

Treatment of Significant Subtalar Coalition Using PliaFX[®] Prime Moldable Demineralized Fibers

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CASE STUDY

Subtalar coalition is an abnormal bridge between the talus and calcaneus, associated with subtalar joint stiffness, considerable pain, and rigid flat foot (pes planus).¹ Subtalar coalition is often non-symptomatic early on and becomes symptomatic following ankle sprain and/or injury to the foot. When non-operative treatments fail, subtalar arthrodesis is employed, particularly when subtalar coalition is greater than 50%, employing a bone graft to facilitate fusion.

Unlike traditional grafting options, PliaFX Prime was developed to provide optimized handling capabilities, undiluted osteoinductive potential,²⁻⁸ and a hospitable scaffold and void filler for cellular attachment^{2,9} — all using 100% allograft bone fibers without synthetic or xenograft carriers. These long, interconnected cortical bone fibers are optimally demineralized using LifeNet Health's patented PAD[®] technology and provide a surface that is rough enough to promote cellular attachment, yet contiguous enough to promote cell spreading and intercellular connection. The optimized handling of PliaFX Prime comes from the length and width of the fibers, which are designed to remain malleable while microhooks allow the fibers to interlock, thereby enabling the graft to be shaped and ensuring retention in the implant site.

The following case describes the use of PliaFX Prime to treat significant subtalar coalition.

Patient

- 27-year-old male
- Presented with pain and difficulty ambulating on the right foot. The patient had previously sustained an injury to the foot with a twisting motion over a year prior
- Radiographs revealed talar head uncovering and increased calcaneocuboid abduction in the anteroposterior (AP) view (Figure 1A), and decreased calcaneal inclination and increased talar declination consistent with pes planus in the lateral view (Figure 1B). A small exostosis was noted on the talar neck as well as a poorly defined subtalar joint
- MRI confirmed a middle facet coalition of the subtalar joint (Figure 2)
- Diagnosis of symptomatic subtalar coalition, equinus, and forefoot varus
- The subtalar joint was fixed using two headless compression screws
- Equinus and forefoot varus were treated by lengthening of the posterior muscle group and placement of a plantarflexion opening wedge in the medial column

Results

- Weight-bearing at 6 weeks postoperative
- Radiographs revealed a well-healed subtalar joint with improvement in pes planus at 14 months postoperative (Figure 4)
- Pain was resolved, and the patient was ambulating and working without complaint

Procedure

- Using a lateral approach, the subtalar joint was prepared and held rectus leaving a void
- PliaFX Prime (5 cc) was placed in the void, conforming to the space (Figure 3)

Conclusion

- This case demonstrates the successful treatment of significant subtalar coalition using PliaFX Prime, with resolution of pain and full restoration of ambulation

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Figure 1.

Presenting AP (A) and lateral (B) radiographs showing pes planus as well as talar neck exostosis, blunted lateral talar process, and loss of subtalar joint space.



Figure 2.

Coronal T1 (A) and T2 (B) MRI showing obliquity and coalition of the middle facet of the subtalar joint.

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Figure 3.

Application of PliaFX Prime into the prepared subtalar joint to aid in filling void and augment arthrodesis. Once rehydrated, the graft conforms to the anatomy of the void and resists irrigation.



Figure 4.

AP (A) and lateral (B) radiographs taken at 14 months postoperative show a well-healed subtalar joint fusion where PliaFX Prime was placed.

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Results from case studies are not predictive of results in other cases. Results in other cases may vary.
Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions.

References

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