

Delay to surgery adversely effects functional outcomes when managing proximal humerus fractures acutely with reverse total shoulder arthroplasty

Samuel Newman¹, Hasan Daoud¹, Fleur Shiers-Gelalis², Feargus Pitcher², Alex Duff², Madhavan Papanna², Scott MacInnes²

¹Sheffield Teaching Hospitals, ²Doncaster and Bassetlaw Teaching Hospitals

Background

- Reverse total shoulder arthroplasty (RTSA) is increasingly being used for the management of proximal humerus fractures
- Primary RTSA for trauma do better than salvage procedures
- Demands on trauma services can result in delays to surgery for the 'walking wounded'
- Effects of delay to surgery on outcomes are unclear

Methods

Retrospective single centre study

Range of motion (ROM) & Oxford shoulder scores (OSS) measured post-operatively

Included:

All RTSAs for proximal humerus fracture performed at a single centre during 2019 – 2023

Excluded:

- Surgery >3 months from injury
- Unable to measure OSS

Results

37 patients met the inclusion criteria.

Mean time to surgery from injury = 24 days

Mean follow-up = 21.5 months

	Forward flexion	Abduction	External rotation	OSS
Time to surgery	r= -0.401	r= -0.485	r= -0.168	r= -0.189
	p=0.031	p=0.009	p=0.422	p=0.277

Time to surgery	FF	Abduction	ER	OSS
<4 weeks	126° (± 33)	113° (± 29)	30° (± 26)	39 (± 9)
≥4weeks	83° (± 29)	67° (± 23)	30° (± 20)	33 (± 10)
	p=0.002	p<0.001	p=0.951	p=0.113

Tuberosities	FF	Abduction	ER	OSS
Non-union	67° (± 38)	60° (± 30)	15° (± 14)	23 (± 8)
Union	113° (± 34)	100° (± 35)	31° (± 25)	38 (± 10)
	p=0.037	p=0.076	p=0.372	p=0.014

Conclusion

- Delay to surgery results in reduced FF, abduction, and likelihood of tuberosity union
- A delay of 4 weeks may be the threshold for poorer ROM
- Tuberosity non-union negatively effects patient outcomes
- We advocate that RTSA is performed as close to the date of injury as possible