# **TRANSFORAMINAL INTERBODY FUSION**

Date:

Patient name:

DOB:

Preoperative Diagnoses:

Postoperative Diagnoses:

Surgeon: Amit Bhandarkar, M.D.

Assistant: Jennifer

Complications: None

Specimen: None

Blood Loss:

Implants:

PROCEDURES:

1. Transforaminal Lumbar interbody fusion, L5-S1, right, with posterior spinal fusion.

2. Placement of biomechanical interbody device L5- S1

3. Hemilaminectomy with facetectomy and foraminotomy at L5 – S1, right.

4. Non segmental spinal instrumentation, L5- S1

5. Iliac crest bone marrow aspiration

6. Use of bone autograft

7. Use of bone allograft

8. Use of operative microscope for assistance in dissection

9. Use of C-arm imagery; AP and lateral lumbar spine images. For proper positioning of pedicular screws and implants.

10. Added degree of difficulty to the procedure given the patient body mass index more than 35 and additional length of the procedure.

11. Revision of previous instrumentation

12. Exploration of previous fusion

13. Attempted Posterolateral fusion using mix of bone auto and allografts.

Patient was brought to the operating room was identified by the anesthetist and the chief nurse. IV access lines were established anesthesia was then administered. Arterial lines were secured SCDs were placed. Foley's catheter was then placed. Patient was then positioned prone. All bony prominences were padded. Monitoring baseline was then carried out all looked okay. Patient was then prepped and draped in routine fashion. ChloraPrep was used for Prepping she was draped free exposing her lumbar spine.

A formal timeout was then carried out and everything including but not limited to his name, type of surgery, duration of surgery site and side was confirmed for midline incision. Midline exposure was then carried out in the lumbar spine. The site of exposure was confirmed radiologically using a C- arm.

The previous scar was extended proximally and the dissection was carried out to expose L4-L5 and S1. Considering that she had laminectomy before at L5 and S1, care was taken to slowly dissect down with preserving the neural structures.

L4 laminae L4 pars L3-L4 facet joint and L4 TPs with exposed. After complete exposure we started preparing for the pedicle screw insertion pedicle screws were then inserted screws bilaterally at L4 45 mm 6.5 mm diameter, freehand technique and fluoroscopy was used intermittently to ascertain that they are positioned correctly.

For MAS TLIF:

Two incisions based on the lateral aspect of the pedicle as determined using a C-arm were taken at the L4-S1 level. Thoracolumbar fascia and erector spinae aponeurosis was then incised. Para spinal inter muscular interval was then taken to reach the bilateral facet joints at L4 to S1 levels. Blunt dissection aided by Cobb and Bovie was carried out. L4-5 laminae L4-5 pars L4-L5 and L5-S1 facet joints and L4 TPs were exposed. After complete exposure we started preparing for the pedicle screw insertion pedicle screws were then inserted screws bilaterally at L4 45 mm 6.5 mm diameter, freehand technique and fluoroscopy was used intermittently to ascertain that they are positioned correctly. The screws were subsequently checked with the neuro monitoring and they all really faired good on the neuromonitoring score. The Specially designed MAS TLIF retractor blades were then positioned along with the screws to give maximum access with the available incision to the facet joints.

For revision case:

The previous hardware was then exposed using Bovie for dissection. The hardware looked like old USS system the hardware then was taken out. The L5 screws were tight and had a bony endpoint when probed. S1 screws were loose had a soft endpoint bilaterally. The fusion site was then explored at L5-S1 area. After removal of the screws L5 and S1 moved as one unit. They had a good facet to facet fusion betweenL5-S1 facet. There also posterior lateral fusion bilaterally at L5-S1. Considering that there fused at L5-S1 we decided to proceed only with L4-L5 Transforaminal lumbar interbody fusion as planned. The screws were exchanged to 1 size larger which was 6.5 mm for the L5 screws which was 45 mm in length and the S1 screws were taken as 7 mm in diameter and 40 mm in length. This screw had good insertional torque.

The screws were subsequently checked with the neuro monitoring and they all really faired good on the neuromonitoring score. After distraction at L4-L5 area and midline laminectomy was then performed to expose the dura. The central canal stenosis was completely relieved. The Microscope was brought into the field for better visualization. The previous laminectomy was then explored the dura was then freed from adhesions at L5 S1 level and the L5 nerve root was completely made free of adhesions bilaterally. The L5 andL4 foramens were probed with a ball tip probe and we found adequate room for both the nerve roots. There were significant adhesions down distally around S1 nerve roots and as there was not significant compression-revision decompression of S1 nerve root was not carried out.

Then facetectomy of L4-L5 was performed using osteotome and a bur the inferior facet of L4 and the superior facet of L5 was partially osteotomized and the lateral access to the disc was obtained. There was a bleeding on resection of the L4-L5 facet which was controlled with the Surgi-Flo and with bipolar. A rectangular window was then cut into the disc space after retracting the traversing nerve root we always been checking for the exiting nerve root which was L4 nerve root after ascertaining that we are in a safe window we removed that rectangular chunk of the disc and the disc space was then prepared using the roungers, rasps and offset curettes .4 degree lordosis and 10 mm of height and width trial was found appropriate as checked on the lateral and AP view. The disc space was then further impacted with morcellized bone graft which was a mixture of autologous bone graft osteoset and bone putty. Following which a bone peek cage impacted with bone graft was inserted through the foramen and into the disc space. Disc screws were then compressed. X-rays were rechecked and his position looked really good. Patient had enough volume of good local bone graft iliac crest bone graft harvesting was not required. It was difficult negotiating single rod on the right side of the patient considering that the previous L5 screw placed was medial and the S1 Screw which was placed had a lateral entry point. There was too much of bone to shave from the fusion mass at L5 and S1 hence an offset connector was used at S1 to connect the rod after 2 failed attempts.

After tightening of the screws wound site was irrigated with bacitracin mixed normal saline. We then double checked our decompression. Again, the curved ball probe was able to pass without causing any jumping of the leg. Feeling very happy with the foraminal opening as well as the lateral recess, I then proceeded to roughen the transverse process and sacral ala using a burr. I used some of the local bone obtained from laminectomy and facetectomy as autograft and I packed approximately 10 cc of our bone graft mixture out posterolaterlally to be able to obtain a posterolateral fusion as well. Hemostasis was ensured Gelfoam was put above the exposed dura. Then 500 mg of powdered vancomycin was applied to muscles before closure.

The wound was then closed in layers under negative suction drain underneath the deep fascia. Fascia was appropriately approximated with 1-0 Vicryl, subcutaneous stitches were taken with

2-0 Vicryl and subcuticular stitches were taken with 5-0 Vicryl sterile dressing was then applied. The wound was injected both superficially and deep with a mix of Depo-Medrol 40 mg, Toradol 30 mg and 0.5%marcaine with epinephrine 30cc for postoperative pain control. Patient was then turned supine and extubated he was then taken to PACU for recovery.

The procedure took approximately 50% extra time given the patient’s size and muscularity and difficulty during the procedure. Otherwise, there were really no complications. Patient tolerated the procedure really well and there were no complications. Total blood loss was 800 cc total. Saw the patient in PACU and PCU vitals were stable and her pain was tolerable. She had no new neurodefict and had good pulsations distally in the extremities.