DATE OF SURGERY: 09/29/2017

PREOPERATIVE DIAGNOSES: The patient is for the second stage of the procedure. The first stage being lateral transpsoas approach interbody fusion at L3-4 and L4-5. The patient had spondylolisthesis at L4-5 and severe stenosis facetal arthropathy at L3-4 and L4-5 with preoperative axial back pain. The patient was operated on last Tuesday. The patient was discharged on the next day to home. The patient had subsidence of the graft at L3-4 and at L4-5. It was decided to go ahead and do instrumented fusion from the back today which was earlier than what was planned on Tuesday.

POSTOPERATIVE DIAGNOSIS: The patient is for the second stage of the procedure. The first stage being lateral transpsoas approach interbody fusion at L3-4 and L4-5. The patient had spondylolisthesis at L4-5 and severe stenosis, facetal arthropathy at L3-4 and L4-5 with preoperative axial back pain. The patient was operated on last Tuesday. The patient was discharged on the next day to home. The patient had subsidence of the graft at L3-4 and at L4-5. It was decided to go ahead and do instrumented fusion from the back today which was earlier than what was planned on Tuesday.

SURGEON: Dr. Amit Bhandarkar M.D.

ASSISTANT: None.

COMPLICATIONS: None.

SPECIMENS: None.

BLOOD LOSS: 50 mL.

IMPLANTS: nuvasive

PROCEDURES:

1. Instrumented Fusion L3-L4 and L4-5 with pedicular screws and rods
2. Posterior fusion of the facets
3. Use of corticocancellous allografts
4. Increased difficulty due to high BMI

PREOPERATIVE AREA: In the preoperative room the patient was explained the objective of the surgery set forth. We will have to go ahead and evaluate the fusion with the C-arm guidance and to see if the graft has subsided or not. The patient has also had L4-5laterolisthesis to start with makes it difficult to interpret the x-rays appropriately so it was decided to go ahead and do a C-arm examination of the subsided graft. We also kept Opti Mesh ready it is probably extra pedicular approach for vertebral augmentation. We also planned to examine how much of the foraminal dimensions are because her spondylolisthesis will reduce a little probably further with instrumentation. If that does not substantially reduce then probably we are planning to go ahead and doing a decompression as well. Other steps and the decisions will be taken were explained to the patient in detail. Of note, the patient did not have much of radicular symptoms. She has more of anterior-type pain stemming from the trans psoas surgery that she had on the left side. The patient was made to understand the risks and the decision making and the planning for the procedure. The patient was also told the steps involved in the procedure and operation verbalized agreement with the current plan and we proceeded with the surgery as planned. The patient verbalized agreement and provided with appropriate consent understanding the risks and the benefits and understanding that we may have to do a supplemental procedure considering she had grade 1 level subsidence which was less than 10% of the subsidence of her endplate. It was decided and the patient was taken to operating room after obtaining appropriate consent.

OPERATIVE PROCEDURE: The patient was taken to the operative room and was identified by the head nurse and the anesthetist. The patient was administered general anesthesia and was then positioned prone on a Jackson table. All the x-rays and MRI were put on display. Her back was prepped and draped free. We made sure that all bony prominences were nicely padded. She was hooked up to neuro monitoring equipment. All the lines were put in including the blood pressure monitoring cuff. She was also catheterized before positioning and she was administered IV antibiotics. After prepping and draping the lumbar spine, we went ahead and carried out the timeout and reconfirmed the patient's identity, the diagnosis, and the nature of the procedure that we are planning to do on her.

We started with the pedicle screw, as planned. Before that, we went ahead and checked for subsidence of the graft. We took multiple views with the C-arm including oblique view and Ferguson views. The patient had subsidence at both L4-5 and L3-4 which was less than 10% subsidence of the endplate mostly at L3-4 area. There were nice dimensions of the foramen.

There was a little bit of spondylolisthesis grade 1 at L4-5 and very little spondylolisthesis maybe earlier grade 1 at L3-4 but the foraminal dimensions were still maintained. We decided to go ahead and just do pedicle screws and try to obtain reduction in the anterior posterior dimensions of the foramen and see how she does.

The baseline neuro monitoring scores were pretty good. We then went ahead and brought the C-arm in to identify the pedicles of the L5 – the skin entry points were marked on the skin both on the right and the left side. We then started with L5 body where we made incision on the right side first and the incision was then carried out to the fascia. A nice clamp was used to separate the fascia layers to have a nice entry tract to the pedicle. Then a Jamshidi needle was used and docked onto the pedicle at lateral 3 o'clock position of the pedicle in the AP view with a nice trajectory so that the screws come to lie directly below the graft to prevent further subsidence. I used nice fluoroscopy to nicely advance the Jamshidi needle into the AP view in the middle part of the pedicle. We were at 30 mm depth at that point of time. We then rotated the Jamshidi needle so as to be in the pedicle. We did neuro monitoring throughout the procedure and made sure that the scores remain above 20. I was then ultimately able to negotiate the needle beyond the pedicle into the body. At that point time, I removed the stylet and inserted a flexible wire under the lateral view guidance and appropriate depth. We then did not use tap but we then inserted screw- Considering she was osteoporotic. I could insert a 45-mm length 6.5 diameter screw nicely into the vertebral body at L5 area. A similar screw was then inserted following exactly the similar step onto the other side and similar screws were then inserted at L4 and L3 as well. I tried to position both the screws underneath the graft without actually driving them inside the lateral graft that we had inserted so as to prevent any further subsidence at the same time not pushing the graft anteriorly. We really had good insertion torque and good neuro monitoring scores for all the screws. After positioning all the screws nicely and checking they are appropriately placed both in C-arm AP, lateral, and oblique views, I went ahead and measured for the rod, which was 75 mm onto the left side and 70 mm on the right side. I precut the rods with the rod bender and then used the rod inserter to slowly negotiate the rod to the (8:28). I had curved some lordosis into the rod and then I used reducer to nicely reduce the rod to the spine. I was nicely able to reduce the rod to the spine and then tighten all the (8:44) screws and tightened them out completely on both sides. With the application of rod I was able to reduce the spondylolisthesis further with very mild spondylolisthesis on the left at L4-5. We also had nicely put lordosis into the system. I was then able to remove the rod inserters and I was able to nicely irrigate the wound with copious amount of bacitracin and normal saline. The alignment looked pretty good on the x-rays. I then diverted my attention to the facet joints. I went onto the right side at L3-4 area where we exposed the facet joints between the pedicles beyond the rods and also underneath the rod and the intralaminal area. I made that area rod with a Cobb under C-arm guidance and by tactile feel and I was able to put some transcardial cancellous chips into that area after going through the bleeding bone with the Cobbs and using a burr. The similar procedure was carried onto the left side at L4-5 area.

I then went ahead and closed the fascia with #1 Vicryl and we had to take multiple stitches in between to obliterate the dead space and then took subcutaneous sutures and then subcuticular stitches and a dermabond and Steri-Strips were then applied.

The patient tolerated the procedure really well. She had very little blood loss 50 cc and neuro monitoring scores were throughout normal. The patient was then slowly turned supine and extubated in the operative area and was then slowly wheeled down to the recovery area where her pain was controlled with Morphine. She had initial bout of increased pain and increased blood pressure which was controlled with labetalol. Ultimately she got more comfortable. Her pain was reasonably well controlled in the recovery and then she was taken to the ambulatory care area where she was closely observed for some time. Reportedly she had some hallucinations from the last time from the surgery because of the Ketamine that she had and we decided to avoid Ketamine at this point of time but, she had a little bit of increased perception of pain post-op as compared to last time coming out of surgery. We will continue to observe her for a few hours and see how she does and based on that will decide on her discharge. If the patient has any further questions or concerns, I think she should be contacting Prairie Spine number. I will be observing her for four hours to make sure that she is doing okay