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# Critical Bone Loss Not So Critical with Remplissage

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# Disclosures

## John D. Kelly, IV

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Book Royalties SLACK

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Consultant PACIRA

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None

# Objective

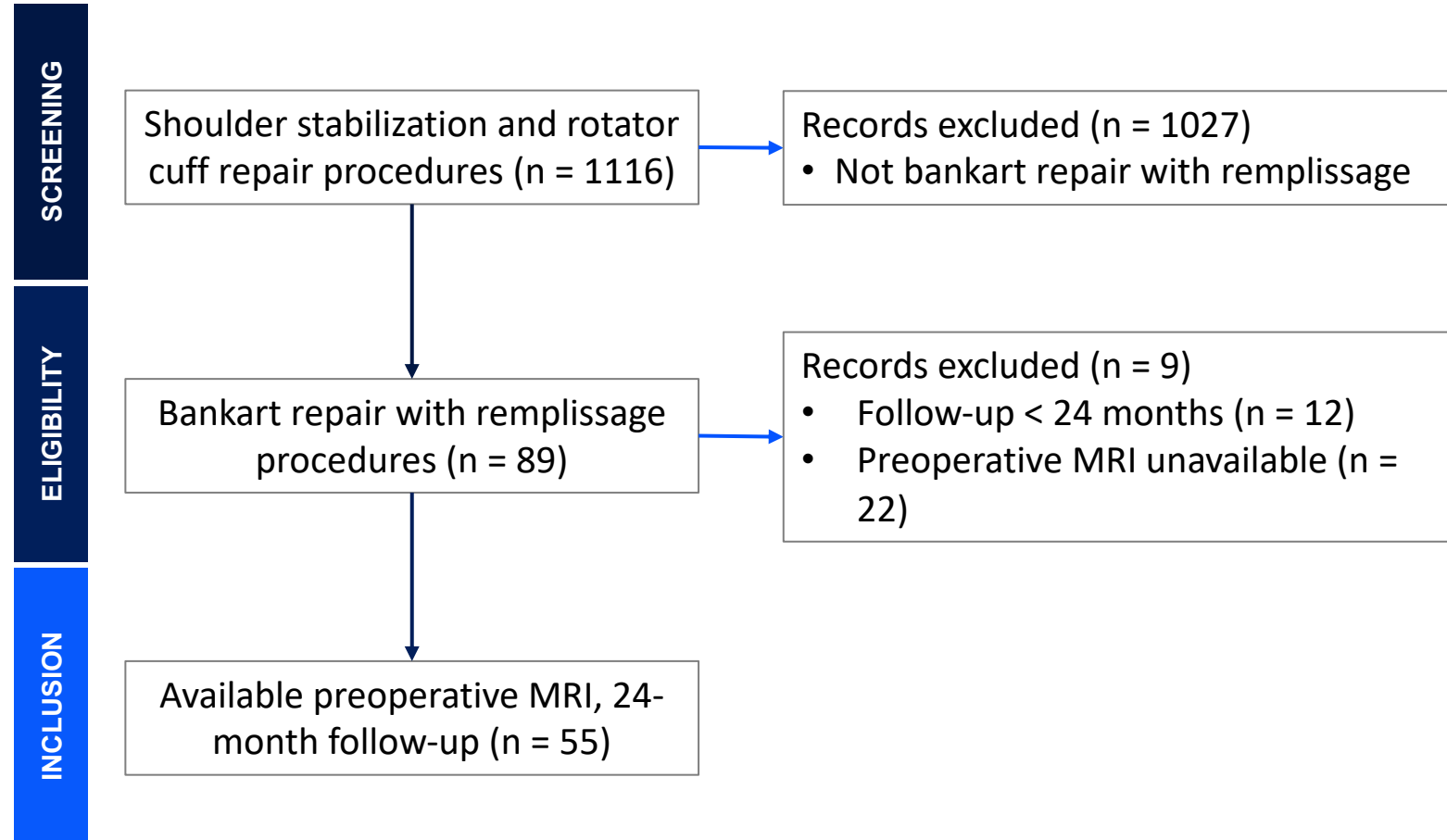
Is bankart repair with remplissage an effective treatment for anterior shoulder instability in patients with 'critical' (greater than 13.5%) anterior glenoid bone loss?

# Methods

## PATIENT IDENTIFICATION

### Included patients

- Operative report indicating bankart repair with remplissage
- Performed by senior author between 2013 and 2020
- 24-month follow-up
- Preoperative MRI available



# Methods

## IMAGING

### Anterior Glenoid Bone Loss

Preoperative MRI, Sagittal View

Best-fit circle for glenoid diameter and anterior glenoid bone loss

Glenoid bone loss % = anterior bone loss / glenoid diameter

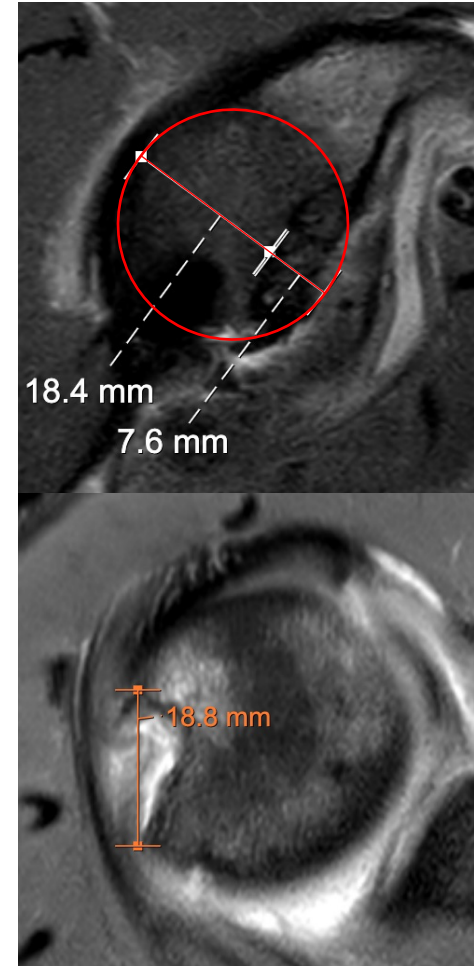
Glenoid track =  $0.83 * \text{glenoid diameter} - \text{anterior bone loss}$

### Hill Sachs Defect

Preoperative MRI, Axial View

“On Track” Lesions = Hill Sachs Defect < Glenoid Track

“Off Track” = Hill Sachs Defect > Glenoid Track



### Example

Glenoid diameter = 26.0 mm

Anterior glenoid bone loss = 7.6 mm

Glenoid bone loss % =  $7.6 / (7.6 + 18.4) = 29.2\%$

Glenoid track =  $0.83 * 26 - 7.6 = 14.0 \text{ mm}$

This is an “off track” Hill-Sachs Defect

# Results

## GENERAL

Table 1: Demographics and Follow-up

Shoulders (Patients)	55 (53)
Age: Mean (Range)	27.4 (15 - 60)
Male Gender (%)	42 (76%)
Right Shoulder (%)	28 (51%)
Prior Surgery	8 (15%)
Follow-up (Years)	4.8 (2.03 - 9.04)
Clinical Scores Available (%)	35 (64%)
Anterior Glenoid Bone Loss	18.5% $\pm$ 11%
Hill-Sachs Defect (mm)	17.1 $\pm$ 4.5
“Off Track” Hill Sachs Lesion	19 (35%)

Table 2: Clinical Outcome Scores

Preoperative ASES Score	43.4 $\pm$ 23.1
Postoperative ASES Score	90.8 $\pm$ 10.1
Recurrence Rate	7 (13%)
Reoperation Rate	4 (7%)

## Recurrence

Two patients with traumatic dislocation treated with PT

One patient with atraumatic dislocation treated with PT

Two patients treated with revision bankart with remplissage (15 and 59 months)

One patient converted to open Latarjet (11 months)

One patient converted to RSA (unknown)

# Results

## GLENOID BONE LOSS AND OFF-TRACK LESIONS

**Table 3: Outcomes by Glenoid Bone Loss**

	< 13.5%	> 13.5%	p-value
Shoulders	20	35	
Hill-Sachs Defect (mm)	16.8 (5.9)	17.2 (3.5)	0.75
Preop ASES Score	43 (22)	44 (26)	0.89
Postop ASES Score	88 (11)	93 (9)	0.07
Recurrence Rate	3 (15%)	4 (11%)	0.70
Reoperation Rate	2 (10%)	2 (6%)	0.56

**Table 4: Off track and On track**

	“Off track”	“On track”	p-value
Shoulders	19	36	
Hill-Sachs Defect (mm)	21 (3.9)	15 (3.1)	< 0.01
Glenoid loss	27% (13%)	14% (7%)	< 0.01
Preop ASES Score	43 (11)	42 (29)	0.91
Postop ASES Score	92 (9)	90 (11)	0.59
Recurrence Rate	3 (16%)	4 (11%)	0.25
Reoperations Rate	2 (11%)	2 (6%)	0.46

No statistically significant difference in recurrence rate, reoperation rate, or postoperative clinical outcomes between shoulders demonstrating “critical” and “non-critical” bone loss.

Elevated rates of recurrence and reoperation in patients with “off track” lesions. This difference did not meet the threshold for statistical significance.

# Significance

The addition of remplissage diminishes the effect of 'critical' bone loss on recurrence and patient satisfaction. Patients can be spared glenoid bone graft procedures when remplissage is employed, even for glenoid bone loss greater than 13.5%.

We found higher rates of recurrence for “off track” lesions than “on track” lesions. Though not statistically significant, this appears to be a more important consideration than glenoid bone loss alone in patients undergoing bankart repair with remplissage.





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