PREOPERATIVE DIAGNOSES:,1. Recurrent spinal stenosis at L3-L4, L4-L5, and L5-S1.,2. Spondylolisthesis, which is unstable at L4-L5.,3. Recurrent herniated nucleus pulposus at L4-L5 bilaterally.,POSTOPERATIVE DIAGNOSES:,1. Recurrent spinal stenosis at L3-L4, L4-L5, and L5-S1.,2. Spondylolisthesis, which is unstable at L4-L5.,3. Recurrent herniated nucleus pulposus at L4-L5 bilaterally.,PROCEDURE PERFORMED:,1. Microscopic-assisted revision of bilateral decompressive lumbar laminectomies and foraminotomies at the levels of L3-L4, L4-L5, and L5-S1.,2. Posterior spinal fusion at the level of L4-L5 and L5-S1 utilizing local bone graft, allograft and segmental instrumentation.,3. Posterior lumbar interbody arthrodesis utilizing cage instrumentation at L4-L5 with local bone graft and allograft. All procedures were performed under SSEP, EMG, and neurophysiologic monitoring.,ANESTHESIA: , General via endotracheal tube.,ESTIMATED BLOOD LOSS: ,Approximately 1000 cc.,CELL SAVER RETURNED: ,Approximately 550 cc.,SPECIMENS: , None.,COMPLICATIONS: , None.,DRAIN: , 8-inch Hemovac.,SURGICAL INDICATIONS: , The patient is a 59-year-old male who had severe disabling low back pain. He had previous lumbar laminectomy at L4-L5. He was noted to have an isthmic spondylolisthesis.,Previous lumbar laminectomy exacerbated this condition and made it further unstable. He is suffering from neurogenic claudication. He was unresponsive to extensive conservative treatment. He has understanding of the risks, benefits, potential

complications, treatment alternatives and provided informed consent.,OPERATIVE TECHNIQUE: , The patient was taken to OR #5 where he was given general anesthetic by the Department of Anesthesia. He was subsequently placed prone on the Jackson's spinal table with all bony prominences well padded. His lumbar spine was then sterilely prepped and draped in the usual fashion. A previous midline incision was extended from approximate level of L3 to S1. This was in the midline. Skin and subcutaneous tissue were debrided sharply. Electrocautery provided hemostasis. ,Electrocautery was utilized to dissect through subcutaneous tissue of lumbar fascia. The lumbar fascia was identified and split in the midline. Subperiosteal dissection was then carried out with electrocautery and _____ elevated from the suspected levels of L3-S1. Once this was exposed, the transverse processes, a Kocher clamp was placed and a localizing cross-table x-ray confirmed the interspace between the spinous processes of L3-L4. Once this was completed, a self-retaining retractor was then placed. With palpation of the spinous processes, the L4 posterior elements were noted to be significantly loosened and unstable. These were readily mobile with digital palpation. A rongeur was then utilized to resect the spinous processes from the inferior half of L3 to the superior half of S1. This bone was morcellized and placed on the back table for utilization for bone grafting. The rongeur was also utilized to thin the laminas from the inferior half of L3 to superior half of S1. Once this was undertaken, the unstable posterior elements of L4 were meticulously dissected free until wide decompression

was obtained. Additional decompression was extended from the level of the inferior half of L3 to the superior half of S1. The microscope was utilized during this portion of procedure for visualization. There was noted to be no changes during the decompression portion or throughout the remainder of the surgical procedure. Once decompression was deemed satisfactory, the nerve roots were individually inspected and due to the unstable spondylolisthesis, there was noted to be tension on the L4 and L5 nerve roots crossing the disc space at L4-L5. Once this was identified, foraminotomies were created to allow additional mobility. The wound was then copiously irrigated with antibiotic solution and suctioned dry. Working type screws, provisional titanium screws were then placed at L4-l5. This was to allow distraction and reduction of the spondylolisthesis. These were placed in the pedicles of L4 and L5 under direct intensification. The position of the screws were visualized, both AP and lateral images. They were deemed satisfactory.,Once this was completed, a provisional plate was applied to the screws and distraction applied across L4-L5. This allowed for additional decompression of the L5 and L4 nerve roots. Once this was completed, the L5 nerve root was traced and deemed satisfactory exiting neural foramen after additional dissection and discectomy were performed. Utilizing a series of interbody spacers, a size 8 mm spacer was placed within the L4-L5 interval. This was taken in sequence up to a 13 mm space. This was then reduced to a 11 mm as it was much more anatomic in nature. Once this was completed, the spacers were then placed on

the left side and distraction obtained. Once the distraction was obtained to 11 mm, the interbody shavers were utilized to decorticate the interbody portion of L4 and L5 bilaterally. Once this was taken to 11 mm bilaterally, the wound was copiously irrigated with antibiotic solution and suction dried. A 11 mm height x 9 mm width x 25 mm length carbon fiber cages were packed with local bone graft and Allograft. There were impacted at the interspace of L4-L5 under direct image intensification. Once these were deemed satisfactory, the wound was copiously irrigated with antibiotic solution and suction dried. The provisional screws and plates were removed. This allowed for additional compression along L4-L5 with the cage instrumentation. Permanent screws were then placed at L4, L5, and S1 bilaterally. This was performed under direct image intensification. The position was verified in both AP and lateral images. Once this was completed, the posterolateral gutters were decorticated with an AM2 Midas Rex burr down to bleeding subchondral bone. The wound was then copiously irrigated with antibiotic solution and suction dried. The morcellized Allograft and local bone graft were mixed and packed copiously from the transverse processes of L4-S1 bilaterally. A 0.25 inch titanium rod was contoured of appropriate length to span from L4-S1. Appropriate cross connecters were applied and the construct was placed over the pedicle screws. They were tightened and sequenced to allow additional posterior reduction of the L4 vertebra. Once this was completed, final images in the image intensification unit were reviewed and were deemed satisfactory. All

connections were tightened and retightened in Torque 2 specifications. The wound was then copiously irrigated with antibiotic solution and suction dried. The dura was inspected and noted to be free of tension. At the conclusion of the procedure, there was noted to be no changes on the SSEP, EMG, and neurophysiologic monitors. An 8-inch Hemovac drain was placed exiting the wound. The lumbar fascia was then approximated with #1 Vicryl in interrupted fashion, the subcutaneous tissue with #2-0 Vicryl interrupted fashion, surgical stainless steel clips were used to approximate the skin. The remainder of the Hemovac was assembled. Bulky compression dressing utilizing Adaptic, 4x4, and ABDs was then affixed to the lumbar spine with Microfoam tape. He was turned and taken to the recovery room in apparent satisfactory condition. Expected surgical prognosis remains guarded.