Pre-op

Case Review:

51 year old female status post multiple spinal surgeries, presented with severe Flatback Deformity, and multiple level pseudarthrosis.

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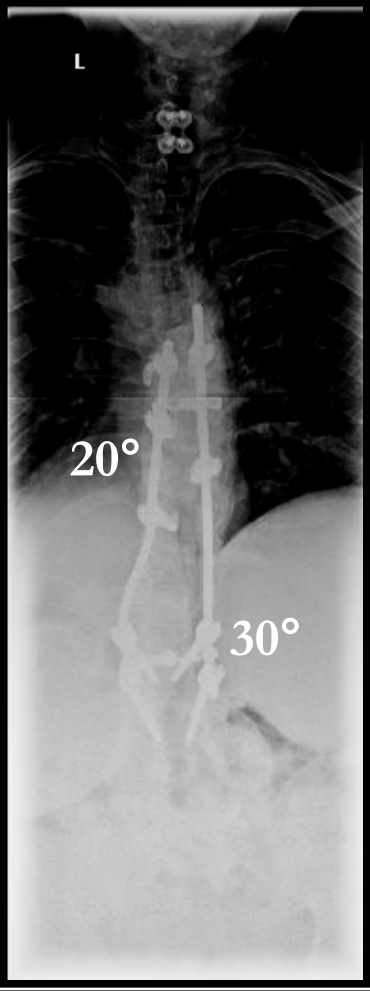
Patient History

- 51-year-old female, surgeon
- Status post multiple operations:
  - An anterior interbody fusion through a thoraco-abdominal approach where multiple ALIF grafts were placed in an attempt to stabilize the scoliosis in mid- 1990s.
  - Followed by a posterior instrumented fusion with a hook-rod construct to L5 but did not include the sacrum.
  - The patient did not improve, and had the distal aspect of her instrumentation removed,
  - The patient continued to become sagittally unbalanced, and it was ultimately found out that the key problem was an L5-S1 pathology. Either it was recognized that the patient had a pars fracture at that time and/or she was having pain from the L5-S1 disc, and this was ultimately revised with an anterior-posterior spinal fusion at L5-S1.

Patient History – cont.

- At the time of that operation, the proximal instrumentation, which had been partially removed, was never reconnected, so the patient had non-continuity of her instrumentation with this L5-S1 attempt at fusion and a fusion above. This was ultimately unsuccessful, and it was found by another surgeon that, in fact, the screws from the L5-S1 instrumentation had significantly encroached into the spinal canal and this was reported elsewhere.
- Ultimately, that surgeon then referred the patient along to us because of the patient's now escalating problems with coronal and sagittal plane decompensation multiple level pseudarthrosis and the problem of dealing with her from a symptomatic standpoint, which now necessitates escalating amounts of narcotics and disability.
- The patient presented with a clear iatrogenic flat back, multiple level pseudarthrosis, full-thickness pseudarthrosis through L5-S1 instrumentation and a solid union proximally but a junctional kyphosis above the hook construct which had been fused short.

Pre-op X-rays



After multiple spine surgeries with unexpected results, the patient is decompensated 28cm in sagittal plane.

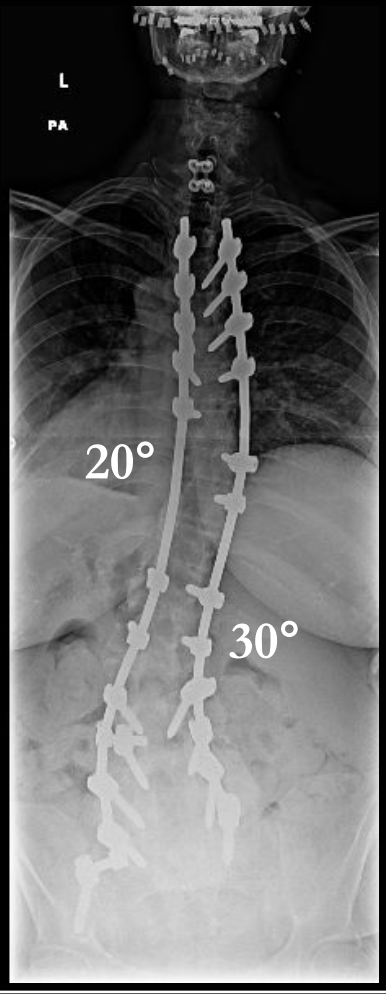
Indications for Surgery

1. Adult idiopathic scoliosis, status post attempt at #2.
2. Anterior posterior spinal fusion for correction of adult idiopathic scoliosis in 2006.
3. Failure of distal instrumentation and revision removal with ultimate attempt at anterior-posterior spinal fusion, L5-S1, with anterior interbody fusion and L5-S1 posterior instrumented fusion that went onto pseudarthrosis.
4. This was followed by removal of L5-S1 posterior instrumentation with intracanal penetration of reconstruction pedicle screws.
5. Now with continued pseudarthrosis, L4-5, L5-S1, with clear full- thickness pseudarthrosis, front and back, exacerbated by #6.
6. Pars fractures, L5-S1, due to combination of previous operation and stress concentration due to #7.
7. Iatrogenic flat back with complete loss of sagittal compensation; also has coronal plane compensation which is leading to #8.
8. Failure to thrive, severe low back and radicular pain due to flat back iatrogenic pseudarthrosis, failure of instrumentation, penetration of pedicle screws, and now with #9.
9. Hypertension, obesity, ADD treatment, almost failure to thrive.

Surgical Strategy

- Segmental spinal instrumentation, thoracic 4 to sacral pelvis, using 1/4" stainless steel pedicle screw-rod construct.
- Posterior spinal fusion, T4 to pelvis, using locally harvested autogenous bone and RH BMP.
- Pedicle subtraction osteotomy/kyphectomy/complete vertebrectomy of L2 for segmental correction of iatrogenic flat back of lumbar spine.
- Complete laminectomy under high-intensity loupe magnification and right L1, L2, L3 for decompression and facilitation of pedicle subtraction osteotomy.
- Left iliac crest exposure for placement of sacral pelvic screw.
- Iliac crest bone harvesting.
- Smith-Pete osteotomy at T8, T9, T10 with complete facetectomy and central decompression for realignment of junctional kyphosis superjacent to previous instrumentation.
- Removal of retained hardware. This was a Stryker pedicle screw- hook construct placed for adult idiopathic scoliosis.
- Intraoperative O-arm fluoroscopy and surgical navigation.

Post-op Films



- The patient's coronal balance has been restored.
- Her radicular symptoms are all gone.
- Back pain has significantly improved

Pre-Op/Post-op Comparison