Excellent results with a new compressive shell in acetabular impaction bone grafting

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Introduction

Treatment of acetabular bone loss with impaction bone grafting (IBG) at revision total hip arthroplasty (THA) is highly dependent on mechanical stability and graft compression for clinical success. Here we describe a new technique to further compress and stabilize the acetabular graft bed with a thin, perforated titanium shell.

Patients and Methods

We retrospectively analyzed 170 cases of acetabular revision arthroplasty seven years (SD 2.8) after IBG combined with a graft-compressing titanium shell implant. The patients were reviewed by clinical score and radiography. Three patients were lost to follow-up. The medical journals of the 33 deceased cases were reviewed for any reoperation. Of the 170 cases, 74 had a cavitary acetabular bone defect, 93 had combined segmental and cavitary bone defects, and 3 had a pelvic dissociation. Bone graft incorporation was assessed and correction of the hip center of rotation was calculated.

Results

Five cases (3 %) were re-operated for mechanical loosening. One more was assessed as loose but asymptomatic and was not planned for revision. There were three re-operations for recurrent dislocation, two for deep infection and one for technical error. Re-operation, as the endpoint of survivorship, showed a survival rate of 92 % for any reason and 95% for mechanical loosening after 10 years. Hip score according to Merle, d´Aubigne and Postel increased from 10.8 (pre-operatively) to 16.4 at follow-up. The clinical and radiological results were excellent.

Conclusions

IBG combined with the compressing shell results in excellent results for this challenging condition.