

Abstract

BACKGROUND

Gastrocnemius flaps are traditionally paired with static spacers to immobilize the knee and promote soft-tissue healing. However, it remains unclear whether motion must be restricted or if joint articulation can be safely preserved. This study evaluated outcomes in patients who underwent gastrocnemius flap coverage with joint preservation via articulating spacers, modular exchange, or primary total knee arthroplasty (TKA), to determine whether motion compromises soft-tissue integrity or infection control.

METHODS

A retrospective review was conducted of 13 patients who underwent gastrocnemius flap coverage with preserved articulation between October 2022 and January 2025 at a Level 1 academic center. Demographics and outcomes were analyzed.

RESULTS

The cohort included 13 patients (11 male, 2 female) with a mean age of 71.5 years. Minimum follow-up was 12 months (mean: 25.3 months). Twelve patients (92.3%) remained ambulatory, and seven (53.8%) reported no pain. Mean postoperative ROM was 93°, with an average gain of 5.0° among patients with complete data. Ten patients had Knee Society Scores, averaging 90.

Flap survival was 92.3% (12/13), and infection resolution occurred in 90.9% (10/11) of PJI cases. Final prosthesis status included eight patients (61.5%) with retained articulating spacers, two (15.4%) with definitive TKA, two (15.4%) reimplanted for a more stable construct, and one (7.7%) underwent above-knee amputation. One patient required revision spacer placement for recurrent infection.

CONCLUSION

This series demonstrates that joint articulation can be preserved in patients undergoing gastrocnemius flap coverage without compromising flap survival or infection control, supporting the use of articulating “1.5-stage” spacers in select patients.