

Baylor University Medical Center Operative Note

Op Note 1/5/2024 - Baylor Scott and White, Baylor University Medical Center

This operative note is a detailed report of a surgery written by the surgeon. Here's a breakdown of its content:

1. Header Information: The note is signed by Dr. Ioannis Alexander Avramis on January 5, 2024, at Baylor Scott and White, Baylor University Medical Center.
2. Date of Service: January 4, 2024.
3. Preoperative and Postoperative Diagnoses: The patient is diagnosed with lumbar kyphoscoliosis, L1-L3 nonunion, and loose instrumentation, following a previous surgery (L1-S1 laminectomy) and sagittal imbalance.
4. Procedure Performed: The surgery was done in two stages:
 1. Stage I: Anterior lumbar interbody fusion at L3-S1, with cage insertion, stabilization, and osteotomy for deformity correction.
 2. Stage II: Posterior spinal fusion and instrumentation from T10-S1, bilateral iliac fixation, Smith-Petersen osteotomies at L2-L3 and L4-L5, transforaminal lumbar interbody fusion at L2-L3, removal of old instrumentation, and use of both autograft and allograft.
5. Surgical Team: Surgeon - Dr. Ioannis A. Avramis, Co-surgeon for Stage I - Dr. Donald Reed, Assistants - Dr. James Rizkalla and Cassidy Rico, PA-C, and Anesthesiologist - Dr. Wiley.
6. Anesthesia: General endotracheal anesthesia was used.
7. Estimated Blood Loss: 700 mL.
8. Complications: None known.
9. Monitoring: No changes in motor evoked potentials.
10. Drains: One deep posterior drain.
11. Implants: DePuy Expedium.
12. Disposition: The patient was transferred to the ICU in stable condition.

13. Indications for Procedure: The patient, Michael, 64 years old, had previous lumbar surgeries, leading to complications. He experienced back pain and sagittal imbalance and opted for surgery after understanding the risks.
14. Description of Procedure: This section details the surgical steps, including preparation, anesthesia, positioning, the specific surgical techniques used, and closure of the surgical site.
15. Postoperative Plan: Post-surgery, the plan includes 24 hours of IV antibiotics, pain management, physical therapy, use of a TLSO brace, and DVT prophylaxis.

The note is a comprehensive record of the surgical procedure, including the rationale, execution, and immediate postoperative care plan. It's a vital document for continuity of care and potential future reference.

The operative note is a medical document describing a complex spinal surgery performed on a patient named Michael Stuart. Here's an explanation of the key components and medical terms used in the document:

1. Lumbar Kyphoscoliosis, L1-L3 Nonunion, and Loose Instrumentation, Post L1-S1 Laminectomy and Sagittal Imbalance: These are the preoperative and postoperative diagnoses. They describe the patient's spinal condition:
 - Lumbar Kyphoscoliosis: An abnormal curvature of the spine in the lower back, combining kyphosis (forward rounding of the back) and scoliosis (sideways curvature).
 - L1-L3 Nonunion: A condition where there is a failure of healing between the first and third lumbar vertebrae after a previous surgery.
 - Loose Instrumentation: Refers to surgical hardware (like screws or rods) from a previous surgery that have become loose.
 - L1-S1 Laminectomy: A surgical procedure that involves removing part of the vertebrae, from the first lumbar to the first sacral vertebrae, likely done in a previous surgery to relieve pressure on the spinal cord or nerves.
 - Sagittal Imbalance: An abnormal spinal alignment when viewed from the side.
2. Procedure Performed: The surgery was conducted in two stages to address the spinal issues:

- Stage I: Involved anterior (front) lumbar interbody fusion (fusing the front part of the lumbar spine) with cage insertion (implanting a device to help maintain spine alignment), stabilization, and osteotomy (bone cutting) at levels L3 to S1.
- Stage II: Involved posterior (back) spinal fusion from T10 (thoracic) to S1 (sacral) with spinal instrumentation (inserting rods and screws to stabilize the spine), bilateral iliac fixation (stabilizing the pelvis), osteotomies at L2-L3 and L4-L5 (more bone cutting for alignment correction), and other corrective procedures.

3. Surgical Team: Lists the primary surgeon, co-surgeon, assistants, and anesthesiologist involved in the operation.

4. Anesthesia and Estimated Blood Loss: General anesthesia was used, and the estimated blood loss was 700 mL, which is a significant amount but not unusual for such a major surgery.

5. Monitoring and Drains: The patient's neurological status was continuously monitored, and a deep posterior drain was placed, likely to remove excess fluid or blood from the surgical site.

6. Implants: DePuy Expedium, likely referring to the type of spinal instrumentation used.

7. Postoperative Plan: Includes the immediate care plan after surgery, like antibiotics, pain management, mobilization strategy, and measures to prevent blood clots.

8. Description of Procedure: A detailed account of how the surgery was performed, including the patient's preparation, the specific surgical techniques and tools used, and the closure of the surgical site.

In summary, this operative note documents a complex and multi-staged spinal surgery aimed at correcting severe deformities and instabilities in the patient's lower spine. It includes detailed descriptions of the surgical techniques used, the roles of the surgical team, and the postoperative care plan.

The operative note mentions the patient's previous surgical history as part of the context for the current surgery. Here's what it says about the previous procedure:

1. Laminectomy from L1-S1: This indicates that the patient, Michael, had previously undergone a laminectomy - a surgical procedure involving the removal of part of the vertebral bone called the lamina. This procedure was performed on a significant portion of the lower spine, spanning from the first lumbar vertebra (L1) to the first sacral vertebra (S1). Laminectomy is typically done to relieve pressure on the spinal cord or nerves.

2. Attempted Fusion from L1-L3 with Floridly Loose Screws: The patient also had a spinal fusion surgery that attempted to fuse the vertebrae from L1 to L3. However, this procedure was not entirely successful, as indicated by the presence of "floridly loose screws." This means that the screws intended to hold the vertebrae together and promote bone fusion had become loose. Loose screws can compromise the stability of the spine and potentially cause pain or further complications.

3. Breached Screws into the Canal: It is mentioned that the screws were breached into the canal, particularly on the left at L1 and L3. This suggests that the screws had improperly penetrated into the spinal canal, where the spinal cord and nerves are located. This misplacement could lead to nerve irritation or damage.

4. Symptoms and Decision for Further Surgery: The patient experienced classic symptoms of back pain and sagittal imbalance, which likely resulted from the complications of the previous surgeries. Faced with these issues and having exhausted nonsurgical treatment options, the patient opted to proceed with the current surgical intervention.

In summary, the previous surgeries included a laminectomy across a large section of the lower spine and an attempted spinal fusion at L1 to L3, which resulted in complications such as loose and improperly positioned screws, leading to back pain and spinal imbalance. These complications necessitated the current, more complex surgical intervention.

Op Note signed by Ioannis Alexander Avramis, MD at 1/5/2024
9:06 AM

Baylor Scott and White

Baylor University Medical Center

DATE OF SERVICE: 01/04/2024

PREOPERATIVE DIAGNOSES: Lumbar kyphoscoliosis with L1-L3 nonunion and loose instrumentation, status post L1-S1 laminectomy and sagittal imbalance.

POSTOPERATIVE DIAGNOSES: Lumbar kyphoscoliosis with L1-L3 nonunion and loose instrumentation, status post L1-S1 laminectomy and sagittal imbalance.

PROCEDURE PERFORMED:

1. Stage I: Anterior lumbar interbody fusion with cage insertion, stabilizing instrumentation and osteotomy for deformity correction L3-L4, L4-L5 and L5-S1.
2. Stage II: Posterior spinal fusion T10-S1, posterior spinal instrumentation T10-S1, bilateral iliac fixation, Smith-Petersen osteotomies L2-L3 and L4-L5, left side transforaminal lumbar interbody fusion with cage insertion L2-L3, removal of instrumentation L1-L3 exploration of fusion L1-L3, harvest of local autograft, use of allograft.

SURGEON: Ioannis A. Avramis, MD

COSURGEON: For stage I, Donald Reed, MD

ASSISTANT: James Rizkalla, MD and Cassidy Rico, PA-C.

ANESTHESIOLOGIST: Wiley, MD

ANESTHESIA: General endotracheal.

ESTIMATED BLOOD LOSS: 700 mL

COMPLICATIONS: None known

MONITORING: No changes including motor evoked potentials.

DRAINS: One deep posterior.

IMPLANTS: DePuy Expedium.

DISPOSITION: The patient transferred to ICU in stable condition.

INDICATIONS FOR PROCEDURE: Michael is a 64-year-old male who had undergone previous lumbar surgeries leaving him with laminectomy from L1-S1 and an attempted fusion from L1-L3 with floridly loose screws that were also breached into the canal, particularly on the left at L1 and L3. He was complaining of classic symptoms of back pain and sagittal imbalance and felt he had exhausted nonsurgical treatment and wanted to proceed with surgery. Our team described the surgery as well as risks as outlined in the consents. He understood the risks, accepted them and gave his written consent for surgery as well as blood transfusion.

DESCRIPTION OF PROCEDURE: Michael was brought to the operating room. He was anesthetized and intubated by anesthesia. He was placed supine on the operating table. His bony prominences were padded. He was prepped and draped in normal sterile fashion. Timeout was carried out. All parties were in agreement. He received IV antibiotics prior to incision. Please see Dr. Reed's dictation for the exposure and closure of the anterior lumbar spine. Once we identified the disk spaces from L3-S1, first at L3-L4, then at L4-L5 and finally L5-S1 we used a combination of knife and osteotome to enter into the disk spaces as they were tremendously collapsed and the L3-L4 and L4-L5 disk spaces were partially ankylosed. Once an osteotome was able to be passed through the disk space, we used a series of consecutively larger disk space spreaders as well as consecutively larger trials to help delineate the disk space and with those instruments as well as a combination of osteotomes and curettes and Kerrison rongeurs, we performed osteotomy for deformity correction at all 3 levels. Once this was done, a cage was placed that was packed with bone graft product and allograft and 2 screws were placed through the cage and adjacent vertebral bodies for stabilization. Lordosis of the cages inserted was 7 degrees at L3-L4, 12 degrees at L4-L5 and 16 degrees at L5-S1. The overall spinal alignment and implant position was evaluated with AP and lateral fluoroscopy and felt to be acceptable. There was significant scarring in there from the local inflammation and we were not able to retract the vasculature far enough to the right at L4-L5 to center the cage. However, it was within the vertebral body and safe and was performing its intended role. There was very good hemostasis and please see Dr. Reed's dictation for the closure.

Mike was ready for the posterior portion of his procedure. He was placed prone on the operating table. His bony prominences were padded. He was prepped and draped in normal sterile fashion. Antibiotics were redosed as necessary. Using metallic marker and fluoroscopy, I marked out the T10 and S1 pedicles bilaterally. I made a midline incision between the pedicles. Knife was used to go through skin. Bovie cautery was used to go through subcuticular tissues, incise the fascia and elevate the musculature in a subperiosteal fashion with the spinous process, lamina and transverse processes from T10 to the sacral ala bilaterally. This exposed the instrumentation from L1-L3 which was floridly loose. There was some cleared serous fluid as well as inflammatory tissue that did not seem infected, however, was sent for culture as well as the instrumentation. Once it was removed, we were able to remove it. Both L1 and L3 screws were floridly loose. The L2 screws did have good purchase. With the instrumentation removed, I then used a combination of curettes, high-speed bur, Kerrison rongeur to perform a Smith-Petersen osteotomy at L2-L3 and L4-L5. Our anterior lumbar interbody fusions had osteoclasted the levels of L3-L4 and L5-S1 and there was florid motion at L1-L2 from the nonunion. I then inserted a cage and performed a transforaminal

lumbar interbody fusion from the left side at L2-L3. To do this, we partially took down the left L3 pedicle as it was destroyed from the loose screw and not amenable to repeat screw placements. With fluoroscopic guidance, I was able to pass an osteotome into the disk space. Again, it was severely collapsed. I then used a series of shavers and pituitary rongeurs to remove the disk and cartilaginous endplates and curettes to prepare the bony endplates for fusion. I then inserted allograft into the disk space, followed by a 8 mm 8 degree lordotic cage that was packed with autograft and allograft. The cage was positioned with AP and lateral fluoroscopy and felt to be in good position. We then placed bilateral pedicle screws from T10-S1 except on the left at L1 and L3 as these pedicles were destroyed from the nonunion. To place these screws, we used high-speed burr and AP fluoroscopy to make a pedicle start site, a Lenke probe to dilate the pedicle and a ball-tipped probe to feel 4 walls and the floor and appropriate size DePuy Expedium screws were inserted. We reused the pedicle tracts on the right from L1-L3 and on the left at L2. As they were acceptable, we needed to significantly upsize the screws at L1 and L3. We then placed bilateral iliac bolts in an SAI fashion using AP and teardrop fluoroscopic views. Diameter of screws inserted were 9. All the pedicle screws stimulated to acceptable threshold neuro monitoring and we evaluated the screw position with AP and lateral fluoroscopy and later on with intraoperative CT scan. We then cut and contoured the left-sided rod, put into place, used en bloc derotation maneuver to correct the scoliosis and restore a sagittal and coronal balance. We then placed a rod on the right side, tightened everything down to specification using a torque wrench. We ensured coronal and sagittal balance using jigs and fluoroscopy and then used the intraoperative CT system from BrainLAB to evaluate the overall spinal alignment and implant position and evaluated his coronal and sagittal balance and felt everything was acceptable. We were able to correct his upper lumbar kyphosis and restore his lumbar lordosis. We injected an Exparel-bupivacaine mixture into the paraspinal and subcutaneous tissues, irrigated the wound with 3 liters of irrigation and decorticated the posterolateral fusion bed from T10 to the sacral ala bilaterally. We placed our bone graft product, which included allograft and autograft throughout the fusion bed followed by antibiotic powder and a deep drain. The fascia was closed with a combination of interrupted #1 Vicryl stitches and running #1 PDS. Subcutaneous was closed with running 2-0 PDS and Monocryl stitch for the skin followed by Dermabond and Steri-Strips. Deep drain was anchored to the skin with a nylon stitch, 4 x 4 dressing was applied. The patient was transferred to ICU in stable condition.

Dr. James Rizkalla, MD and Kassidy Rico, PA-C's surgical assistance was critical to decrease the operating time, decrease blood loss and most importantly protect the neural and vascular structures from injury during surgery.

POSTOPERATIVE PLAN: Michael will go to recovery room. He will get 24 hours of IV antibiotics, PCA, Norco, Robaxin for pain control. He will be mobilized with physical therapy. He has good bone quality. He should be in his TLSO brace if he is out of bed. He does not need it for bathroom privileges and he should have SCDs for DVT prophylaxis.