Case Study

3M | Prevena™
Incision Therapy

Use of 3M™ Prevena™ Therapy to manage a high-risk incision after multi-level lumbar fusion

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Patient

A 56-year-old female presented to the hospital with worsening back pain and neurogenic claudication. Medical history included diabetes, hypertension, hyperlipidemia, morbid obesity (BMI 42 kg/m^2), and diminished mobility. Laboratory examination revealed prealbumin levels at 11 mg/dL and albumin at 3.0 g/dL, indicative of malnutrition. The patient was diagnosed with degenerative disc disease with sagittal malalignment and severe lumbar stenosis.

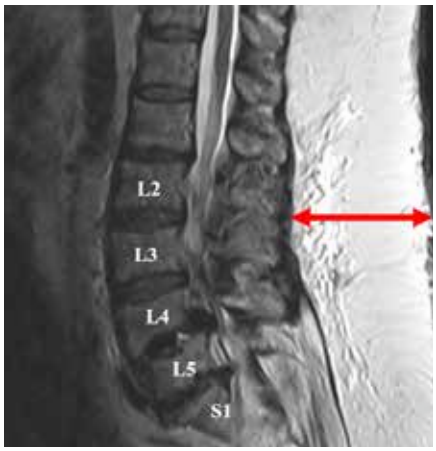

Figure 1. MRI scan of lumbar region before staged surgical procedure. The red arrow highlights the large suprafascial distance (7 cm). A distance greater than 3 cm is associated with a higher risk of wound healing complications.

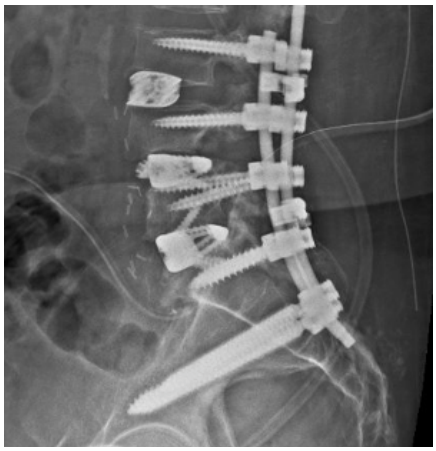

Figure 2. X-ray showing instrumented multi-level lumbar fusion.

Procedure

The patient was admitted for staged multi-level lumbar fusion. Stage 1 consisted of L4-S1 anterior lumbar interbody fusion (**Figure 1-2**). Stage 2 consisted of L3-4 lateral lumbar interbody fusion and L3-pelvis fusion with multi-level decompression with posterior column osteotomies.

Application of Prevena Incision Management System

For the posterior incision (**Figure 3**), suprafascial vancomycin powder was applied, and a 15F subfascial silicone channel drain and 15F suprafascial silicone channel drain were placed. In the operating room, 3M™ Prevena™ Plus Customizable Dressing was cut to the appropriate length and applied to the posterior incision. A seal was created using -125 mmHg negative pressure (**Figure 4**). The drape border was lined with foam tape to ensure that a seal is maintained while the patient recovers in the supine position postoperatively*.

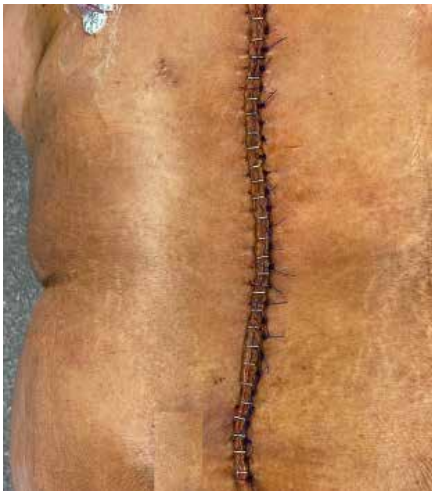

Figure 3. Appearance of the incision immediately after closure.

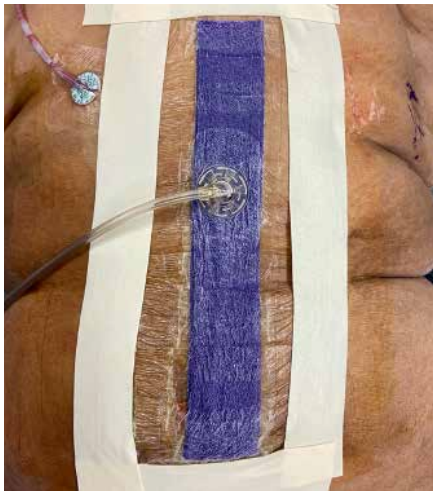

Figure 4. Placement of Prevena Plus Customizable Dressing and application of negative pressure. Foam tape was placed over the drape edges.

Photos courtesy of Kyle B. Mueller, MD, Department of Neurosurgery, Brown University and Rhode Island Hospital, Providence, RI

The anterior incision resulting from Stage 1 surgery was closed via staples by the vascular team and received standard incision care only.

***To create a continuous seal, clinicians may use sealings strips provided with the dressing. 3M does not recommend use of accessories or materials not provided with 3M™ Prevena™ Incision Management System. For additional safety information, refer to the product's instructions for use.**

Discharge and follow-up:

Multi-level fusion in the lumbar-sacral region is associated with an elevated risk of incision healing complications. This risk was further increased by the presence of multiple comorbidities and postoperative immobility. The large suprafascial distance caused concern for increased fluid collection and risk of seroma formation.

On postoperative day 7, Prevena Therapy was discontinued on the posterior incision, which remained closed and without complication (**Figure 5**). In contrast, the anterior incision treated with standard care alone showed signs of breakdown. The anterior incision was managed with standard negative pressure wound therapy until closure was achieved at 3 months.

The patient had a prolonged hospitalization and was discharged after 22 days. She followed up in clinic every 2 weeks for the next 6 weeks for incisional checks. The subfascial drain was removed when output was <50 mL over 24 hours. The suprafascial drain was removed when output was <30 mL over 24 hours. Given the high tensile stress across the incision, the staples were left in place for 6 weeks. Sutures were removed after 8 weeks. After incision healing and rehabilitative therapy, the patient's back and leg pain were resolved.

Prevena Therapy helped pull the incision edges together, removed exudate, and facilitated uneventful healing of the posterior incision, despite the patient's high risk for incision breakdown. This was especially beneficial in the postoperative period, given that mobilization and pain control were a challenge.

Photo courtesy of Kyle B. Mueller, MD, Department of Neurosurgery, Brown University and Rhode Island Hospital, Providence, RI.

Figure 5. Incision appearance after 7 days of Prevena Therapy. No signs of complication were observed.

As with any case study, the results and outcomes should not be interpreted as a guarantee or warranty of similar results. Individual results may vary depending on the patient's circumstances and condition.

Note: Specific indications, limitations, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a clinician and product instructions for use prior to application. Rx only.

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