

A Tale of Two Soles: Critical Decision Making for Like Wounds in Unlike Patients

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Introduction: The lateral column is a common site of ulceration in the neuropathic foot due to the prominence of the fourth and fifth metatarsal heads and fifth metatarsal base and faulty foot biomechanics.^{1,2} The relative lack of overlying soft tissue in these regions predisposes them to osteomyelitis and surgical amputation.² Revision rates for fifth ray amputations are reported to be as high as 58.3%.^{3,4} We present two contrasting cases regarding critical decision making in the healing and long-term prognosis of lateral column resections.

Methods: Two case studies are presented. The first is a 90-year-old male with DM-II, A-fib, cardiac pacemaker, HTN, HLD, PVD, Cavo- varus foot and diabetic foot infection which required partial amputation of the fourth and fifth rays. The second case is a 38-year-old male who presented with a diabetic foot ulcer, osteomyelitis and infection of the lateral foot. The patient's past medical history included undiagnosed IDDM-II with peripheral neuropathy. Patient underwent partial fifth ray amputation. After surgery both patients underwent numerous treatment modalities to heal large defects secondary to amputation. Treatment for the first patient included larval therapy, chorion-free amniotic membrane allograft, appropriate offloading shoe and prolonged stay in skilled nursing facility. Treatment for the second patient included negative pressure wound therapy, chorion-free amniotic membrane allograft, offloading and prolonged stay in rehabilitation facility. The first patient failed to heal after 15 weeks of wound care. The patient was given the choice for below knee amputation vs palliative wound care. Patient elected palliative wound care and patient died 6 weeks later. The second patient healed completely by week 12. The patient was fitted for custom orthotics with ray filler and extra depth shoes and foot remains healed.



Figure 1: Patient 1 Week 1



Figure 2: Patient 2 Week 1



Figure 3: Patient 1 Week 12



Figure 4: Patient 2 Week 12

References:

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Discussion: In planning lateral column amputation for diabetic foot infection which leave large residual soft tissue defects, surgeons must consider post-surgical wound healing ability and evaluate each patient independently. Consideration of patient's general health, age, mobility and foot type, lateral column stability or instability and vascular status, must be investigated. Due to multiple medical comorbidities including significant PVD, the first patient failed initial wound healing practices including offloading and chorion-free amniotic membrane allograft. Despite routine debridement, the wound failed to develop healthy, healing tissue. Larval therapy was initiated to reduce necrotic tissue, but ultimately the wound failed to progress. Additionally, the patient developed recurrent UTI's, associated altered mental status which lead to worsening health and wound healing potential was compromised. As a result, the patient was offered a below-knee amputation but did not want surgical intervention and elected for palliative wound care. In contrast, the second patient had a much less complicated medical history. Wound care healing progressed well with chorion-free amniotic membrane allograft and negative pressure wound therapy. With medical management of his previously undiagnosed diabetes and weekly allograft applications, he healed within 12 weeks and has remained healed. In conclusion, the overall health of the patient is an important consideration in predication of wound healing potential after foot amputation.

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