Posterior cervical fusion is frequently used to treat cervical spinal disorders. Iliac crest bone autograft (ICBA) is commonly used as grafting material in cervical fusion procedures; however, there is evidence that autograft harvesting can cause morbidity in up to 35% of patients.\(^1\) Morbidity complications can include donor-site pain, infection, scar numbness, and nerve sensory alteration or loss.\(^1,2\) The harvesting procedure can also significantly extend time in the operating room.\(^2\) Lastly, ICBAs are limited in the amount that can be taken from the body\(^3\) and can vary in quality, especially if the patient has undergone previous ICBA harvesting. Allografts may be used as an alternative to autograft in spinal fusion procedures.

PliaFX Strip is an allograft made of demineralized cortical bone fibers that provide an osteoconductive scaffold which can promote cellular attachment and proliferation. The PliaFX Strip contains no carrier, and is precisely demineralized using PAD® technology to help maximize osteoinductive potential to encourage bone formation. The PliaFX Strip becomes flexible upon rehydration and can be cut to match the surgical site. PliaFX Strip is processed using Allowash XG® technology, which provides a sterility assurance level (SAL) of \(10^{-6}\).

The following describes the use of PliaFX Strip for cervical posterior spinal fusion.

**Patient**

- 60-year-old female
- Involved in motor vehicle accident
- One month later, patient presented with handwriting changes, balance abnormalities, unsteady gait, decreased coordination, bilateral upper extremity radicular pain/numbness/weakness, heaviness in the arms and dropping objects.
- Diagnosed with cervical myeloradiculopathy, cervical spondylolisthesis, with C5-6 pseudoarthrosis and broken hardware from prior anterior cervical discectomy and fusion (ACDF) C4-6 (Figures 1-4)
- Takes heartburn, anti-seizure/mood-altering, pain, and antihistamine medications
- Previous history includes a bowel resection in 1995, hypertensive disease and gastroesophageal reflux disease in 1998, and hypertensive disease and ACDF of C4-6 in 2000

**Procedure**

- Cervical posterior fusion of C3-7 with five levels of surgery using C3-C7 Lateral Mass Screws
- One 100 mm 10 cc PliaFX Strip was split down the middle and rehydrated in 10 cc iliac crest aspirate
- Two large kits of ViviGen (20 cc), 20 cc local autograft, and 10 cc iliac crest aspirate were also used
- Follow-up through six weeks (Figures 5, 6)

**Results**

- Fusion was assessed via radiograph at six weeks follow-up (Figures 7, 8)
- Fusion criteria included osseous bridging and lack of motion with flexion/extension
- Not all levels demonstrated fusion yet but excellent consolidation was observed at this early time point
- VAS improved from “10+” preoperative to 6 at six weeks follow-up
- Subjective improvement in paresthesia, Bilateral upper extremity radicular pain/numbness/weakness, balance and coordination.
- There were no postoperative complications

**Conclusion**

- Excellent consolidation and clinical outcomes were observed following the use of PliaFX Strip in cervical posterior spinal fusion
Cervical Posterior Spinal Fusion using PliaFX® Strip and ViviGen®

**Figure 1.**
Preoperative anterior-posterior

**Figure 2.**
Preoperative lateral

**Figure 3.**
Preoperative lateral flexion

**Figure 4.**
Preoperative MRI sagittal
Cervical Posterior Spinal Fusion using PliaFX® Strip and ViviGen®

**Figure 5.** Two weeks postoperative anterior-posterior

**Figure 6.** Two weeks postoperative lateral
Cervical Posterior Spinal Fusion using PliaFX® Strip and ViviGen®

LifeNet Health helps to save lives, restore health and give hope to thousands of patients each year. We are the world’s most trusted provider of transplant solutions, from organ procurement to new innovations in bio-implant technologies and cellular therapies—a leader in the field of regenerative medicine, while always honoring the donors and healthcare professionals that allow the healing process.

References

3. Sagi HC, Young ML, Gerstenfeld L, Einhorn TA, Tornetta P. Qualitative and quantitative differences between bone graft obtained from the medullary canal (with a Reamer/Irrigator/Aspirator) and the iliac crest of the same patient. J Bone Joint Surg Am. 2012;94(23):2128-2135.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

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