Patient Experience with ViviGen® Cellular Bone Matrix in Anterior Posterior Lumbar Revision Surgery

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Introduction

A 59 year old female, non-smoker, presented with a history of lumbar disc disease. The patient underwent surgical treatment provided by a spine surgeon from another health system, involving an L4-L5 transforaminal interbody fusion with an expandable titanium cage and local autograft one year earlier. She did well initially following this surgery, with return to activities of daily living and significant improvements in pain scores. Five months postoperatively she was involved in a motor vehicle accident. Thereafter, she had severe progressive back and radiating left leg pain. She did undergo testing and reevaluation by the original operating surgeon. The physician reported no clear cause of her symptoms, though in retrospective review of imaging, interbody cage displacement was confirmed (Figure 1).

After failing to respond to six months of conservative management consisting of physical therapy, pain management and three steroid injections, the patient was referred for independent neurosurgical assessment. Her VAS pain scores varied from a 9-10 out of 10, depending on her activity level. Her SF-36 was a 38. She required escalating doses of narcotic medications without benefit and was unable to ambulate without severe pain. A CT showed pseudoarthrosis of the L4-L5 level with displacement of the interbody cage to the left neural foramen and a persistent spondylolisthesis (Figure 1). CT and MRI did confirm nerve impingement, with EMG study confirming findings of acute and chronic L4-L5 radiculopathy.

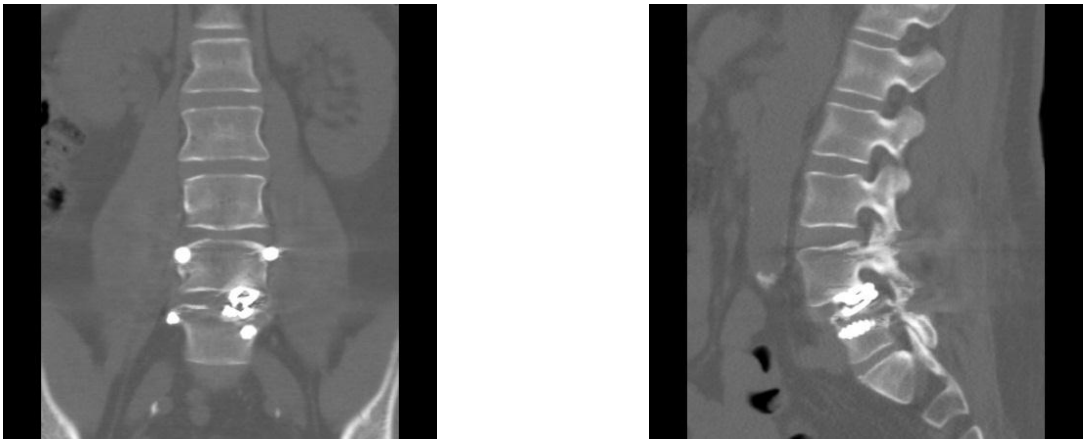

Figure 1. CT showing psuedoarthrosis of the L4-L5 level with displacement of the interbody cage.

Surgical Procedure

The patient underwent an anterior-posterior revision procedure for retrieval of the expandable interbody cage. A Spinal Correction Femoral Ring Allograft (FRA) spacer with approximately 5cc of ViviGen® Cellular Bone Matrix and ANTEGRA-T™ Plate System were placed anteriorly, combined with a posterior revision, including supplemental pedicle screw instrumentation with EXPEDIUM® Spine System. Posterolateral bone grafting included 10cc of bone marrow aspirate (BMA) harvested from the iliac crest combined with 15cc of corticocancellous chips and 10cc of ViviGen.

Patient Results

Her pain scores improved one month following surgery, though some radicular pain continued to persist. X-rays at a month following surgery showed good alignment and early signs of arthrodesis. Her back pain resolved, though moderate radicular symptoms continued. Her VAS scores improved to a 5-6/10 with SF-36 function improving to a 62. CT study at 7 months showed solid anterior and posterior arthrodesis (Figure 2). Her activities of daily living improved and she was able to return to work, though some disability remained.

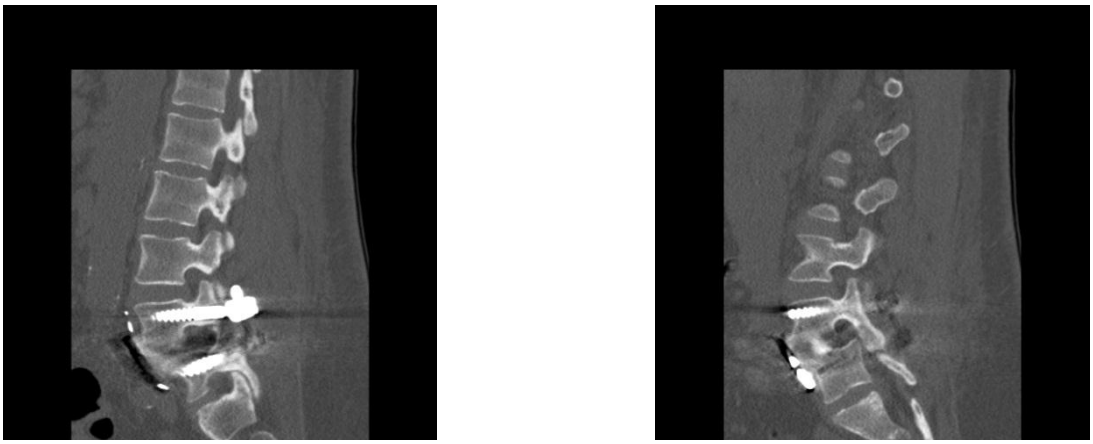

Figure 2. CT study at 7 months postoperatively showing solid anterior and posterior arthrodesis.

About ViviGen® Cellular Bone Matrix

ViviGen comprises cryopreserved live, viable bone cells within a corticocancellous bone matrix and demineralized bone. ViviGen is processed from donated human tissue and is intended for repair, replacement, or reconstruction of musculoskeletal defects. ViviGen contains viable cells that are committed to produce bone in concert with the osteoconductive scaffold and osteoinductive signals naturally found within the demineralized bone[1].

1. Data on file LifeNet Health

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