External Rotation Brace Combined with a Physiotherapy Program for First Time Anterior Shoulder Dislocators; a 2 Year Follow Up
2010 Bi-Annual SESA Closed Conference

DISCLAIMER

None of the authors have received any payment or consideration from any source for the conduct of this study.
Outline

- Effectiveness of Current Non Operative Management
- Anatomy of dislocation
- Our Implementation of the ER Brace
- Results at 2 years post Dislocation
- Conclusions
Non operative Management

- Younger age groups do poorly with conservative management after 1st time anterior dislocation.

- Hovelius et al demonstrated rates of redislocation and instability in the 12 - 40 years age group with 25 years follow up.
  - The management styles they studied were the conventional immobiliser sling vs. no management.
Hovelius et al JBJS Am 2008

- 229 SHOULDERS INCLUDED AT 25YRS

- 99 (43%) had not redislocated
- 17 (7%) redislocated once in 25 years
- 51 (22%) recurrent dislocations
- 62 (27%) had surgery
TREND

- ACUTE OPERATIVE REPAIR
- CONCERN FOR FURTHER INJURY WITH REPEATED DISLOCATION
- OPERATIVE REPAIR DOES NOT ELIMINATE REDISLOCATION RATE
- RESULTS OF ACUTE OPERATIVE REPAIR ARE GOOD
- BUT WILL TREAT PX WHO WOULD NEVER BE UNSTABLE UNNECESSARILY
Anatomy of Anterior Dislocation

Normal anatomy
Glenoid in continuity with labrum

Anterior Dislocation
Anterior inferior labrum traumatically removed from glenoid

Internal Rotation Position
Bankart Lesion separated from Glenoid

External Rotation position
Bankart Lesion adjacent to glenoid in position of ‘normal’ anatomy
With subscapularis m. providing opposition pressure
Purugia et al - JSES 1996

- 112 shoulders
- 1st time dislocators
- 2 groups
- Gp1 - desault bandage 3 wks - 74% redislocation
- Grp2 - shoulder spica 60 deg abduction - 21% redislocation rate
ER position caused subscap to keep the capsule in contact with underlying bone structures in external rotation

IR caused subscap and capsule redundancy
Itoi’s Theory

- External rotation reduces Glenohumeral capsule and labrum into an anatomical position, supported/splinted by the subscapularis.

- Cadaver studies - range of coaptation position found
  - Adduction with neutral to ER gave good coaptation and possible comfortable resting position.

- MRI studies
Recurrence Rate at 2 years

Itoi et al

- internal rotation group 42%
- external rotation group 26%
Developed protocol and implementation strategy to maximize compliance

early application of splint

Offered to Px as treatment option and not coerced into study group

Note - Itoi had improved redislocation rates in subgroups with splint applied day 1
if splint worn at least 3 weeks
Inclusion criteria

Age 15 and 40 yrs old

Traumatic first time anterior dislocation

Confirmed with radiographic evidence of dislocation and subsequent relocation
Exclusion criteria

Excluded if outside target age group

Previous dislocation of the affected shoulder

Refused to have brace applied

Bony bankart lesion

Greater tuberosity fracture

Fracture dislocation
Implementation of the ER brace at the Gold Coast Hospital

1) Education of Emergency staff to apply external rotation brace for first time anterior shoulder dislocators

   Brace checked following morning by registrar or myself

   Reinforced literature and copy of poster given

2) Standardise follow up protocols

   - Follow Up: 1, 3, 6 weeks, 3 months, 1 year, 2 years
   - Ix: immediate post reduction x-ray in brace
   - shoulder xray- AP/LAT/AXILLARY VIEWS
   - CT/MRI if indicated
3) Standardise physiotherapeutic rehabilitation program

0-6 wks - isometric exercises

6-12 wks - sling removed / active ROM exercises / no passive stretches

8-12 wks - functional / sport specific ROM strengthening

12wks - may return to sport when ROM and strength adequate passive stretches as needed

4) Encourage compliance with the program
Numbers

Between January and July 2007

72 Px with shoulder dislocation presented to ER

43 Were 1st time dislocators in age gp 15-40yrs

4 excluded due to large bony bankart lesion or greater tuberosity fracture - Mx surgically

4 did not want to participate

35 Px included in study
Population

- 35 patients enrolled and 33 were able to be followed for 2 years
- Aged 15 - 40 years
- Variable compliance 2 - 6 weeks (av. 3.5 weeks)
- Variable compliance with Rehabilitation program
Population

- Public Hospital patients
- 1 professional sportsman
- 27 Social sport/surfing
- 5 Sedentary

Diagram showing ages:
- 15 - 20 yrs
- 20 - 30 yrs
- 30 - 40 yrs
Assessment Tools

- Redislocation & Instability rates - subjective and objective findings
- Px were reviewed and examined for evidence of instability and apprehension
- Quick DASH score including Work/Sporting activities
- Subjective Recovery estimate
2 Year Results of ER Brace

- 1 of 33 Redislocated (3%)
- No other cases of reported or demonstrated instability
Quick DASH Scores

- **<1** - 20 / 33 (60%)- indicating full recovery with no impact on lifestyle or function

- **2-10** - 13 / 33 (40%)- indicating very good level of function and little if no impact on function

- Reports of any difficulty with return to sport/work - prolonged overhead work (Painter) or overhead sports (Basketball)- 5 patients
Subjective Recovery Estimate

- Patient asked to estimate their recovery as compared with unaffected side
- Most scored themselves as 90% - 95% recovered
Discussion

- Small prospective study
- Most difficulties patients encountered were with sustained overhead activity
- Only 2 patients had altered lifestyle
- No surgery has been required or requested to date
- Only 1 professional athlete - so can’t apply results to this group
Future

- Continue to use ER Brace
- Follow up of patients for 5 - 10 years
- Ideally RCT of ER brace vs. Acute stabilisation
Conclusions

- Offer acute stabilisation for professional athletes aged 15-40 however;

- Give them the option of ER Brace and Rehabilitation program

- Sedentary, part time sportsperson, offer ER Brace and Rehabilitation program, consider stabilisation if recurrence/instability occur in time


Yuen CK, To DB. Is operative repair better than conservative treatment after primary anterior shoulder dislocation? [comment]. *Arthroscopy* 2008;24:971; author reply 971.


Questions?