Porous Metal Augments for Severe Acetabular Bone Loss Show Excellent Results at Intermediate-Term Follow Up

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INTRODUCTION: Acetabular reconstruction options in the setting of severe bone deficiency (Paprosky 3A and 3B) remain limited and few comparative studies have been performed to date. The purpose of this study was to compare the outcomes of revision total hip arthroplasty (THA) using porous metal augments and using a custom acetabular prosthesis.

METHODS:

Between 2008 and 2020, we reviewed a consecutive series of 180 patients who underwent revision THA with Paprosky 3A (n=73; 40.6%) or 3B (n=107, 59.4%) acetabular defects. Pelvic discontinuity was noted in 47 patients (26%). Patients treated with porous augments and a revision shell (n=141) were compared with those who received triflange or custom acetabular components (n=39) at mean follow up of 6.6±3.4 years (range, 2–14 years). We compared rates of dislocation, infection, reoperation, and rerevisions as well as radiographic and functional outcomes at latest follow up. Failure was defined as aseptic revision of the acetabular reconstruction or radiographic evidence of loosening.

RESULTS: Overall survivorship was 91.5% in the augment group and 89.7% in the non-augment group (p=0.491)(Figure 1). Survivorship free from aseptic acetabular revision was 95% in the augment group and 94.9% in the non-augment group (p=0.786)(Figure 2). There was no difference in dislocation (7.8% vs. 10.3%, p=0.415) or periprosthetic joint infection rates (2.8% vs. 7.7%, p=0.165) with the numbers available for this study. Using Cox regression to control for demographic and operative variables, there was no difference in the odds of failure between the groups (HR 0.638, p=0.578). In a subgroup analysis of patients with pelvic discontinuity, survivorship free from aseptic revision was 88.0% vs. 88.9% (p=0.557).

DISCUSSION AND CONCLUSION: Porous metal augments in the setting of severe acetabular bone loss demonstrated excellent survivorship comparable to custom acetabular components at mid-term follow-up, even in cases of pelvic discontinuity. Instability and infection remain major causes of failure following complex acetabular reconstructions.