

OBJECTIVES

- Failure to heal a below-knee amputation (BKA) can lead to significant patient morbidity and may consequently require additional surgical debridement or conversion to an above-knee amputation
- We describe a novel hybrid technique of retrograde transamputation revascularization (RTAR) and its utility as an adjunctive therapy to optimize wound healing in patients with peripheral arterial disease (PAD) undergoing BKA

METHODS

- Single-center retrospective study
- Patients with PAD who underwent a BKA with a simultaneous RTAR procedure
- Transtibial access in the open amputation stump (Figure 1)
- Study period: January 2017 and June 2023
- Primary outcomes:
 - Technical success
 - Wound healing
- Secondary outcomes:
 - 30-day complications
 - Length of stay
 - Reintervention rate
 - Amputation conversion rate

FIGURE 1: Transtibial access in the open below-knee amputation stump



RESULTS

- n=8 patients
 - Men (n=6, 75%)
 - Mean age 63 (SD 9 years)
 - Indications:
 - Diabetic foot infection (n=4, 50%)
 - Unsalvageable tissue loss (n=4, 50%)
- Technical success was 87.5%.
 - One patient had chronically occluded tibial vessels
- Interventions performed:
 - Balloon angioplasty (n=4, 50%)
 - Balloon angioplasty with stenting (n=2, 25%)
 - Angiography without intervention (n=1, 12.5%)
- All patients (100%) achieved complete wound healing
- 30-day complications: Surgical site infection (n=1, 12.5%)
- Average length of stay was 14 days.
- There were no reinterventions or amputation conversions within the follow-up period, which ranged from 1-53 months

CONCLUSIONS

- Retrograde transamputation revascularization appears to facilitate wound healing of patients undergoing below-knee amputation
- Our case series demonstrates the feasibility and safety of performing below-knee amputation with simultaneous RTAR to optimize amputation healing in patients with PAD
- Further investigation is warranted to delineate which patients would most benefit from this technique and whether BKA healing rates are improved