

# Fish Skin Graft\* for Treatment of a Deep Heel Wound: A Case Study

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## INTRODUCTION

Heel wounds pose significant challenges in the healing process due to several factors. The unique anatomy of the heel, including its poor vascularity, limited subcutaneous tissue, and high mechanical stresses during weight-bearing activities, contribute to delayed healing and complications (1).

Split-thickness skin grafts (STSGs) may encounter challenges in healing heel wounds due to specific reasons. The unique characteristics of the heel, such as its thick, callused skin and poor vascularity, contribute to limited graft survival and subsequent failure (2). The mechanical stress exerted on the heel during weight-bearing activities can disrupt the delicate microvasculature of the graft, impeding its integration and viability (3). Additionally, the high incidence of pressure ulcers in the heel region increases the risk of graft breakdown and infection, further compromising healing outcomes (4).

Fish Skin Graft (FSG)\* is a novel approach to wound healing. FSG serves to heal into the native tissue upon which it is applied. The purpose of this study is to provide evidence of FSG to adequately provide for lasting heel wound healing.

## METHODS

Patient had a charcot foot reconstruction and developed a necrotic heel wound due to pressure from improper offloading. The hardware into the calcaneus was subsequently removed, the wound was debrided and FSG was applied along with NPWT. Site was then subsequently debrided at follow up visits, and FSG was applied as needed, over several months.

## CASE : 64-YEAR-OLD MALE

Patient History: 64-year-old male with PMhx of previously uncontrolled DM

Wound History: Patient underwent Charcot reconstructive surgery, developed decubitus heel wound which was deep to bone ~2 weeks after.

Patient Outcomes: At ~9 months, the wound achieved full closure. The patient is now fully ambulating onto the extremity.



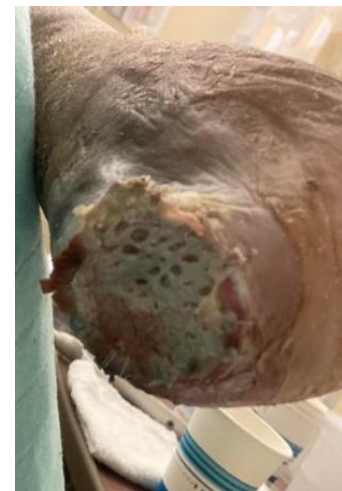
Initial presentation



s/p naviclectomy, medial column fusion, STJ fusion, and CCJ fusion



12/3-dos: debridement/FSG application/and Wound Vac application



12/7



12/30



1/16



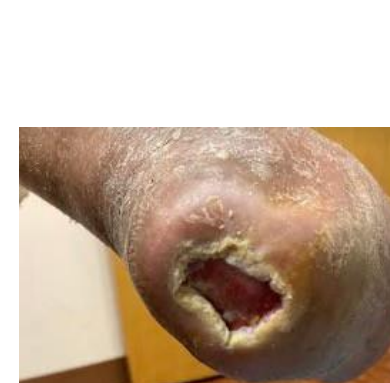
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2/20



3/3



4/3



5/8



6/26



8/14 Final Healing outcome

## RESULTS

The wound healed completely over the course of ~8 months. The overlying skin that formed was of the same elasticity and thickness as one would expect of the skin at the heel. After one year of follow up, no recurrence of wound or skin breakdown was noted.

## CONCLUSIONS

The unique properties of FSG make it a promising treatment modality for healing heel wounds, with lasting results. This makes it a viable alternative to STSGs to heal wounds in this challenging anatomical region. Further replication of the FSG's use in this manner is warranted to solidify it as a standard of care for treating heel wounds.

## REFERENCES

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