

**PP-024****Treatment of periprosthetic fractures in patients treated with a megaprosthesis for bone sarcoma**

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Introduction: Periprosthetic fractures after massive endoprosthetic reconstructions occur infrequently. However, as the life expectancy and the number of patients with endoprosthetic replacements increase, more periprosthetic fractures are expected to occur.

These fractures represent a treatment challenge and jeopardize limb preservation, due to high incidence of revisions as a consequence of prosthetic loosening, infection, non-union and/or re-fracture or even amputation.

Methods: Between April 2004 and January 2012, we retrospectively reviewed the records of 10 patients with periprosthetic fractures after tumour resection followed by reconstruction with megaprotheses. Initial diagnosis was predominately (8 cases) primary high-grade sarcoma, although 2 patients had bone metastasis. All 10 patients with periprosthetic fractures underwent limb salvage procedures. Adjuvant chemotherapy was administered in 6 and local radiotherapy in 4 patients. The average patient age was 44.6 years. Fracture site was the femur in 7 cases and the tibia in 2 cases and the humerus in one case.

Results: Fracture occurred after a medium of 28 months after initial implantation. Cause of fracture was high energy trauma in 2 patients and inadequate in 8 patients (4 of them associated with tumour recurrence). Open reduction and internal fixation was possible in 6 patients. In the other 4 patients an exchange of the implant with an average additional bone loss of 3.2 cm (range 2-6 cm) was necessary. In 2 cases an additional joint replacement was involved (1 knee joint and 1 hip joint) was performed due to the absence of sufficient bone stock for a stem implantation.

Complications were 2 periprosthetic infections requiring a two-stage revision, and two non-unions after osteosynthesis that were treated with an additional implant exchange. Seven patients with limb salvage achieved full weight bearing at the latest follow up.

Conclusion: Periprosthetic fractures in patients treated with megaprotheses are demanding, but most may be treated successfully with salvage surgery. The common goal of treatment should always be the preservation of as much bone as possible. Careful assessment of risks and benefits is of paramount importance