
OPERATIVE REPORT**PATIENT NAME:****MR #:****ADMIT DATE:****PROCEDURE DATE:****PREOPERATIVE DIAGNOSES:**

1. Pseudoarthrosis C3-4 level.
2. Irritable internal fixation C3 to C6, i.e., anterior cervical plate and screws.
3. Stable C4-5 and C5-6 anterior cervical fusion.

POSTOPERATIVE DIAGNOSES:

1. Pseudoarthrosis C3-4 level.
2. Irritable internal fixation C3 to C6, i.e., anterior cervical plate and screws.
3. Stable C4-5 and C5-6 anterior cervical fusion.

PROCEDURE:

1. Removal of anterior segmental instrumentation cervical spine.
2. Exploration of fusion C3-4, C4-5, and C5-6 levels.
3. Resection of pseudoarthrosis C3-4 level.
4. Partial corpectomy C3 inferior and C4 superiorly.
5. Anterior arthrodesis interbody technique C3-4 level.
? 8 mm high cortical autogenous bone graft with DBX putty inside.
6. Anterior cervical plate and screws: Anterior instrumentation Venture plate from Medtronic 32.5 mm in length.
7. EMG motor evoked potential testing bilateral upper extremities.

SURGEON:**ASSISTANT:****ANESTHESIOLOGIST:****ANESTHESIA:**

General oral endotracheal.

DRAINS:

One 0.25 inch Penrose drain.

ESTIMATED BLOOD LOSS:

Minimal.

COMPLICATIONS:

None.

NARRATIVE:

The patient is a 48-year-old white male well known to me as he has previously undergone anterior spinal surgery by me. He has had anterior cervical discectomy and interbody fusion in the past and went onto nonunion and had those levels revised, and of those, the C4-5 and C5-6 levels have gone onto fuse, but the C3-4 level has not. The nature of the condition, inherent risks, complications, options, and benefits associated with the procedure have been discussed and reviewed with the patient in detail and informed consent obtained. He is obviously well versed with this from being through it before. He understands the possibility of injury to the trachea or esophagus, recurrent laryngeal nerve, permanent versus temporary hoarseness, paralysis of nerve going to the vocal

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cords, infection, repeat or recurrent pseudoarthrosis, problems at this or one of the other levels, difficulty swallowing, breathing, Horner's syndrome, these and other potentialities have been discussed and reviewed and informed consents obtained.

PROCEDURE: The patient was taken to the operating room, put on the operative stretcher and placed on the operating table in the supine position. Under IV sedation, the patient was orally intubated by the anesthesiologist and general anesthetic administered.

The patient received Ancef one gram IV piggyback prior to the start of the procedure.

EMG and motor evoked potential testing electrodes were administered bilateral upper extremities as per standard technique. A folded towel roll was placed posteriorly between his shoulder blades. The head and neck were supported on a gel donut. His arms were tucked in and held by his sides. TED hose and foot pumps were placed on bilateral lower extremities. Anterior cervical region was sterilely prepped with DuraPrep type substance and draped with sterile linens.

The entire procedure was carried out under 3.5 power loupe magnification.

A sterile skin marker was used to map out the course of the oblique incision over the anterolateral cervical spine along the medial border of the sternocleidomastoid muscle. This incision was then made with a #15 blade through the old surgical cicatrix. Electrocautery was used to obtain good hemostasis. Blunt dissection with curved blunt tenotomy scissors continued to the level of the medial border of the sternocleidomastoid muscle that was identified and mobilized laterally. The strap musculature was identified and mobilized medially. The trachea and esophagus were identified and protected. The carotid sheath and its contents were identified and protected. The internal jugular vein was identified and protected. I spent quite a bit of time on careful meticulous dissection to the soft tissue planes down to the anterior aspect of the cervical spine. I could palpate the plate below and was convinced the trachea and esophagus and the neurovascular structures were away from the zone of dissection. I used electrocautery to open up the soft tissue immediately above the plate. Kidner's were used to mobilize the soft tissue away from the midline and dissection continued distally and proximally until it was fully released.

The Venture plate from Medtronic has a locking ring that holds each of the eight screws in place. There is a sleeve with the extraction device including the hex head screwdriver that is used to back away the locking ring from the screw and that allows the hex head screw then to be backed out. This worked successfully except for the middle levels at the C4 level; I could not get the locking ring to disengage. After repeated attempts with a variety of attempts with a variety of different screwdrivers and adaptive techniques including easy out type screwdrivers, I had to use a carbide tip drill bit to drill out the tulip or the head of the screw on C4 on the right so that with disengaging the plate, I could lift the plate off of the body of that screw that remained within the bone at the C4 level. The remainder of the screw was flush with the bone and deep inside the bone and no impediment to the rest of the procedure. The other levels were checked and electrocautery was used to remove soft tissue over the top of these levels and they were checked and these fusions were all solid. The C3-4 level was isolated. There was a slight bony bridge over the top of the disc space, but when the PEEK interbody spacer was exposed, it showed there was evidence of motion between the device and the end plates. A small osteotome and small angled curettes were used to develop this plane and finally the Midas-Rex burr was used to perform a partial corpectomy of C4 superiorly and of C3 inferiorly and that PEEK cage at the C3-4 level was removed. Evidence of pseudoarthrosis was definite and indisputable. Angled curettes were used to remove and resect the soft tissue that had grown in and around the cage and this was all débrided successfully. The Midas-Rex burr was used with great care to perform the partial corpectomy

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approaching the posterior edge of the vertebral bodies at this level. The area was copiously irrigated with sterile saline and sterile mineral oil was used when burring off the tulip head of that one screw as mentioned to keep down the titanium metal debris. The area was copiously irrigated at many times under frequent intervals throughout the procedure to prevent overheating of any of the tissues. The interbody spacer sizers were trialed and an 8 mm high allogeneous cortical bone graft that was hollow on the inside was selected and was filled with DBX putty from Synthes and the putty was placed posterior first and then the cortical bone graft with DBX inside was also inserted just deep to the anterior vertebral body margins.

I used a 32.5 mm Venture plate from Medtronic slightly longer than the typical one-level plate utilized for a one-level anterior cervical fusion to avoid the remaining screw length at C4 on the right. This allowed us to get just below that and we used appropriate length screws on the four corners of the plate with good purchase at each level. There was no injury to the neurovascular structures, trachea or esophagus. Again, the area had been copiously and repeatedly irrigated as noted. A 0.25 inch Penrose drain was placed deep within the wound and exited midline. The subq was closed with interrupted inverted sutures of 2-0 Vicryl. The skin was closed with a running subcuticular stitch of 3-0 Vicryl and covered with Mastisol, Steri-Strips, Xeroform, 4x4's and tape. The drapes were removed. There were no abnormalities identified on the EMG testing and motor evoked potential showed improvement upon completion of the procedure. The patient tolerated this well. All of the electrodes were removed prior to discontinuing the patient from general anesthetic. A two-piece Miami-J collar was applied and the patient had been orally extubated on the table and transported on the recovery bed into the recovery stretcher to the recovery room in apparent satisfactory condition.

The patient tolerated the procedure well. There were no complications encountered intraoperatively. All sponge and needle counts were correct.

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