For massive distal femoral endoprosthetic reconstructions, the Compress® device has been shown to have a nearly 90% 10-year survival rate at the bone-prosthetic interface. Less is known about prosthetic survival in the comparatively less frequent primary oncologic reconstructive locations involving the proximal femur and proximal tibia.

Questions/Purposes: What are the aseptic and septic failure rates for proximal femoral and proximal tibial primary oncologic reconstructions using Compress® technology?

Patients and Methods: The compressive osseointegration database was reviewed for all patients with proximal femoral or proximal tibial Compress® reconstructions. Demographic data, diagnoses, and treatment data were abstracted; outcomes, including aseptic failure, septic failure, local recurrence, and metastatic disease were reviewed.

Results: For the proximal femoral Compress® reconstructions, 18 patients were identified with overall average follow-up of 56 months (range, 2-142). There were no (0%) aseptic rotational failures at the bone-prosthetic interface. There was 1 (5.6%) septic failure. For the proximal tibial Compress® reconstructions, 29 patients were identified with an overall average follow-up of 70.7 months (range, 1-175). There was one (3.4%) aseptic rotational failure that was successfully revised to another Compress® device. There were 4 (13.8%) cases of infection.

Conclusion: Compressive osseointegration is shown to be associated with very high intermediate term success rates for proximal femoral and proximal tibial locations. Aseptic failure rates at the bone-prosthetic interface in these locations is very low. Septic failure remains a more common complication, with rates in the proximal tibia similar to those observed in the distal femur.

Figures:

Kaplan-Meier Survival Estimate: Spindle Failure

None of the 18 (0%) proximal femur Compress® endoprostheses failed requiring revision surgery at average 55.8 months follow-up.
One of the 29 (3.4%) proximal tibial Compress® endoprostheses failed requiring revision surgery at average 70.7 months follow-up.