

REVISION PATELLAR TENDON RECONSTRUCTION IN PROSTHETIC JOINT INFECTION FOLLOWING TOTAL KNEE ARTHROPLASTY: A SUCCESSFUL OUTCOME WITH SYNTHETIC GRAFT AUGMENTATION

Hypothesis: Patellar tendon rupture is a rare but devastating complication following total knee arthroplasty (TKA), with an incidence ranging from 0.17% to 1%. While various reconstruction techniques exist, the concurrent development of prosthetic joint infection (PJI) with patellar tendon failure presents a complex management challenge with limited published literature. This case study demonstrates that revision patellar tendon reconstruction with synthetic graft augmentation combined with staged revision arthroplasty can achieve favorable functional outcomes, challenging the conventional recommendation for knee arthrodesis in this setting.

Methods: A 45-year-old female patient with rheumatoid arthritis on disease-modifying antirheumatic drugs underwent bilateral TKA. She subsequently developed atraumatic patellar tendon rupture one month postoperatively, managed with reconstruction using autogenous semitendinosus graft. Three months after reconstruction, she developed PJI with positive culture for methicillin-resistant *Staphylococcus aureus* (MRSA) and wound dehiscence. Following initial arthrotomy and debridement with fasciocutaneous flap coverage, she was referred for definitive management after recurrent infection and failed reconstruction. Staged revision surgery was performed: Stage I involved sinus tract excision, prosthesis removal, and antibiotic cement spacer placement with intravenous vancomycin and oral rifampicin therapy. Stage II revision TKA with synthetic allograft patellar tendon augmentation (poly-tape implant) was performed three months following infection control confirmation via sterile arthrocentesis.

Results: At three-year follow-up, the patient achieved independent ambulation without pain or instability. Clinical examination revealed knee range of motion of 0°–95° with zero extensor lag and grade 5 quadriceps strength. Knee Society Scoring demonstrated a knee score of 82 and functional score of 78. Radiographs confirmed satisfactory implant positioning with no prosthetic loosening. Serial laboratory investigations showed normalized inflammatory markers. No recurrent infection or further complications were documented during the entire follow – up period.

Conclusions: Revision patellar tendon reconstruction with synthetic graft augmentation combined with two-stage revision arthroplasty can achieve excellent functional outcomes even in the challenging scenario of PJI with patellar tendon failure in inflammatory arthritis patients. This approach offers a viable alternative to knee arthrodesis and should be considered in appropriate cases with aggressive infection control and proper soft tissue management.