

GOLD COAST HAND AND UPPER LIMB CLINIC

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**Surgery of the Shoulder,
Elbow and Hand
Including Microsurgery**

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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

Normal



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

Bonutti- J Comput Assist Tomogr. 1993

- 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

Exte

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0 - 6
6 - 12
>12

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Content provided by Dr. Arjun Moxon, Dr. Angelo Rando and Timothy Walker.
Please direct any questions to the Orthopaedic Department.



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

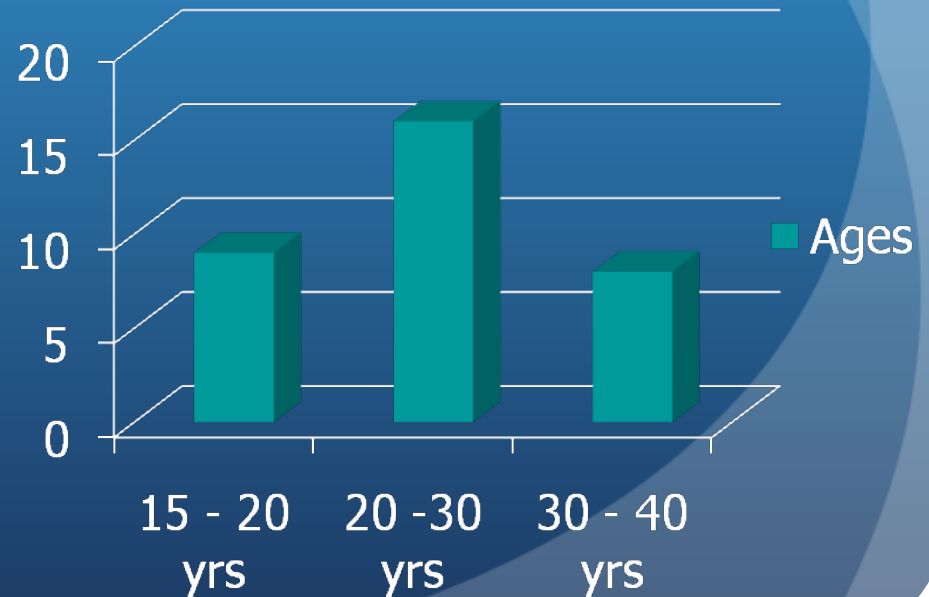
35 Px included in study

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



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 fuction
- 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

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Questions?



