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Uni- or bipolar proximal femoral endoprostheses following tumour reconstruction: are acetabular resurfacings necessary?

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Introduction: Proximal femoral endoprosthetic replacements (PFRs) have a reported dislocation rate of between 2% and 17%, which is reduced with large diameter uni- or bipolar heads. Without acetabular resurfacing, pain due to wear necessitating revision surgery has been reported.
Methods: We retrospectively reviewed 100 consecutive proximal femoral replacements used for tumour reconstruction from 2003 to 2014 without acetabular resurfacing. In 74 patients the procedure was undertaken for metastases, in 20 for a primary bone tumour, and in six for other malignant conditions. There were 48 males and 52 females with a mean age of 61.4 years (range 19 to 85 years) and a mean follow-up of 1.9 years (0 to 11.1 years). Fifty two presented with a pathological fracture and six presented with failed fixation of a previously instrumented pathological fracture.
Results: All patients underwent reconstruction with either a unipolar (n=64) or bipolar (n=36) articulation. There were no dislocations and no amputations. Groin or thigh pain was reported in 10 patients at last follow-up. Articular wear was graded from 0-3, whereby 0 is normal and 3 represents protrusio acetabuli. Of the 49 patients with radiological follow-up greater than one year, six demonstrated grade-1 acetabular wear and two demonstrated grade-2 acetabular wear, the remainder demonstrated no radiographical evidence of wear. Mean medial migration was 0.4mm (3.8 to -1.4mm) and superior migration was 0.6mm (3.5 to -0.5mm). There was no statistical relationship between groin pain nor heterotrophic ossification and acetabular wear. Revision surgery was required in 3 patients; two for periprosthetic sepsis and one for stem-fracture. The mean Toronto Extremity Salvage score was 65% (26% to 96%) at final follow-up. The estimated five-year implant survival with revision as the end-point was 94.7% (95% CI: 87% to 100%). The overall patient survival was 63% at one year and 26% at five years.
Conclusion: Acetabular wear with uni- or bipolar proximal femoral replacements for tumour reconstruction does not lead to acetabular wear necessitating revision to acetabular resurfacing and eliminates joint instability.