

Adjunctive Clarix® for Metatarsal Delayed Union

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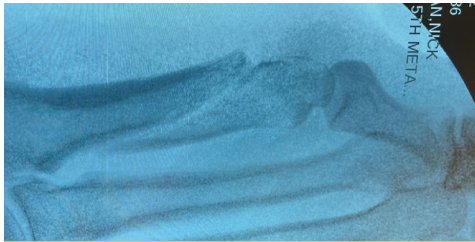


FIG. 1

Why this Study is Relevant

Fractures of the fifth metatarsal are one of the most common foot fractures,¹ and many of them (7.3-11.7%) go on to delayed or non-union healing.² Despite being surgically managed, continued non-union rates have been reported between 3-16%.³ This case report demonstrates the potential clinical benefits of adjunctive use of Clarix Flo and Clarix 100 in surgical fixation of delayed and non-union fractures.



FIG. 2A

Case Example

A 37-year-old female with significant Vitamin D deficiency presented with a 5th metatarsal delayed union fracture on the left foot due to misstep (FIG. 1). Patient had been conservatively treated with non-weight bearing and CAM walking boot but had persistent pain for 3.5 months.

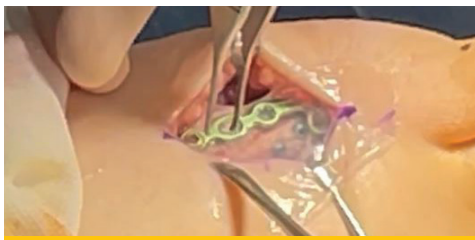


FIG. 2B

Treatment Procedure

The patient underwent open reduction and internal fixation (ORIF) to stabilize the fracture. Clarix Flo 100mg was reconstituted into a putty consistency and placed in the fracture site (FIG. 2A) with an additional 4.0 x 4.0cm Clarix 100 amniotic membrane graft placed over the plate (FIG. 2B) subcutaneously to serve as a natural scaffolding and prevent soft tissue irritation. Primary closures were performed with sutures.

Outcomes

Continuous healing was observed in both the fracture and surgical wound. At post-op week 3, there was evidence of healthy wound healing (FIG. 3A). By post-op day 26, the surgical site was quiet and the patient reported no pain (FIG. 3B). At 8 weeks, the patient continued to report no pain, with noted bone bridging in the fracture location (FIG. 4A). By 11 weeks, the metatarsal had healed (FIG. 4B). No wound complications occurred during this case.



FIG. 3A POW 3



FIG. 3B POD 26



FIG. 4A POW 8

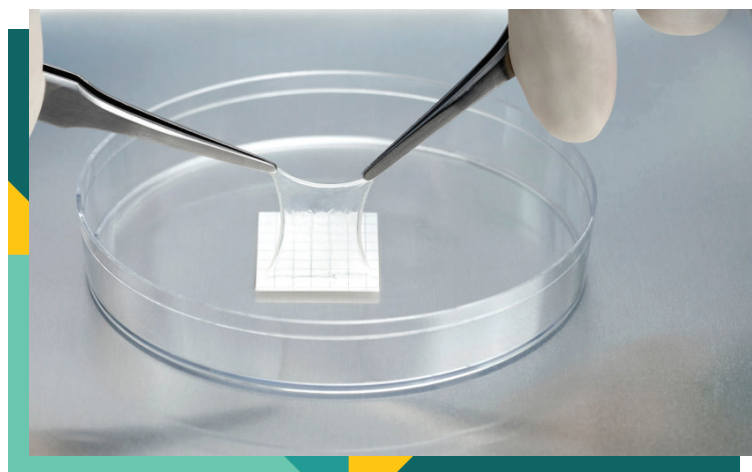


FIG. 4B POW 11

Clarix 100

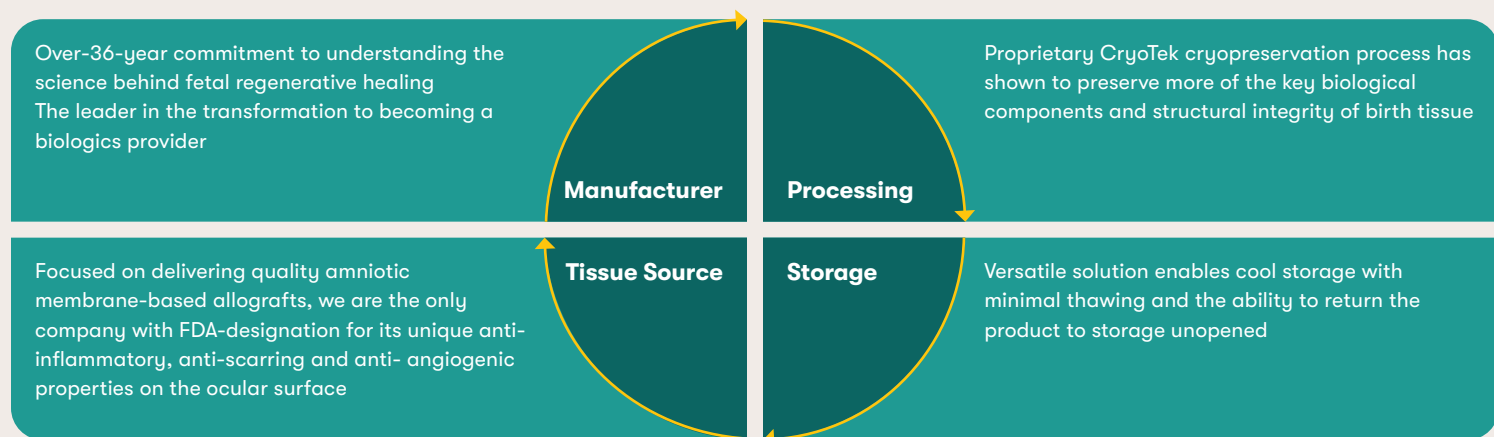
Clarix 100 is a cryopreserved amniotic membrane allograft.

- Appropriate for minimally invasive procedures where access and space are anatomically compromised
- For easier handling and application, the allograft is delivered on a non-implantable, gridded paper backing which is removed at the time of application.
- In Foot and Ankle procedures, where the unique anatomy leads to a higher propensity of wound healing complications compared to other orthopedic surgeries due to:⁶
 - Thin layer of soft tissue protection of underlying anatomy
 - Deficient extremity blood flow around the ankle, especially in patients with comorbidities



Clarix 100 Cryopreserved Amniotic Membrane Allograft	
Product Code	Size
CR-02-2020	2.0 x 2.0 cm
CR-02-4040	4.0 x 4.0 cm
CR-02-7070	7.0 x 7.0 cm

The BioTissue Difference



1. Metcalfe SA. Non-united fifth metatarsal metaphyseal fractures. *The Foot*. 2001;11(2):99-102.
2. Zura R, Xiong Z, Einhorn T, Watson JT, Ostrum RF, Prayson MJ, Della Rocca G-J, Mehta S, McKinley T, Wang Z, Steen RG. Epidemiology of Fracture Nonunion in 18 Human Bones. *JAMA Surg*. 2016 Nov 16;151(11):e162775. doi: 10.1001/

3. Sheridan, 2021. SURGERY FOR NONUNION AFTER FIFTH METATARSAL FRACTURES: THE GOOD GUY BECOMES THE BAD GUY!
4. Dalton GP, Wapner KL, Hecht PJ. *Clin Orthop Relat Res*. 2001 Oct;(391):133-9.

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