

Case Experience For Use Of Umbilical And Amniotic Cellular Tissue Allografts In Conjunction With Hyperbaric Oxygen Therapy For Limb Salvage

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BACKGROUND

- Placental tissues have been shown to be anti-inflammatory, antimicrobial, antifibrotic, anti-adhesive, and angiogenic²⁻⁵
- Positive clinical outcomes have been reported with placental tissues in the management of a variety of wound types, including complex wounds with exposed bone⁶⁻⁷
- Umbilical cord allograft is generally applied once in the OR, can be sutured and is about 2-3 mm thick while amnion allograft is about 50-100 μm thick and is generally applied weekly.

PATIENT HISTORY

A 55 year old male who had sustained a crush trauma injury at work presented with a gangrenous surgical wound from an open forefoot amputation. The wound size was 11.0 x 13.0 x 1.0 (cm), i.e. 143 cm³.

METHODS

- The wound was surgically debrided, and the metatarsal heads were resected.
- 4 pieces of a 3x6 cm cellular umbilical tissue allograft (Stravix^o, Smith & Nephew) were applied and sutured into the wound margins.
- Hyperbaric oxygen therapy was started and was continued for 86 treatments at 2.5 Atm.
- After 4 weeks, a shelf stable cellular amniotic membrane (GrafixPL^o, Smith & Nephew) was then applied weekly for 13 weeks (as approved by the insurance).
- The allograft was covered with Mepitel^o as a secondary dressing and secured with Steri-stripsTM.

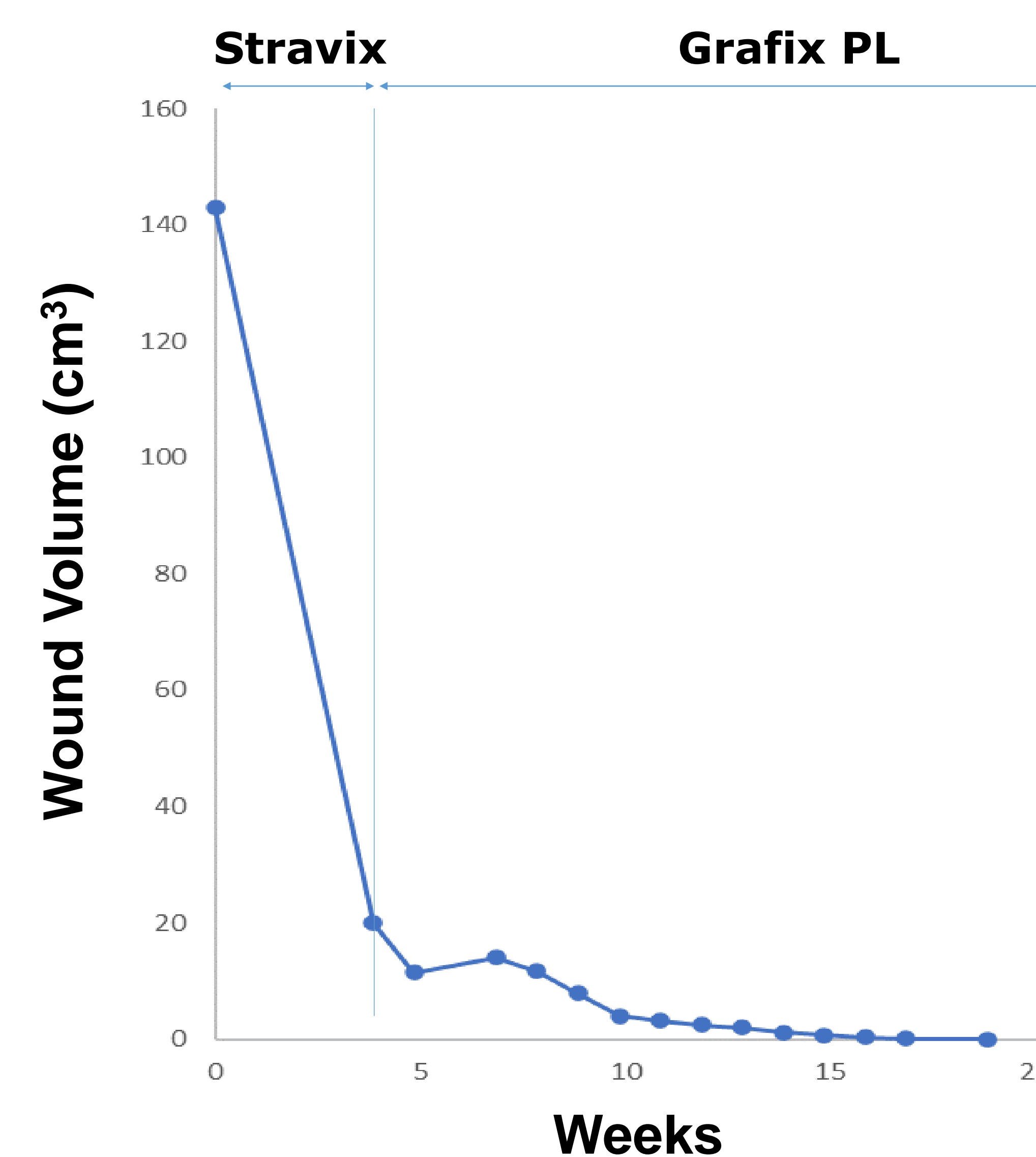
References

1. Costa DJ et al. *J Neurol Surg B Skull Base*. 2016. 2. Duan-Arnold Y et al. *Adv Wound Care*. 2015a. 3. Duan-Arnold Y et al. *Adv Wound Care*. 2015b. 4. Mao Y et al. *J Diabetic Foot Complications*. 2016. 5. Dhall S et al. *Bioactive Materials*. 2018. 6. Frykberg RG et al. *Int Wound J*. 2016. 7. Suzuki K et al. *J Wound Care*. 2016. 8. Fife TA et al. *Clin Case Reports*. 2019.

ALLOGRAFT APPLICATION

Week	Graft	Graft Size (cm)	Wound Volume (cm ³)
0	Stravix 1	3 x 6	143
4	Grafix 1	5 x 5 (2 pieces)	19.95
5	Grafix 2	5 x 5	11.44
7	Grafix 3	5 x 5	14
8	Grafix 4	5 x 5	11.7
9	Grafix 5	5 x 5	7.92
10	Grafix 6	5 x 5	4
11	Grafix 7	5 x 5	3.15
12	Grafix 8	3 x 4	2.48
13	Grafix 9	2 x 3	1.96
14	Grafix 10	2 x 3	1.12
15	Grafix 11	1.5 x 2	0.704
16	Grafix 12	16 mm disc	0.36
17	Grafix 13	16 mm disc	0.072
19	Follow up	-	CLOSED

RESULTS

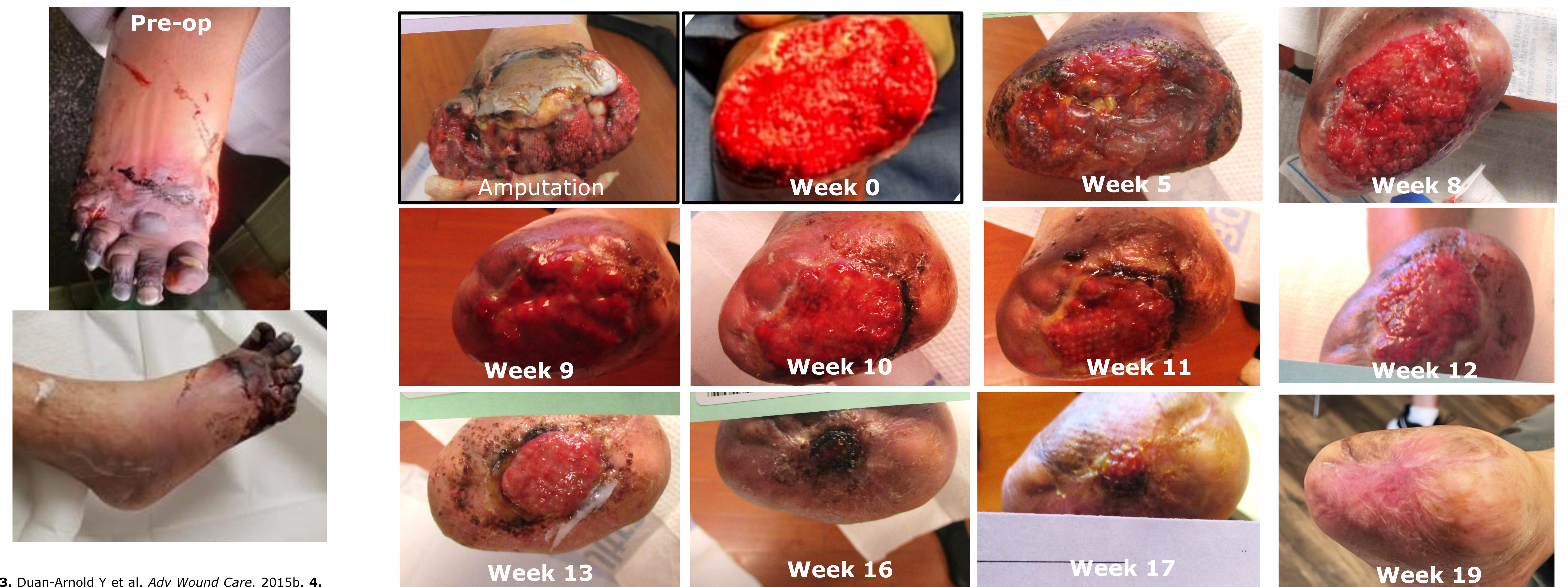


In 4 weeks, after application of the umbilical allograft, the wound volume decreased to 7.0 x 9.5 x 0.3 (cm) i.e., 19.95 cm³, a decrease of 86%.

At the end of the 13 applications of the amniotic allograft, the wound had reduced to 0.4 x 0.5 x 0.1 (cm), i.e., 0.02 cm³, which was a 99.9% decrease in volume than the initial presentation.

At the last visit, 2 weeks post-application, the wound was completely healed.

WOUND PROGRESSION



1. Costa DJ et al. *J Neurol Surg B Skull Base*. 2016. 2. Duan-Arnold Y et al. *Adv Wound Care*. 2015a. 3. Duan-Arnold Y et al. *Adv Wound Care*. 2015b. 4. Mao Y et al. *J Diabetic Foot Complications*. 2016. 5. Dhall S et al. *Bioactive Materials*. 2018. 6. Frykberg RG et al. *Int Wound J*. 2016. 7. Suzuki K et al. *J Wound Care*. 2016. 8. Fife TA et al. *Clin Case Reports*. 2019.