



Statement of Purpose

The purpose of this case study is to present evidence in favor of limb salvage in patient populations which would otherwise be considered non-surgical candidates and would either be subject to the consequences of chronic pain, wounds, and/or infection, or an alternative of a major lower extremity amputation (MLEA) and the associated risks.

Case Study

The patient initially presented as a 75-year-old diabetic female with an acute left ankle fracture, SAD2. The patient was morbidly obese at the time of the injury and considered to not be a surgical candidate. The patient was lost to follow-up. Three years later the patient presented to the ED with a chronic wound to the lateral ankle. The patient stated that prior to her original injury, she was ambulatory. At the presentation to the ED she was bed bound and transferred via Hoyer lift. The wound had a positive probe to bone and the patient was septic. Ankle radiographs showed severe displacement of tibial and fibular fracture sites. The patient was sensate and long-term wound care with aggressive antibiotic therapy was deemed not compatible with long-term survival. The patient was medically stabilized and limb salvage vs. below the knee amputation (BKA) operations were discussed. The patient elected the former.

References:

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J.E. Naschitz, R. Lenger, Why traumatic leg amputees are at increased risk for cardiovascular diseases, *QJM: An International Journal of Medicine*, Volume 101, Issue 4, April 2008, Pages 251-259, <https://doi.org/10.1093/qjmed/hcm131>
Jung Eun Yoo; Bongseong Kim; Won Hyuk Chang; Kyungho Lee; Hye Ryoung Jang; Kyungdo Han; Dong Wook Shin, Increased Risk of End-Stage Kidney Disease After Traumatic Amputation: Nationwide Cohort Study, *Healthcare*, 13, 1, (80), (2025). <https://doi.org/10.3390/healthcare13010080>

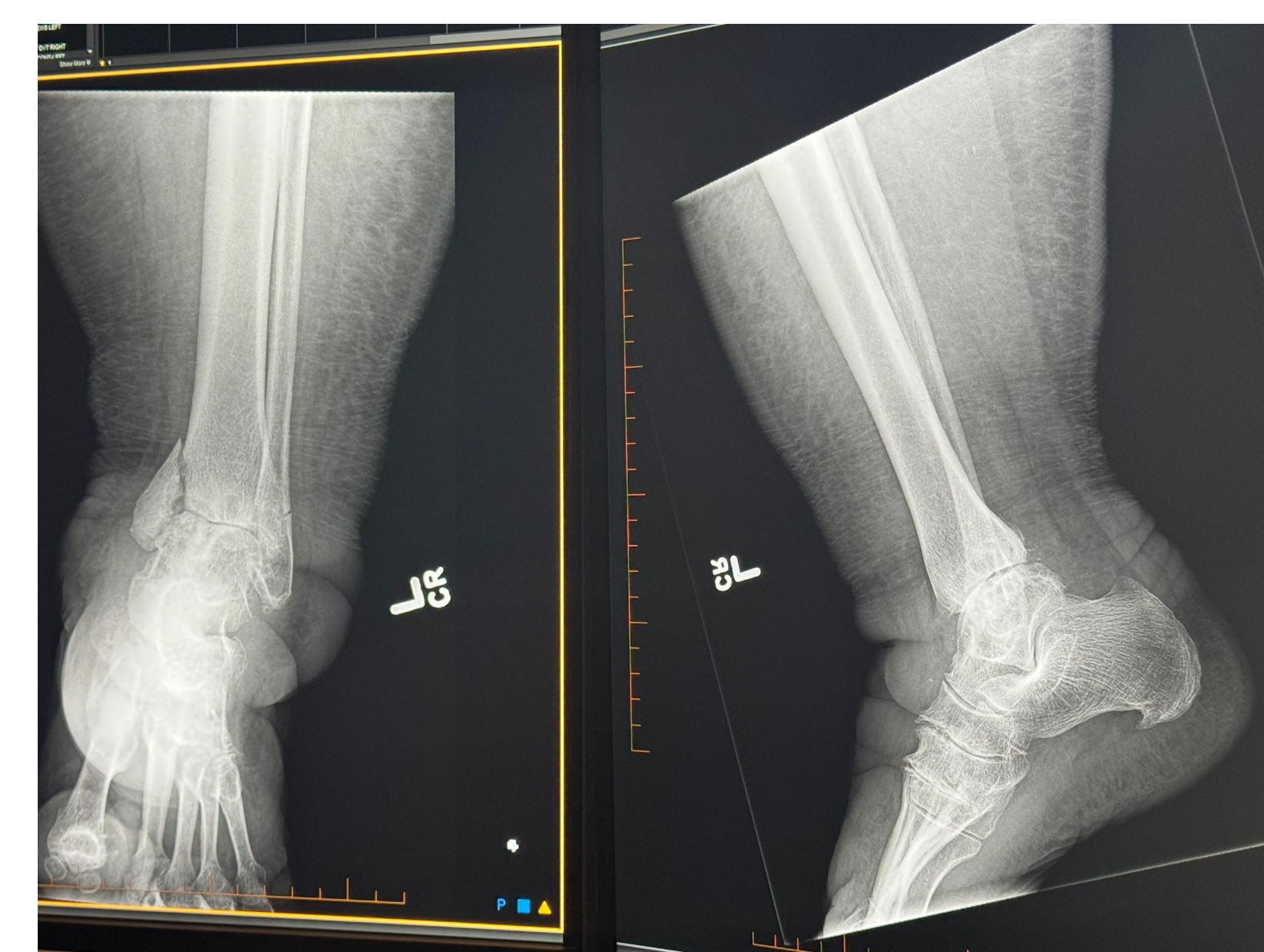
Literature

Historically, MLEAs have been the forefront for managing severe lower extremity disease in an effort to reduce multiple surgical encounters for patients with high clinical co-morbidities and high risk of operative and post-operative complications. In recent years, an abundance of studies have come to light indicating a 2-year post-mortality rate in MLEA of around 50%, while major lower extremity limb salvage attempts yield a 2-year post-mortality rate of approximately 80%. This has altered the way many clinicians and surgeons have approached high-risk lower extremity disease patient populations. The statistics have been even more surprising when comparing sedentary vs. active, MLEA vs. limb salvage. Sedentary populations (which is often the case in diabetic or other high risk comorbid populations) tend to do better than the active populations in terms of limb salvage as opposed to MLEA. This is likely due to the cardiovascular hemodynamic impact of MLEA and the ability of the active patient to better withstand the systemic impact of sudden extensive tissue loss. Thus, it is imperative that in addition to prophylactic measures such as tight glycemic control, alcohol and smoking cessation, and nutritional optimization, MLEA be avoided in order to prevent cardiovascular decline or pre-mature death in the lower extremity disease patient.

Discussion

This patient initially presented with a complex social history, but made it very clear to the team that she wanted to be able to walk again so she could get back into her kitchen and cook for her family as she did before her injury. As a team, we determined this to be feasible. The ultimate goal would be a biomechanically stable lower extremity which could bear weight for low impact ambulation. The surgical plan was staged with the initial stage involving external fixation, realignment of the osseous structures, and thorough wound debridement. The lateral wound was closed. The external fixation was left in place for 2-months. Following removal of the external fixation, an intramedullary (IM) rod was placed through the tibio-talo-calcaneal joints with fibular breakdown. Following IM rod placement the extremity appeared plantigrade. The patient is currently doing well at a skilled nursing facility. At 6 weeks post-op the patient will begin physical therapy. Discussion currently involves whether or not the patient will be placed in a long-term brace for additional limb support or a CROW boot for stability and prevention of hardware failure or future injuries. At the moment a CROW boot is the best option as the fusion yielded a talar deficit and subsequent limb length discrepancy. We hope to fill the deficit with the increased height of a CROW, if she is able to tolerate it long term. She remains medically stable and most importantly, she is doing well emotionally and optimistic about being able to walk again soon.

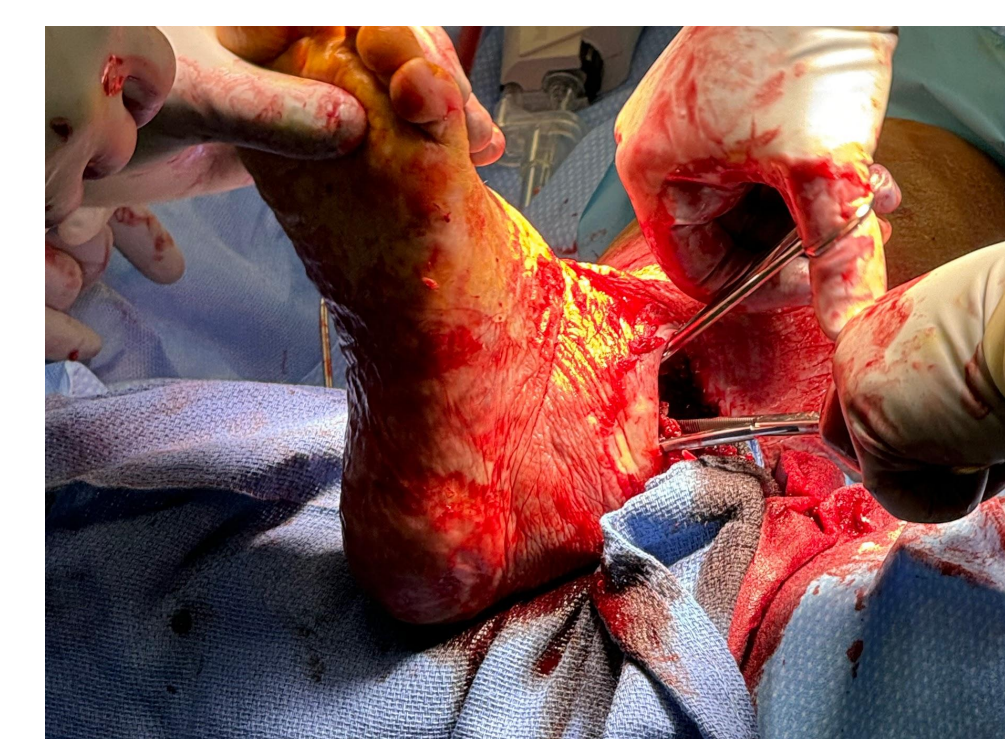
Initial Injury



3 years after initial injury



Intra-Op



2 Months Post-Op

