

Background: Infected total knee arthroplasties present in a variety of different clinical settings. With severe local compromise and draining sinus tract around the knee, after adequate debridement, the resultant patellectomy with free muscle transfer and split thickness skin graft for closure, usually results in loss of quadriceps function. This necessitates the use of drop lock brace, locking in full extension, to prevent falling, when ambulating. No good mechanisms are available for reconstruction of large anterior defects in total infected total knees where this occurs.

Questions: Can proximal placement of the knee joint with longer tibial segments aid in closure in patients with large anterior skin defects, and can this placement aid in quadriceps reconstruction to alleviate the need for drop lock braces while ambulating?

Methodology: Six patients with 2 year follow-up with stage III-C-3 McPherson infected total knees presented with large soft tissue defects over the anterior aspect of the knee with sinus tract and scarring from multiple surgeries. The patients underwent a one stage treatment of the infected total joint. The resultant defect from soft tissue involvement required a free muscle flap and split thickness skin graft for coverage of the soft tissue defect. Patellectomy with some quadriceps resection was required in the debridement process. Distal femur and proximal tibial replacements were performed with proximal placement of the knee joint. The patients were analyzed for extension control in gait and soft tissue closure over the operational knee joint. The quadriceps mechanism was over sewing to the proximal tibial component.

Results: Of the six patients reviewed, none recurred with infection. There was no erosion of the soft tissue over the knee joint commonly seen in free flaps directly over the joint in these type of resection – replacements. 50% of the patients had enough extensor use to walk with a cane as opposed to needing a drop lock knee brace.

Conclusion: Proximal placement of the total knee in case of infected total knees with large anterior soft tissue defect, may provide more quadriceps function and soft tissue coverage.