Note From Your Admission on 04/18/22

Operative Report by Alexander Antonios Theologis at 4/18/2022 9:02 AM

OPERATIVE REPORT - UCSF ORTHOPAEDIC SPINE SURGERY

Date of Procedure
4.18.2022

Primary Surgeon
Alexander A. Theologis, MD

Pre-operative diagnosis
1. Cervical spondylosis
2. Cervical spinal stenosis
3. Cervical myelopathy

Post-operative diagnosis
1. Cervical spondylosis
2. Cervical spinal stenosis
3. Cervical myelopathy

Procedures performed
1. Posterior cervical laminoplasty at C4 with right-sided opening with a 10mm plate (Stryker Escalate)
2. Additional level posterior cervical laminoplasty at C5 with right-sided opening with a 10mm plate (Stryker Escalate)
3. Additional level posterior cervical laminoplasty at C6 with right-sided opening with a 10mm plate (Stryker Escalate)
4. Partial (caudal 50%) laminectomy of C3
5. Partial (cranial 33%) laminectomy of C7
6. Posterior cervical hemilaminotomy with decompression of nerve roots, including partial facetectomy and foraminotomy at right C4-5
7. Harvest of local autograft
8. Posterior cervical fusion C4 to C6
9. Augmentation of posterior cervical fusion from C4 to C6 using local bone autograft
10. Complex multi-layered wound closure deep muscle, superficial muscle, fascia x2, deep subcutaneous tissue, superficial, subcutaneous tissue, and skin
11. (CPT-II 4047F) Antibiotic administered *per venam* within 60 min. of incision and discontinued within 24 hr.
12. Use of multi-modal neuromonitoring, including motor-evoked potentials, somastosensory-evoked potentials, evoked and spontaneous EMGs
13. Application of Gardner-Wells tongs for temporary intraoperative traction.
14. MD evaluation and interpretation of intra-operative live fluoroscopy. Fluoroscopy professional up to 1 hour (CPT 376000)

Anesthesia
General

Specimens
None

Drains
Deep to fascia x1

Estimated blood loss
25 cc

Complications
None

Indications for Procedure
The patient is a 67-year old male who developed cervical spondylosis and central stenosis resulting in cervical myelopathy. Nonoperative and operative options were discussed with the patient. The procedure was explained in an appropriate amount of detail for the patient to have realistic expectations of the procedure, recovery, potential complications, and expected instrumentation retention after the procedure. The risks discussed included but were not limited to bleeding; the need for blood transfusion; infection; complications related to intraoperative and post-operative swelling and wound closure problems; nonunion; need for hardware removal; persistent pain; and/or damage to blood vessels, tendons, ligaments, bone including intraoperative fracture, and nerves/spinal cord resulting in temporary or permanent neurologic injury of the upper and lower extremities and loss of bowel and bladder control. All the patient's questions were elicited in-full and answered to their satisfaction. After the risks and benefits of operative intervention were discussed in a shared decision-making fashion, the patient elected to pursue surgical intervention. Informed consent for the discussed operation was obtained.

Findings
1. Cervical spondylosis
2. Cervical spinal stenosis from C3 to C7

Neuromonitoring
Motor-evoked potentials
Somatosensory-evoked potentials
Spontaneous EMGs

Pre-flip: normal
Pre-incision/post-flip: normal
Changes intra-operatively from baseline: none
Final: at baseline

Procedure in Detail
In the preoperative holding area, the patient's operative site was marked by the surgical service and confirmed by the patient, the pre-operative nurse, the surgical team, and the anesthesia team prior to proceeding into the operating room.

Upon entering the operating room and transferring the patient to the operating room table the "Time Out" procedure was initiated by the circulating nurse after all preparatory procedures were paused and full attention of the operating room staff, surgical team, and anesthesiology team were obtained. The surgical procedure and operative site were re-verified in the operating room. All relevant radiographic images were displayed appropriately and verified to match the patient and pending procedure. Relevant instruments were confirmed to be present and sterile in the operating room. Informed consent and patient history and physical exam were reviewed and verified to match the pending procedure. The pending procedure was verified by the operating room staff, surgical team, and anesthesiology team. The patient allergies and blood borne illnesses were reviewed and then the antibiotic plan was verified. Positioning was confirmed and then the "Time Out" procedure was completed and preparation for surgery was resumed.

Preoperative Drug Administration:
Weight-based dosing of Cefazolin and Vancomycin were given intravenously within 60 minutes of the surgical incision.

The patient was laid in the supine position and general anesthesia was induced by the anesthesiology service. Gardner wells tongs were placed on the cranium of the patient, a Foley catheter was placed, and sequential compression devices were placed on both the patient's lower extremities. The Gardner wells tongs were secured to a traction rope with 15 pounds applied to the rope. Next the arms were positioned in a tucked fashion. All bony prominences were well-padded.

Lateral fluoroscopy was used to localize the planned incision. Next the entire posterior neck was prepped and draped in the appropriate fashion using alcohol and ChloraPrep.

Exposure
We began the surgery by making a midline incision centered over the spine from C3 to C7. The spine was then exposed in a subperiosteal manner out to the tips of the lateral masses in the cervical spine. The facet capsules were preserved bilaterally. Once the spine was thoroughly exposed, levels were confirmed using fluoroscopy. We then turned our attention to the decompression.

We performed a partial laminectomy (caudal 50%) at C3, laminoplasty at C4, C5, and C6, and a partial cranial laminectomy at C7. To that end the burr was used to resect the caudal 50% of the C3 lamina. The ligamentum flavum at C3-4 was removed. The burr was used to resect the cranial 33% of the C7 lamina. The ligamentum flavum at C6-7 was removed.

Laminotomy
We then turned our attention to performing the laminoforaminotomy at right C4-5. Using a high-speed burr drill, we drilled off the rostral component of the right superior articulating facet of C5 and the caudal component of the right inferior articular facet of C4 medially. As we came across, we were able to see the nerve root and then decompressed with direct visualization of the nerve with a 2 Kerrison rongeur. We felt there was a falloff with an obvious decompression of the exiting nerve root.

Laminoplasty
The high-speed burr drill was then used to perform a complete removal of the lamina on the right side at C4, C5 and C6 and then a partial-thickness removal of the superficial cortical bone on the left side. Ligamentum flavum at all levels was removed. We sustained the opening at C6 with a 10mm laminoplasty plate (Stryker Escalate). At C6 we placed two 6mm screws in the lateral mass and one 6mm screw in the lamina. We sustained the opening at C5 with a 10mm laminoplasty plate (Stryker Escalate). At C5 we placed two 6mm screws in the lateral mass and one 4mm screw in the lamina. We sustained the opening at C4 with a 10mm laminoplasty plate (Stryker Escalate). At C4 we placed two 6mm screws in the lateral mass and one 4mm screw in the lamina. Once we had final tightened our laminoplasty plates in place, we then turned our attention to performing the posterior fusion and closure.

The incision was thoroughly irrigated with normal saline.

We harvested the autograft from the C4, C5, and C6 spinous processes. This was then packed in the left side of the opening laminoplasty site to achieve and augment a posterior cervical fusion from C4 to C6.

We then turned our attention to the closure. A deep drain was placed. The muscle and fascia were then closed using #1 Vicryl figure-of-eight sutures in a watertight fashion. The subcutaneous tissues were closed using 2-0 Vicryl sutures. The skin was then closed using 3-0 Nylon sutures. A sterile dressing was applied. Suction canisters were hooked up to the suction drains.

At the end of the case, the sponge, instruments, and needle counts were correct. The drapes were then removed. The patient was then immobilized in a cervical collar. They were transferred onto the hospital bed, underwent successful reversal of general anesthesia, and was extubated uneventfully. The Gardner-Wells tongs were removed. The patient's neurological examination following completion of the case demonstrated gross motor movement in both upper and lower extremities. The patient was then transferred to the recovery room in stable medical condition having tolerated procedure well with no apparent complication.