

Glenoid Reconstruction using Bone Graft in Reverse Total Shoulder Arthroplasty: A 10-year review

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INTRODUCTION: Glenoid bone deficiency in reverse total shoulder arthroplasty (rTSA) presents unique challenges. Addressing significant glenoid bone loss is critical to ensure stability and restore function. Bone grafting with autografts or allografts helps restore glenoid anatomy and bone stock, which is essential for long-term success. This study evaluates the durability and functional outcomes of the technique.

METHODS:

Aims

To report outcomes following glenoid reconstruction using bone grafting in rTSA.

Study Design

In a single centre, patients who had undergone rTSA with glenoid graft since 2014 were retrospectively analysed. Patient demographics, surgical indications, severity of glenoid bone loss, pre-operative Oxford Shoulder Score (OSS) were recorded. The primary outcome measure was implant survival. Secondary outcomes were post-operative OSS, radiological outcomes, and complications.

RESULTS:

47 patients underwent rTSA with glenoid grafting.

Indications for glenoid reconstruction in primary replacement were bone loss with cuff tear arthropathy (15), severe OA (11), inflammatory arthritis (4), post trauma sequelae (3).

In revision arthroplasty (14), indications were loosening of implant (9), glenoid erosion in resurfacing arthroplasty (5).

Autologous humeral head was the commonest source of bone graft. Mean follow up duration was 50 months. No graft related complications or glenoid component loosening were seen.

Implant survival was 100%, though 3 patients experienced complications (one with infection, one with infection and dislocation, and one with dislocation and acromial fracture requiring revision surgery), which was not performed due to frailty.

The mean pre-op shoulder score was 15.5, improving to 35 at 1 year, 34 at 5 years, and 32 at 10 years post-op. Notably, 93.2% of patients showed a low notching score (0 or 1) at final X-ray follow-up.

DISCUSSION AND CONCLUSION: This study supports bone grafting in rTSA for patients with significant glenoid bone loss, demonstrating excellent implant longevity, stability, and patient-reported outcomes.