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Arthroscopic Bankart Repair for Primary versus Recurrent Anterior Instability in Athletes – A Retrospective Comparative Study

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INTRODUCTION

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- Athletes often raise the primary concern of ability and timing of return to play (RTP) post-injury
- Primary instability may be managed non-operatively, lower rates of RTP and seven-fold higher rate of recurrent instability limit this treatment option in the athlete
- Arthroscopic Bankart repair (ABR) is the most commonly performed procedure for anterior shoulder instability
- Unclear how recurrent instability impacts outcomes of ABR in athletes and their ability to RTP

PURPOSE

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- The purpose of this study was to compare the outcomes of athletes whom have been treated for either primary or recurrent anterior shoulder instability with ABR.

HYPOTHESIS

- Our hypothesis was that athletes undergoing ABR for primary instability would have a higher rate of RTP, better functional outcomes scores and lower recurrence rates when compared to those with recurrent instability.

METHODS
Patient Selection

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- All patients who underwent ABR by a single surgeon (H.M.)

- The inclusion criteria for this study were;
- Athletes who underwent ABR procedure who played organized sports in a league format pre-operatively
- The exclusion criteria for this study were;
- 1) previous ipsilateral shoulder surgery
- 2) non-athlete

- Collision sports were defined as; 1) rugby, 2) Gaelic athletic games, 3) hockey, and 4) American Football.

- Subsequently patient matching of those with primary (first time dislocation) and recurrent instability (i.e. ≥ 2 dislocations) groups based on patient demographics (age, gender, sport, level of pre-operative play, and follow-up length) was performed to generate two comparable groups in a ratio of 1:1.

METHODS
Surgery & Rehabilitation

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Surgical Technique

- Beach chair position
- Minimum 3 anchors; 2.3mm suture anchors (Osteoraptor, Smith & Nephew, London, U.K.) approximately from the 5 or 7 o'clock up to the 11 or 1 o'clock position

Rehabilitation & Return to Play

- Sling for three weeks
- Return to contact in training was allowed after 12 weeks
- Return to full contact and competition within the next 12 weeks
- In clearing an athlete to RTP, alongside time, strength, range of motion, and pain are considered

METHODS
Clinical Follow-up

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- Evaluation of post-operative patient reported outcomes was carried out following telephone survey including;
  - Rate, level and timing of RTP
  - Shoulder Instability-Return to Sport after Injury (SIRSI) score
  - Recurrent instability
  - Visual Analogue Scale (VAS) score
  - Subjective Shoulder Value (SSV)
  - Rowe score
  - Satisfaction
  - Whether they would undergo the same surgery again

METHODS
Statistical Analysis

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- Statistical analysis was carried out using SPSS version 22 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.).
- A power calculation was performed for rate of recurrent instability, with an alpha of 0.05 and a power of 0.8 revealing 200 patients were required for the study to be adequately powered.
- Categorical variables were analysed using Fisher's exact or chi-squared test. The independent or paired *t*-test for normally distributed variables, or the nonparametric Mann-Whitney U test or Wilcoxon signed-rank test was performed to compare continuous variables.
- A value of $p < 0.05$ was considered to be statistically significant.

RESULTS

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Table 1. Patient Demographics			
	Primary Instability	Recurrent Instability	p-value
N ABR	100	100	> 0.99
Age (Yrs)	27.1 ± 7.9	27.2 ± 8.1	> 0.99
Follow-Up (Mo)	61.0 ± 18.8	62.9 ± 22.4	0.5166
Gender (Male %)	87 (87%)	87 (87%)	> 0.99
Collision Sport	68 (68%)	68 (68%)	> 0.99
GAA	34 (34%)	38 (38%)	0.6065
Hockey	1 (1%)	2 (2%)	> 0.99
Football	1 (1%)	1 (1%)	> 0.99
Rugby	32 (32%)	27 (27%)	0.489
Glenoid Bone Loss (%)	1.7% ± 4.2	2.0% ± 4.0%	0.6056
Off-Track Hill-Sachs Lesions (%)	5%	10%	0.2828
ABR; arthroscopic Bankart repair, GAA; gaelic athletic association, Mo; months, N; number, Yrs; years			

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Table 2. Return to Play			
	Primary Instability	Recurrent Instability	p-value
RTP	80 (80%)	79 (79%)	0.8607
RTP S/H	65 (65%)	65 (65%)	> 0.99
RTP Timing (mo.)	6.9 ± 2.9	5.9 + 2.5	0.0207
SIRSI Score	64.9 ± 27.1	61.4 ± 27.2	0.3631
ABR; arthroscopic Bankart repair, RTP; return to play, S/H; same/higher level, mo; months, SIRSI; Shoulder Instability-Return to Sport after Injury			

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Table 3. Patient Reported Outcomes			
	Primary Instability	Recurrent Instability	p-value
SIRSI Score	64.9 ± 27.1	61.4 ± 27.2	0.3631
VAS Score	2.3 ± 2.3	1.8 ± 1.9	0.0953
SSV	84.9 ± 15.3	83.6 ± 20.5	0.6062
Rowe Score	82.3 ± 19.6	77.8 ± 13.1	0.1142
Satisfied	86 (86%)	84 (84%)	0.8433
Would Undergo Surgery Again	88 (88%)	82 (82%)	0.3222

ABR; arthroscopic Bankart repair, SIRSI; Shoulder Instability-Return to Sport after Injury, VAS; Visual Analogue Scale, SSV; Subjective Shoulder Value

RESULTS

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Table 4. Recurrent Instability			
	Primary Instability	Recurrent Instability	p-value
Total Recurrence	10 (10%)	16 (16%)	0.2931
Redislocation	6 (6%)	9 (9%)	0.4204
Subluxation	4 (4%)	7 (7%)	0.5371
Apprehension	31 (31%)	34 (34%)	0.7628

DISCUSSION POINTS

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- Those who fail non-operative and undergo ABR for recurrent instability have similar clinical outcomes, and recurrence rates, to those treated with ABR for primary instability
- Recurrent instability is not a benign event with further bone-loss and cartilage damage reported
- Athletes who underwent ABR for recurrent shoulder instability managed to RTP significantly faster than those in the primary instability group

LIMITATIONS

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- Retrospective
- Slight, albeit non-statistically significant, differences between the matched groups
- No pre-operative patient reported outcome measures, laxity scores as well as the number of pre-operative dislocations
- Single surgeon series

CONCLUSION

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- ABR results in excellent clinical outcomes, high rates of RTP, and low recurrence rates for athletes with both primary and recurrent instability.

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Thank you for your attention