

## **Promising Clinical Outcomes Using Rotational Achilles Autograft for Knee Arthroplasty Terrible Triad**

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### **INTRODUCTION:**

The knee arthroplasty terrible triad (KATT) is a combination of prosthetic joint infection (PJI), extensor mechanism insufficiency (EMI), and soft tissue defect. KATT is a limb-threatening condition that has historic functional success rate of 14%, a 14% chance of fusion, and a 27% chance of amputation. The rotational gastrocnemius-Achilles flap holds promise as native soft tissue to provide coverage and a lever arm to assist with knee extension. We hypothesize that application of modern rotational Achilles tendon autograft (RATA) in conjunction with two-stage revision improves functional and limb salvage outcomes compared to previous rates.

### **METHODS:**

A retrospective chart review was performed on 19 patients with KATT who underwent RATA between 2020 and 2024. The primary endpoint was composite functional success as an in-situ arthroplasty without infection recurrence, a minimum knee active ROM arc of 90 degrees, extensor lag of  $\leq 15$  degrees, and ambulating independently with or without aid at one year following initiation of PJI treatment. Secondary outcomes were amputation rate, ambulatory status, RATA complications, and KOOS scores.

### **RESULTS:**

The mean age was 67.9 years (range: 51–83), with an average follow-up of 1.9 years (range: 1.0–4.0). Composite functional success was achieved in 8 of 19 patients (42%). Two patients (11%) underwent knee fusion, and 3 patients (16%) underwent above-knee amputation. Thirteen patients (68%) were independently ambulatory with assistive devices. Available KOOS scores improved on average from 31.8 to 57.5. Three patients developed surgical complications from RATA: one wound irrigation and debridement and two managed with local wound care.

### **DISCUSSION AND CONCLUSION:**

Contemporary RATA is a safe and promising treatment for KATT that yields superior composite functional outcomes and improved limb salvage compared to traditional extensor mechanism reconstruction and wound coverage techniques.