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USU WALTER REED SURGERY

Beach Chair Versus Lateral Decubitus Positioning for Primary Arthroscopic Anterior Shoulder Stabilization: A consecutive series of 641 shoulders

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Introduction

Anterior Instability: Most Common[1,2]

- Increased popularity in arthroscopic (versus open) stabilization[3,4]
- 10%-30% recurrence after arthroscopic stabilization[3-8]

Risk Factors for Recurrence

- Patient specific characteristics
  - Age, activity level, etc
- Surgical factors
  - Implant type/quantity, surgical technique
  - Surgical position: beach chair (BC) or lateral decubitus (LD)?

No studies that directly examine the association between surgical position (BC v LD) and recurrent instability

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Purpose

The purpose of this study was to:

- compare the rates of recurrence after arthroscopic anterior stabilization (AAS) performed in the BC versus LD position in a uniquely young and high demand military population at short and mid-term follow-up
- evaluate patient and surgical risk factors as well as glenoid bone loss as independent predictors of recurrence.

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Methodology

Retrospective analysis of 641 shoulders that underwent index arthroscopic Bankart repair over a 14-yr period

- ‘short-term’ follow-up= 1 year
- ‘mid-term’ follow-up= 5 year

Inclusion

- Index surgery
- Isolated anterior
- Pre-operative MRI available
- Fellowship-trained surgeon
- Minimum 1-yr follow-up

Exclusion

- Concomitant procedures
- Imaging unavailable
- Lost to follow-up

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Methodology

Data Analyzed

- Pre-operative MRI for assessment of GBL and bipolar lesions9
- Review of MHS clinical notes for assessment of surgical dates, recurrence, revision, and follow-up
- Operative information (position, procedure, anchor #)

Definitions

- **Recurrence:** presence of recurrent subluxation/dislocation event and/or apprehension
- **Revision:** secondary surgery to address instability recurrence

Glenoid Bone Loss (GBL)

Group 1: <5%
Group 2: 5-13.5%
Group 3: >13.5%

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Results: Cohort Characteristics

	Overall Cohort (N=641)	Beach Chair (N=487)	Lateral Decubitus (N=154)	P-Value
Male	535 (83%)	408 (84%)	127 (82%)	0.7
Age	22.3 ± 4.5	22.4 ± 4.8	21.8 ± 3.2	0.05
Avg GBL (%)	5.9 ± 6.7	5.9 ± 6.7	5.8 ± 6.7	0.92
GBL Group 1 (<5%)	408 (64%)	310 (64%)	98 (65%)	0.83
GBL Group 2 (5%-13.5%)	133 (21%)	103 (21%)	30 (19%)	0.83
GBL Group 3 (>13.5%)	100 (15%)	74 (15%)	26 (16%)	0.83
On-Track	627 (98%)	477 (98%)	150 (97%)	0.69
Recurrence	101 (15.8%)	77 (15.8%)	24 (15.6%)	0.95

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Results: Recurrence

1 Year

	Overall Cohort (N=641)	Beach Chair (N=487)	Lateral Decubitus (N=154)	P-value
Recurrence	21 (3.3%)	11 (2.3%)	10 (6.5%)	0.56

5 Year

	Overall Cohort (N=383)	Beach Chair (N=293)	Lateral Decubitus (N=90)	P-value
Recurrence	60 (15.7%)	48 (16.4%)	12 (13.3%)	0.43

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Results: 1-year Multivariable Models for Recurrence and Revision

	1 year recurrence OR, 95% CI	P-Value	1 year revision OR, 95% CI	P-Value
Scaled Age	0.62, 0.26- 1.09	0.18	0.62, 0.24 - 1.12	0.21
Surgical Position (LD)*	1.39, 0.50 - 4.89	0.56	2.65, 0.74 - 16.91	0.20
Bone Loss Group 2 (1)**	0.75, 0.20 - 2.17	0.63	0.93, 0.25 - 2.79	0.90
Bone Loss Group 3 (1)**	0.46, 0.07 - 1.71	0.31	0.59, 0.09 - 2.27	0.50
Track	3.25, 0.17 - 20.25	0.29	3.47, 0.18 - 21.97	0.26

*(LD)=reference group lateral decubitus
**(1)=reference group Bone Loss Group 1
Bone loss Group 1=<5%, Bone Loss Group 2= 5-13.5%, Bone Loss Group 3>13.5%

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Results: 5-year Multivariable Models for Recurrence and Revision

	5-year recurrence OR, 95% CI	P-Value	5-year revision OR, 95% CI	P-Value
Scaled Age	0.58, 0.33 - 0.89	0.03	0.59, 0.32 - 0.92	0.05
Surgical Position (LD)*	1.32, 0.68 - 2.74	0.43	1.45, 0.70 - 3.31	0.35
Bone Loss Group 2 (1)**	0.97,0.45 - 1.95	0.93	1.20, 0.55 - 2.46	0.64
Bone Loss Group 3 (1)**	1.82,0.87 - 3.66	0.10	1.29, 0.54 - 2.86	0.51
Track	0.87, 0.04 - 5.99	0.91	1.14, 0.06 - 7.90	0.91

*(LD)=reference group lateral decubitus
**(1)=reference group Bone Loss Group 1
Bone loss Group 1=<5%, Bone Loss Group 2= 5-13.5%, Bone Loss Group 3>13.5%

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Discussion

Systematic review by Frank et al[10] evaluated outcomes amongst BC and LD in 64 studies

- Concluded that LD may have lower recurrence rates (8.5%, versus 14.7% in BC), but both produce good outcomes
- Limitations:
  - Variance in f/u (minimum 2-years)
  - Heterogenous patient population
  - Varying definitions of recurrence
  - Older age (26 years)
  - Did not account for additional factors (GBL)

Present study: no difference in recurrence rate amongst BC vs LD at short- and mid-term follow-up

- No difference in recurrence when stratified by GBL

Overall recurrence at mid-term follow-up of 15.7%

- Prior literature has demonstrated recurrence rates ranging from 4%-35%6,7,11

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Conclusion

Among fellowship-trained orthopedic surgeons, there was no difference in rates of recurrent instability after performing arthroscopic stabilization for isolated anterior shoulder instability in a high demand population in either the BC or LD position. In multivariable analysis, younger age, but not surgical position, was an independent risk factor for recurrence.

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