

Purpose & Introduction

- The purpose of this project was to highlight the importance of assessment of medical comorbidities including diabetes mellitus (DM) and vascular status in patients with burns.
- DM leads to 154,000 for a lower-extremity amputation (6.1 per 1,000 adults with diabetes) ¹
- This was project chosen due as the patient had small surface area for wound involvement, however, had prolonged wound healing due to poor insight/ consideration of co-morbidities, language barriers, poor health literacy.
- Despite these barriers, the patient did have healing potential once PAD and DM were medically managed and aggressive wound care strategies were put in place.

Background

- A 53 y.o. Hispanic male presented to a burn center with a superficial partial thickness burn following the use of an electric blanket, after injuring his foot from a staple gun
- The patient had type two diabetes mellitus with an A1C of 14.5 on admission and peripheral arterial disease (PAD) that was undiagnosed at admission
- The patient was admitted to the Burn service where he was taken to the OR on Day 4 for a tangential excision and split thickness skin graft to left foot. Pt initially with appropriate healing and discharged home on post OP day 2
- Pt returned to ED on post op day 15 with diabetic foot infection and cellulitis from initial staple gun injury
- Pt underwent 2nd & 3rd ray amputation initially, then returned to OR for 4th and 5th ray amputations with vascular surgery
- Pt discharged home with PT wound care managing WVAC to 2-5th toes inpatient with transition to OP clinic

Methods

- Following a split thickness skin graft (STSG) to address the heel burn from electric blanket, the patient developed dusky toes
- Pt underwent amputations of his 2nd through 5th rays
- The patient was managed in the outpatient wound care clinic for the toe amputations, noted unstable unstable eschar over his heel skin graft and Burn MD informed, managed via SSD, no debridement being performed
- After day 87, the wound care clinic then managed the unstable eschar via aggressive wound care interventions including sharp debridement and advanced dressing selection, such as enzymatic debridement and antimicrobial dressings
- The patient also received additional education regarding management of his DM and PAD

Results



Day 87-wound care clinic initiated sharp debridement

Results (continued)

- The patient's limb was salvaged by the wound care clinic with 100% re-epithelialization.
- The use of autolytic wound care dressings and sharp debridement were able to effectively remove eschar from the skin graft and facilitated re-epithelialization without surgical intervention.
- The patient was able to return to his prior level of function without use of an assistive device

Conclusion

- Holistic wound assessment is essential at admission for patients with burns who have DM, including assessing vascular status.
- Addressing patient's comorbidities and proactively assessing vascular status can prevent amputation and further wound healing
- Aggressive sharp debridement for eschar promotes full wound healing

Recommendations

- The management of DM is essential for wound healing and limb salvage, along with appropriate wound care interventions
- The management of vascular status is critical to assess for healing potential and promote wound healing especially after STSG

Citations

- Centers for Disease Control and Prevention. National Diabetes Statistics Report website. <https://www.cdc.gov/diabetes/data/statistics-report/index.html>. Accessed 9/25/23