

**FC-050****Reconstruction with a custom made prosthetic wrist arthrodesis after bone tumor resections of the distal radius**E.L. Staals, B. Szostakowski, **L. Onwordi**, J. Jagiello, W.J. Aston, J.A. Skinner, T.W.R. Briggs, R.C. Pollock*Royal National Orthopaedic Hospital, Stanmore, London, United Kingdom*

Introduction: Reconstruction of the distal radius after tumour resection is challenging due to the complex anatomy of the wrist joint, the vicinity to important neurovascular structures, and the scarce soft tissue coverage. Also, these patients are often young and active, which increases the demand for a functional, stable and durable reconstruction. This study describes reconstruction of the distal wrist with a CAD-CAM titanium arthrodesis implant (Stanmore Implants Worldwide, Elstree, UK).

Methods: A single institution retrospective review was performed of 4 consecutive distal radius reconstructions, in the period between 2009 and 2013.

Functional results were analysed according to the Musculo Skeletal Tumor Society (MSTS) and the Disabilities of the Arm, Shoulder, and Hand (DASH) scoring systems. Radiographical evaluation included implant position and fixation, joint alignment, and degenerative changes.

Results: There were two males and two females, average age was 43.5yrs, (range 22- 55 yrs). Initial diagnosis was giant cell tumour (GCT) in 3 cases and osteosarcoma in one case. In two cases of GCT an initial reconstruction with non-vascolarized fibular autograft failed (one infection, one local recurrence). At final follow-up 50 months (22-70 months), no major complications had occurred. No infection, no major mechanical failure, and no recurrence was recorded. Radiographically there were no signs of loosening and all implants were well aligned. During follow-up two minor revisions were performed for loose screws and a protruding plate.

Average MSTS score was 17 (range 13 to 21) and average DASH score was 41 (range 20 to 63).

Conclusions: Reconstruction of the distal radius after tumour resection with a custom made arthrodesis implant is mechanically reliable and durable, and was not associated with infection. However, functional results are not in all cases satisfactory. This reconstruction could be considered as a salvage procedure in case of failed autograft reconstruction and when bone bank facilities are not available.