stryker

Case study: Acute Achilles Reinforcement

Artelon® FlexBand®

Presented by: Mark Prissel, DPM Columbus, OH

Sponsored by Stryker – Dr. Prissel is a paid-consultant of Stryker

Technology overview

Artelon FlexBand is a degradable synthetic biomaterial that is designed to reinforce soft tissue and serve as a scaffold for connective tissue ingrowth.[1] It is designed to mimic normal tissue elasticity while in the body[2] and is high strength for load sharing.[3] These features are designed to:

- Support motion without constraining it[2]
- Allow for regeneration of natural tissue through load-sharing[1,4]
- Be less inflammatory than titanium and polystyrene[5]

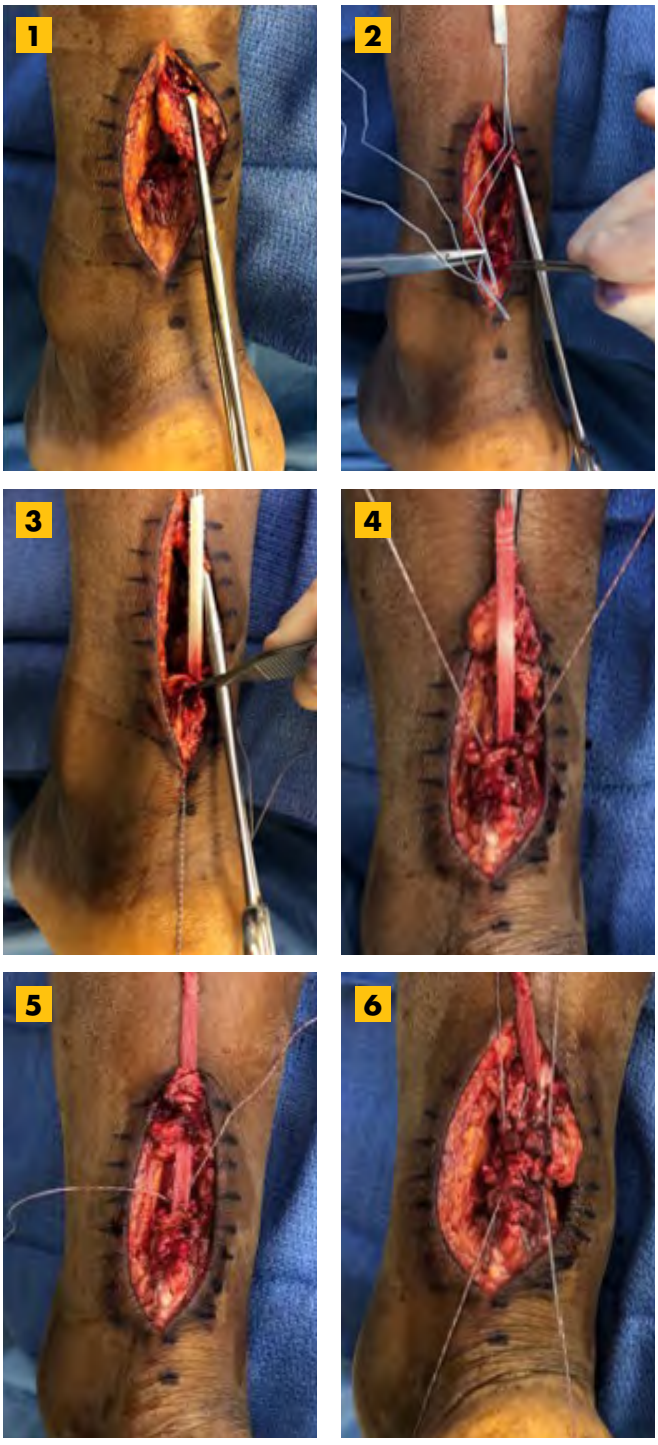
FlexBand shows no evidence of necrotic breakdown.[6] It acts as a scaffold and is capable of integrating with regenerating connective tissue.[1] FlexBand shares the tensile loading to both protect the healing construct and allows mechanical stimulation required for optimal tissue regeneration and remodeling.[7,8] The material gradually degrades through hydrolysis and is fully integrated over 4-6 years.[1,3,9]

Surgical intervention

The Achilles tendon is exposed and the tear is identified. The damaged tissue from each stump is debrided and the proximal portion is mobilized. **(Figure 1)** A 0.5 × 8cm FlexBand Plus (the pre-whip stitched product) is passed through the central core of the distal stump. **(Figure 2)** Once secured, the FlexBand is pulled up to the proximal Achilles stump. **(Figure 3)**

While maintaining desired tension on the FlexBand, It is integrated into the distal stump with standard Krakow sutures with size 2 polyethylene braided suture, completing at least four locked passes on each side of the tendon, taking care to incorporate the FlexBand with each pass. **(Figure 4)**

Next, the unfixed end of the FlexBand is passed through the central core of the proximal stump. **Tip:** Pass the FlexBand as proximal as possible to maximize FlexBand/tendon apposition. **(Figure 5)** While maintaing tension on the FlexBand, suture it into place by repeating the same Krakow suturing done for the distal stump. **(Figure 6)**



With both ends of the FlexBand secured, a “gift box” suture technique is utilized to pass each strand away from the rupture site and to tie knots on the deep side of the tendon, further maximizing tendon apposition at the injury. **(Figure 7)**

Excess FlexBand can be passed distally and oversewn into the deep side of the tendon repair with size 2-0 polydioxanone suture. **(Figure 8)**

Once the repair is completed, the FlexBand is visibly integrated into the tendon as reinforcement of the primary repair with the appropriate tension maintained. **(Figure 9)**

Final closure is completed by closing all tissue layers over the reinforced soft tissue repair.

Ordering info

41053	0.5 × 8cm FlexBand Plus

Size 2 poly-braid suture and 2-0 polydiaxanon suture of choice

Foot & Ankle

1. Liljensten, E., Gisselfalt, K., Edberg, B., Bertilsson, H., Flodin, P. (2002). J Mater Sci Mater Med, 13, 351-359. Claim based on rabbit and minipig ACL studies. It is unknown how the results from the rabbit and minipig models compare with clinical results in humans.
2. Kelly , M. J., Dean, D. M., Hussaini, S. H., Neufeld, S. K., Cuttica, D. J. (2024). Foot & Ankle Spec, 17(3), 203-207.
3. Data on file at Stryker.
4. Barber, F.A., and Aziz-Jacobo, J. J Arthroscopy (2009) Nov; 25 (11):1233-9
5. Gretzer, C., Emanuelsson, L., Liljensten, E., & Thomsen, P. (2006). J Biomater Sci, Polymer Ed, 17(6), 669-687.- Claim based on subcutaneous rat model. It is unknown how results from the rat model compare with clinical results in humans.
6. Woodruff, M.A., and Hutmacher, D.W. (2010). Progress of Polymer Science, 35, 1217-1256. - Claim based on review of polycaprolactone polymers as biomaterials.
7. Giza E, Frizzell L, Farac R, Williams J, Kim S. Foot Ankle Int. 2011;32(5): S545-S549.
8. Sheng, R., Jiang, Y., Backman, L. J., Zhang, W., Chen, J. (2020). Stem Cells Intl, Sept 24, 1-14.
9. Gisselfalt, K., Edberg, B., Flodin, P. (2002).Biomacromulecules, 3, 951-958

Dr. Mark Prissel is a paid-consultant of Stryker. The opinions expressed by the author are those of the author and not necessarily those of Stryker. Individual experiences may vary.

FA-FLEX-TECHG-1817094_REV-0_en_us