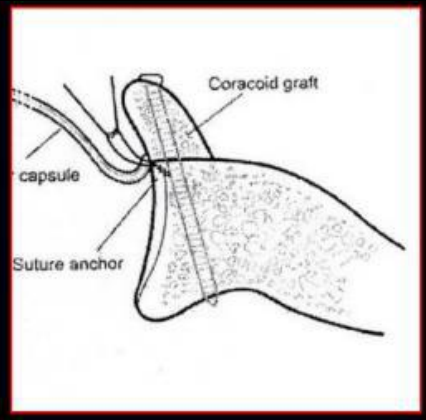
- When minimal glenoid bone loss (< 15%) graft can be subject to high rates of osteolysis which may affect clinical outcome
  - in these cases perform traditional Latarjet where sling effect most important

- When glenoid bone loss is significant (> 20%) may perform congruent arc modification of Latarjet

My Technique



- Always perform Latarjet open through subscapularis split
- Always utilise all of coracoid process, and always use 2 screws for fixation (terminally threaded 4.0 mm cancellous small fragment screws)
- Always repair capsulolabral tissue to native glenoid (using suture anchors) to keep the graft extra-capsular
  - provides better subjective perception of shoulder
  and may reduce rate of late arthrosis



My Rehabilitation

- Initial goal to protect surgical repair site, minimise pain, and allow for soft tissue healing while gradually restoring glenohumeral passive ROM
  - polysling immobilisation minimum 4 weeks
  - pendulum, active wrist, hand and elbow ROM from day 1
  - passive supine FF and ER from 10 days
  - active waist level ROM and isometrics from 4 to 6 weeks

- Aim of subsequent rehabilitation is to gradually restore full, pain-free ROM, muscular strength and endurance, and then return patient to all normal activities
  - TheraBand strengthening from 8 to 10 weeks; gym based program from 12 to 16 weeks
  - eccentric strengthening, plyometric exercises and proprioceptive retraining from 16 to 20 weeks
  - sports specific training program initiated from 20 to 24 weeks (progressive contact program)
  - return to contact sport delayed ideally for 26 weeks