**TLIF 2 Level Female**

OPERATIVE PROCEDURE

In the preoperative area, the patient was seen and was marked and signed and consented appropriately. We talked about the risk of the procedure, which includes, but not limited to infection, hematoma formation, or visceral penetration, implant breakage, implant misplacement, and also about nerve damage, permanent and temporary. Patient understood all of the risk factors and wants to proceed with surgery. The nature of the surgery was explained in details. We decided to go with open surgery with central incision.

PREOPERATIVE DIAGNOSIS: The patient has multilevel extensive degenerated disc disorder at L4- L5 and S1 with bilateral S1 and L5 radiculopathy with spinal canal stenosis. Her symptoms are getting worse on both sides. She has severe axial back pain. Following consultation in the preop area, the patient was then taken to the operating room and was taken for the procedure.

The following procedures were done on her:

1. TRANSFORAMINAL POSTERIOR LUMBAR INTERBODY FUSION from the left side at L4 - L5 and S1

2. USE OF INTERBODY SPACERS AT L5/S1 and L4 and L5 - expandable cages to restore lordosis.

4. USE OF A SEGMENTAL INSTRUMENTATION FROM L4 -L5 TO S1.

5. LAMINECTOMY OF L5 and L4

6. Right HEMIFACETECTOMY OF L5/S1 and L4/5

7. POSTEROLATERAL FUSION AT L4 L5, AND S1 ON BOTH SIDES.

8. USE OF C-ARM IMAGERY TO DEFINE PLACEMENT OF IMPLANTS.

9. ATTEMPTED POSTEROLATERAL ARTHRODESIS AT L4 - L5, S1.

10. DECOMPRESSIVEDISCECTOMY AT L5/S1 and L4/5 Bilaterally

11. USE OF ALLOGRAFT AND AUTOGRAFT FOR FUSION.

ASSISTANTS: None

ESTIMATED BLOOD LOSS: 300 cc.

COMPLICATIONS: None

IMPLANTS USED: Pioneer System

CAGES: Expandable cages

PROCEDURE: Once inside the operating room, the patient's name and particulars were

Checked by the chief nurse and the anesthetist and anesthesia was given to her. She was given general anesthesia and was intubated on the vent. After intubation, he fixed line including an A-line for monitoring. She was also catheterized. The neuro monitoring people hooked up to the neuro monitoring equipment. After that, the patient was positioned prone. All her bony prominences were padded and adequate care was taken to avoid any compression on his bony prominences. The area was prepped using ChloraPrep and was then allowed to dry and then was draped sterilely in the usual manner. Timeout was then performed and all of the particulars, which included, but not limited to the patient's name, age, sex, case diagnoses, case allergies, and administration of antibiotics was then confirmed. Following which a midline incision was then taken on his lower back. Using C-arm guidance from L4 all the way to S2. As the patient has a sacralized L5 we were counting the mobile segments from below and the first mobile segment was designated as L5- S1 and it corroborated with the pathological level on the MRI.

A midline approach was then taken and the paraspinal muscles were slowly dissected off the midline structure which included spinous process. The spinous process was then exposed and so were the pars and the facet joints of L4/5 and L5/S1. Also partial exposure of the L3/4 facet to allow for insertion of the pedicle screw. The L5 transverse process was then exposed to allow insertion of pedicle screws.

The L5 screws were introduced first followed by L4 and then S1 Screws. The screws were put using freehand technique. C-arm guidance was used and the anatomy was very difficult to identify considering the fibrous tissue around the previous surgery. After putting all the screws on stimulation, screws fared well. L5 laminectomy was then carried out starting from left side first and was slowly going through the scar tissue on the right. The inferior lamina was found engulfed in fibrosis. Ligamentum flavum was slowly removed after laminectomy to expose the S1 nerve roots. The S1 nerve roots were completely made free in its entirety.

Similarly the L4 laminectomy was carried out to completely expose and free the L5 nerve roots. Then, attention was diverted to the L4/ L5 disc space. The disc space was exposed on the right side first and the annulus was incised with a #15 blade. The nucleus was then excised and discectomy was then carried out. The disc space was then prepared. Shavers were used to prepare the disc space including curettes, roungers, and rasps to get to the bleeding bone. The disc space was dilated slowly with the blunt shaver. A little distraction was then put at L4/5 across the pedicle screws and using distractor, the annulus was then completely excised on the left side. PLIF 11 size graft with 4 degree lordosis size graft was packed with bone graft and inserted to the left side. Before insertion, in the disc space was impacted with DBM and a local Auto graft material. After, proper insertion of the cages was checked on x-ray and it was appropriate. The cages were then expanded to about 15 degrees of lordosis.

The decompression was then checked for nerve root atL5 was completely seen and also there was no evidence of compression.

Similar procedure was then carried out at the L5/S1 Disc space. Facetectomy, graft bed preparation was carried out similarly after excision of the disc material from the L5/S1 disc space. The disc space was then filled with bone graft material and was then impacted with a size 9 graft with 0 degrees of lordosis. The graft was then expanded to give lordosis around 12 degrees.

Attention was then diverted to the right side. The S1 nerve root was retracted and annulotomy was then performed on the right and few fragments of nucleus was then removed. Similar discectomy was done at L4/5 area. And the right sided L5 nerve root was completely made free. The patient was given lots of irrigation. All of the bleeding points were cauterized using the bipolar. Following which the exposed Dura was covered with Gel foam. After instrumentation, the instruments were sequentially compressed at L4L5/S1 the morcellized bone graft material was then packed at theL4-L5 S1. Posterolateral bone grafting was done for decortication of the facet joints and whatever lamina was exposed at L4 - L5 up to the ala of S1. C-arm images were then checked subsequently and had very good alignment at L4/L5 and S1. We accepted this alignment and we decided for closure.

The fascia was closed using stratafix. Two deep drains were put below the fascia. The subcutaneous was taken with 2-0 Vicryl and subcuticular stitches were taken with 5-0 Vicryl. A Perinio mesh was put for the dressing along with Dermabond and the wound closed very well and the wound closed very well and sterile dressing was then applied. Drains were connected. The patient was then extubated and was taken to the PACU.

The patient tolerated the procedure really well. We were able to extubated her in the PACU. He as moving all four limbs and she was neurologically intact in his lower limbs. She had both sensation and motor power in both lower limbs. Her pain was tolerable in the PACU and then she was loaded with morphine PCA. She was then transferred to SPECIAL CARE UNIT for further care