

Patient Experience with ViviGen® Cellular Bone Matrix in Cervical Revision Surgery

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Introduction

A 56 year old Caucasian female with a 30-pack per year smoking history presented with a prior C5-7 anterior cervical disc surgery performed by a surgeon from another Health System. The patient did well for the first 5 years postoperatively until she began complaining of neck and radicular left arm pain in a C5 distribution which brought her to our practice. She underwent an MRI in August of 2012, which showed the development of significant adjacent level disc disease at C4-5. The patient wanted to avoid surgery and pursued a program of physical therapy and treatment with pain medications and steroids. Her symptoms persisted and she underwent bilateral carpal tunnel release due to numbness extending down both arms and progressive loss of gait, without benefit. Examination revealed evidence of loss of left arm reflexes, mild quadriparesis primarily affecting the left arm and both legs, and myelopathy. A second MRI was performed in July of 2013 showing progressive cord compression and signal change involving the substance of the spinal cord which prompted the need for surgical intervention (Figure 1). A CT obtained preoperatively confirmed solid fusion from C5-7 with degenerative changes involving the C4-5 level. The patient was counseled about her smoking and engaged in a smoking cessation program in preparation for surgery.

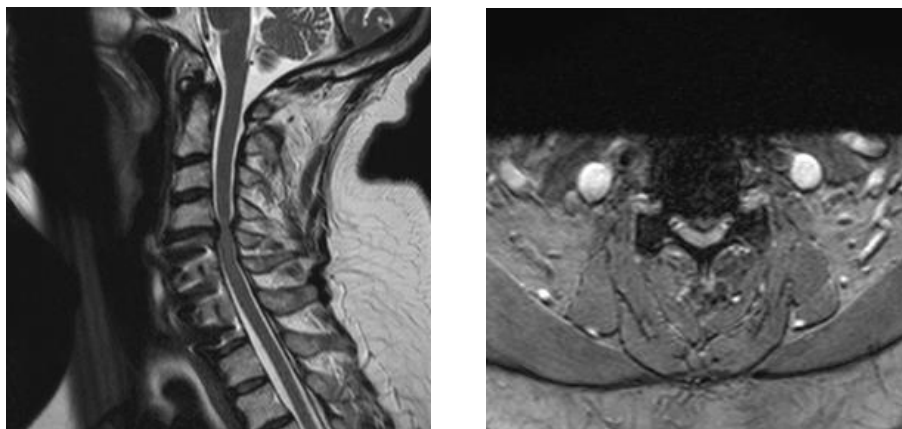


Figure 1. MRI showing cord compression at C4-5.

Surgical Procedure

Primary Case

The patient underwent an anterior cervical re-exploration resulting in the removal of the original C5-7 instrumentation and replacement with a C4-5 anterior cervical discectomy and fusion. An allograft spacer was used along with an anterior plate. The patient's neck and radicular arm complaints of pain and numbness resolved with recovery of strength and balance initially. However, she soon began to develop progressively worsening neck pain which was aggravated further when she suffered a fall one month following surgery. A CT obtained 5 months post operatively showed pseudoarthrosis at the C4-5 level. Conservative treatment was pursued, including an aggressive smoking cessation program and bone growth stimulation.

She returned for a routine check-up 6 months later and complained of severe neck pain and the development of recurrent numbness involving her left arm to the elbow. A CT showed persistent pseudoarthrosis with no interval bone fusion (Figure 2). The patient underwent 7 months of additional conservative treatment with persisting symptoms.



Figure 2. CT showing pseudoarthrosis at C4-5

Revision Case

In April 2015, approximately a year and a half after her C4-5 surgery, the patient underwent a posterior cervical exploration of her fusion and nonunion was confirmed during surgery. Laminoforaminotomies were performed at C4-5 and supplemental fusion using 1 cc of ViviGen® Cellular Bone Matrix, local autograft, and MOUNTAINEER® OCT Spinal System. Following surgery, her postoperative course was unremarkable. The patient reported resolution of her neck pain and radicular left arm complaints. A CT obtained one year later confirmed solid anterior-posterior fixation with successful bone fusion (Figure 3).



Figure 3. CT at 1 year post-op demonstrating solid fusion at C4-5.

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 bone¹.

1. Data on file LifeNet Health

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