

Open and arthroscopic posterior bone block with iliac crest autograft for posterior shoulder instability - systematic review of clinical and radiological outcomes.

A Saeed¹, N Pandit¹, RW Jordan², H Laprus³, P D'Alessandro⁴, I Lo⁵, SS Malik¹

¹Worcestershire Acute Hospitals NHS Trust, ²University Hospitals Birmingham NHS Foundation Trust, ³St Luke's Hospital, ⁴Orthopaedic Research Foundation of Western Australia, ⁵University of Calgary

Disclosures

- No financial conflicts to disclose for any of the authors.

Background

- 3-5% of all glenohumeral joint dislocation¹⁻²
- Repetitive microtrauma to posteriorinferior capsulolabral complex³
- Glenoid erosion, reverse Hill-Sachs and posterior bony Bankart lesions seen with recurrent dislocations
- Soft tissue stabilisation procedures associated with high recurrence⁴⁻⁶

Aims

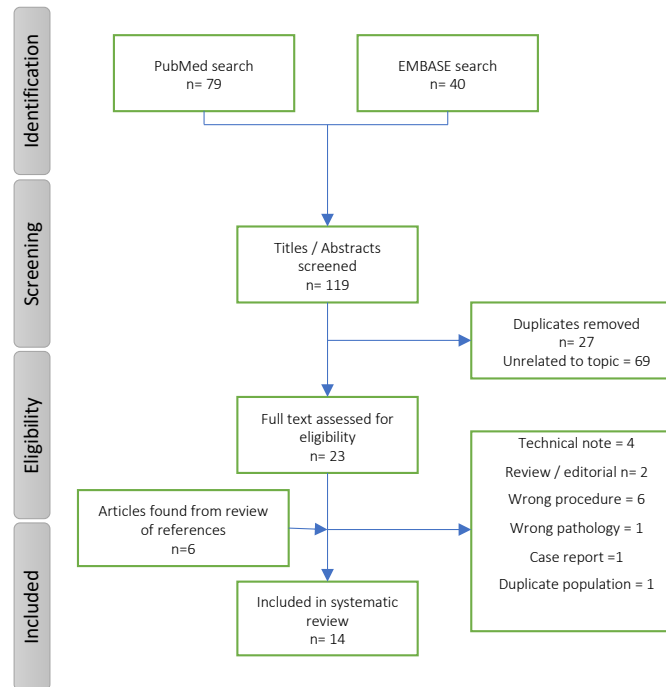
- To assess the published evidence on open/arthroscopic **ICBG** *posterior bone block* in terms of :
 - Complications
 - Recurrence
- Radiological outcomes
 - Union rates
- Functional outcomes



**Worcestershire
Acute Hospitals**
NHS Trust

Methods

- PRISMA guidelines
 - Medline and
 - EMBASE
- Inclusion Criteria
 - Non-cadaveric human studies using ICBG to treat PSI
 - Report either clinical and/or radiological outcomes



Demographics

Demographic	Result
Patients	183
Shoulders	201
Mean age	25 years (range 14- 75 years)
Mean follow-up	5.29 years (range 0.5 – 18.3 years)
Males	79.1%
Females	20.9%
Open	88 (43.8%)
Arthroscopic	113 (56.2%)

Recurrent Instability

Total dislocations/subluxations

- Open n = 5
- Arthroscopic n = 3

	Open	Arthroscopic
Dislocation/Subluxation	0% - 36.4%	0% - 12.5%
Positive apprehension	0%-33.3%	0%-11.8%

Functional Outcome Scores

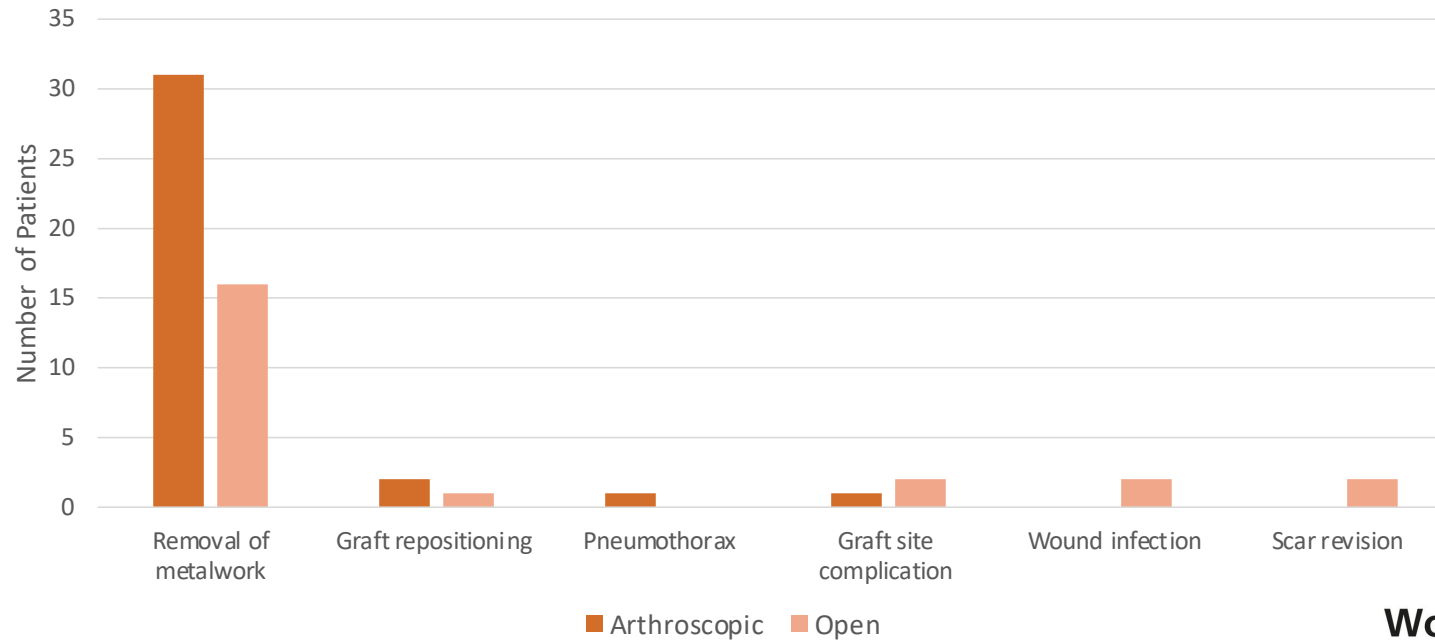
- Deficiency in open cohort reporting of pre-operative scores
- Arthroscopic group more commonly reported pre and post-operative scores
 - Significant improvement in 80% of scores measured

Post-operative Score	Open	Arthroscopic
Constant –Murley	81.3 – 96.3	82 - 84
Duplay-Walch	70 - 90	82.9 – 89

Complications

Arthroscopic : 6.7% - 75%

Open : 0% - 80%



Degenerative Changes

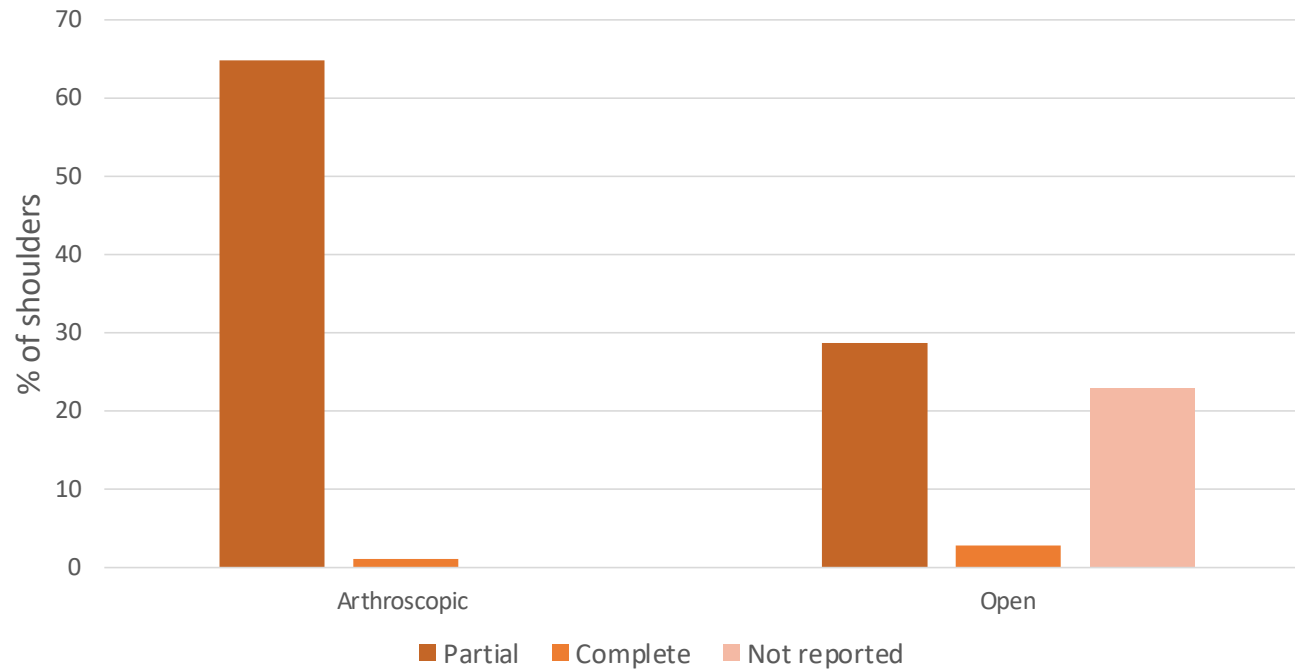
Open	Arthroscopic
0% - 81.8%	12.5% - 47%

- Multifactorial causes
 - Altered biomechanics
 - Pre-operative Recurrent dislocations
 - Metalwork position
 - Humeral head impingement

Graft Position

	Flush	Overhang
%(n=shoulders)	29.9% (n=60)	62.7% (n=126)
Recurrent instability	66.7% (n=4)	31.7% (n=4)
Non-union	5% (n=3)	0% (n=0)
Osteoarthritis	Range 47% - 81.8%	Range 0% - 14.3%

Graft Reabsorption



Limitations

- Level IV evidence
- No comparative studies
- MINORS score range 5 – 12
- Heterogeneity
- Large variation in follow-up times

Conclusion

- Lack of high-level evidence
- Functional and instability outcome scores showed significant improvement in arthroscopic studies
- Recurrence rate
- Metalwork related complications concerningly high
- Progression to osteoarthritis

References

- 1) Cerciello S, Visonà E, Morris BJ, Corona K. Bone block procedures in posterior shoulder instability. *Knee Surg Sports Traumatol Arthrosc* 2016;24:604–11.
- 2) Qi W, Zhan J, Yan Z, et al. Arthroscopic treatment of posterior instability of the shoulder with an associated reverse Hill-Sachs lesion using an iliac bone-block autograft. *Orthop Traumatol Surg Res OTSR* 2019;105:819–23.
- 3) Provencher MT, LeClere LE, King S, et al. Posterior instability of the shoulder: diagnosis and management. *Am J Sports Med* 2011;39:874–86.
- 4) Lacheta L, Singh TSP, Hovsepian JM, et al. Posterior open wedge glenoid osteotomy provides reliable results in young patients with increased glenoid retroversion and posterior shoulder instability. *Knee Surg Sports Traumatol Arthrosc* 2019;27:299–304.
- 5) Heller KD, Forst J, Cohen B, Forst R. Atraumatic recurrent posterior shoulder subluxation: review of the literature and recommendations for treatment. *Acta Orthop Belg* 1995;61:263–70.
- 6) Fronek J, Warren RF, Bowen M. Posterior subluxation of the glenohumeral joint. *J Bone Joint Surg Am* 1989;71:205–16.