

Case Review: Adult Idiopathic Scoliosis Revision Surgery

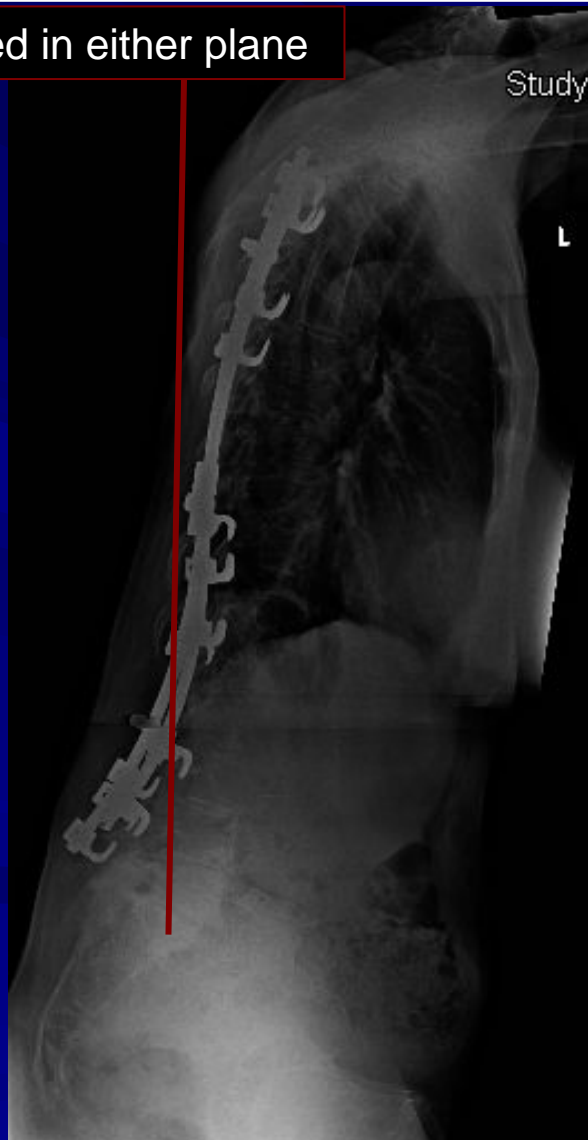
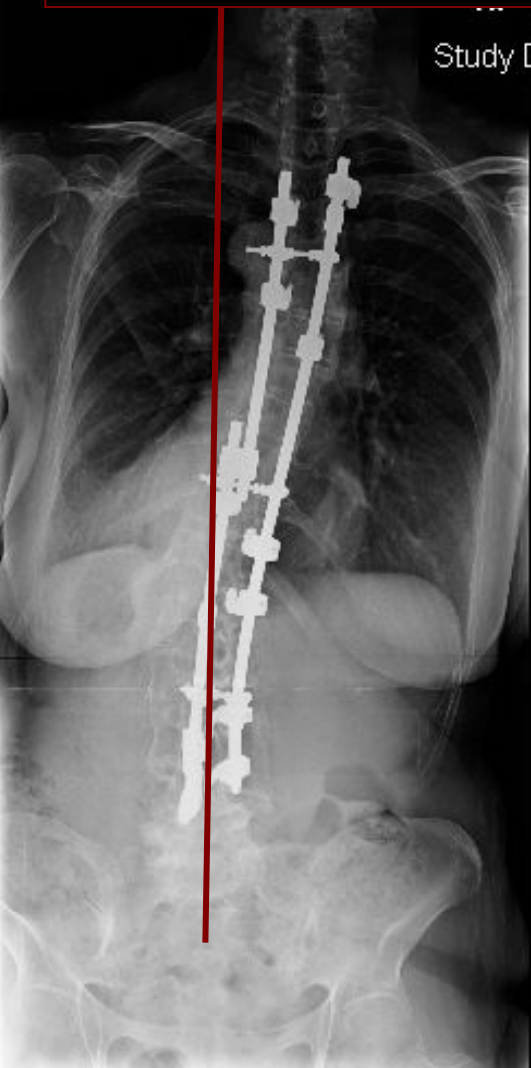
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Patient History

- 59 year old female
- Status post posterior instrumented fusion with CD Cotrel-Dubousset hook/rod construct for a double major curve down to approximately L3-4, in 1990.
- Iatrogenic flat back for compensation, patient is tilting to the right.
- Low back, leg pain, and nerve stretch.

Pre-op X-rays

The patient is not balanced in either plane



The patient did well immediately after surgery, but became progressively more kyphotic, and decompensated to the right 6 cm, forward 8 cm. She has flat back syndrome due to decreased lumbar lordosis and also has junctional spinal stenosis causing forward flexion, increasing of the instrumentation.

The patient knows that she will need revision with multiple-level osteotomies to get her back into a better standing position.

Indications for Surgery

1. Adult Idiopathic Scoliosis.
2. Flat back syndrome.
3. Spondylolisthesis.
4. Junctional kyphosis with spinal cord and cauda equina compression due to distal decompensation of the instrumentation.
5. Status post posterior instrumented fusion, 1990, for Adolescent Idiopathic Scoliosis.
6. Now with multiple co-morbidities, including back and leg pain unremitting and not treated with conservative therapy.

Surgical Strategy

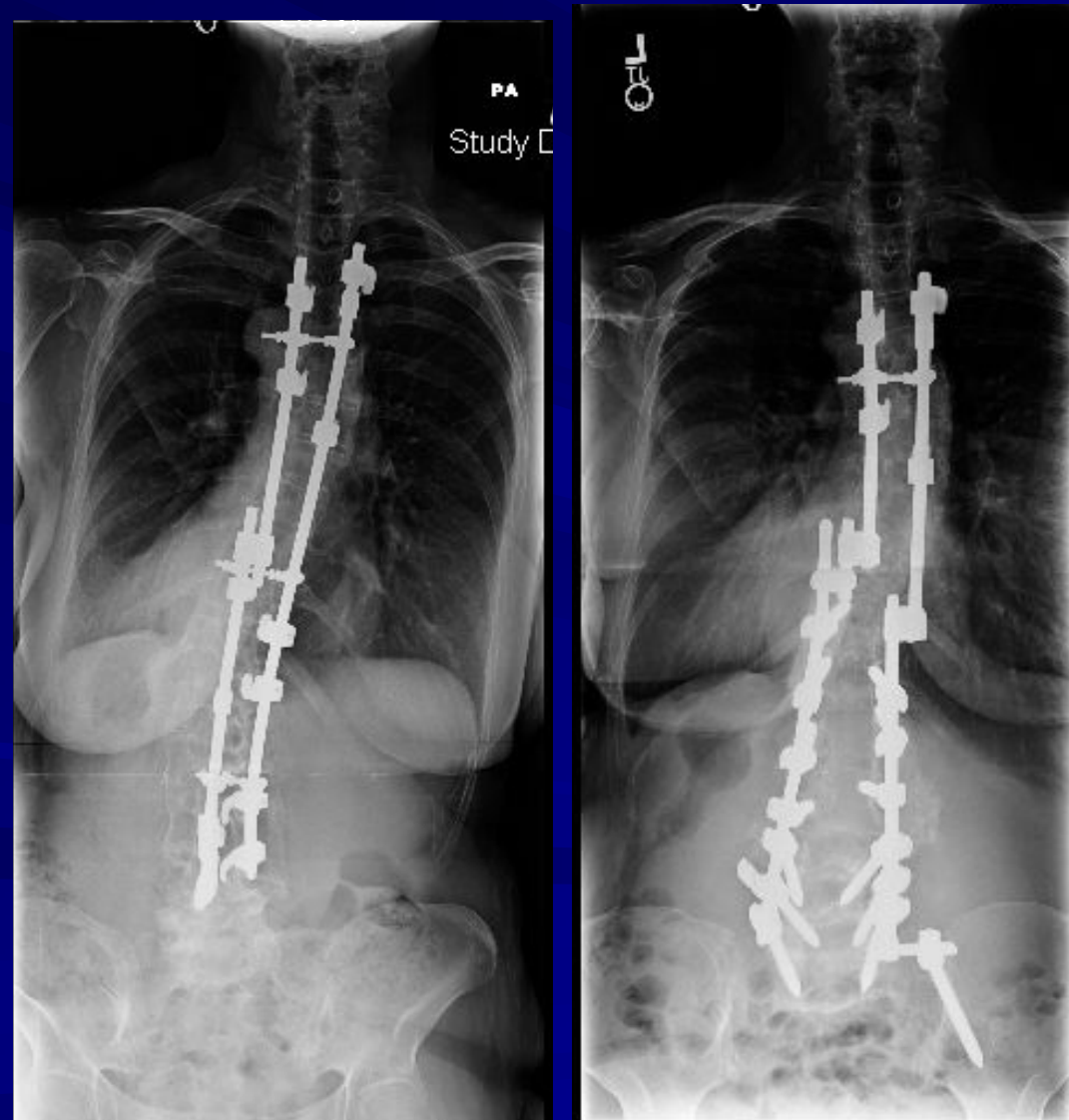
- The CT Myelogram shows partial block distally, spondylolisthesis distally. The patient needs removal of hardware, posterior instrumented fusion, pedicle subtraction osteotomy, and sacral/pelvic fixation.
- Segmental spinal instrumentation, thoracic to pelvis, using CV Legacy 1/4-inch stainless steel screw-rod construct.
- Pelvic fixation through separate incisions on the right-hand side.
- Posterior spinal fusion, T10 to the pelvis, using locally autogenous rhBMP (recombinant human bone morphogenetic protein) 8 levels.
- Smith-Peterson osteotomy with complete removal facetectomy, T10, T12, L2, L3.
- Kyphectomy, vertebrectomy, pedicle subtraction osteotomy, lumber 3, with complete removal of vertebrae under the microscope.
- Repeat laminectomy, re-exploration L1-L4 using the microscope.
- Interlaminar decompression at the L4-5, L5-S1 bilaterally using the microscope for spinal stenosis.
- Repair of incidental durotomy, L2.
- Removal of retained hardware instrumentation, Cotrel-Dubousset.
- Motor-evoked potentials.
- Intraoperative fluoroscopy management.

Post-Op Films



At the time of the operation, there was a massive spinal compression due to the hooks at the junctional level at L4. This fusion was solid up to T10. The instrumentation was intact to that level. The bone was generally of moderate quality.

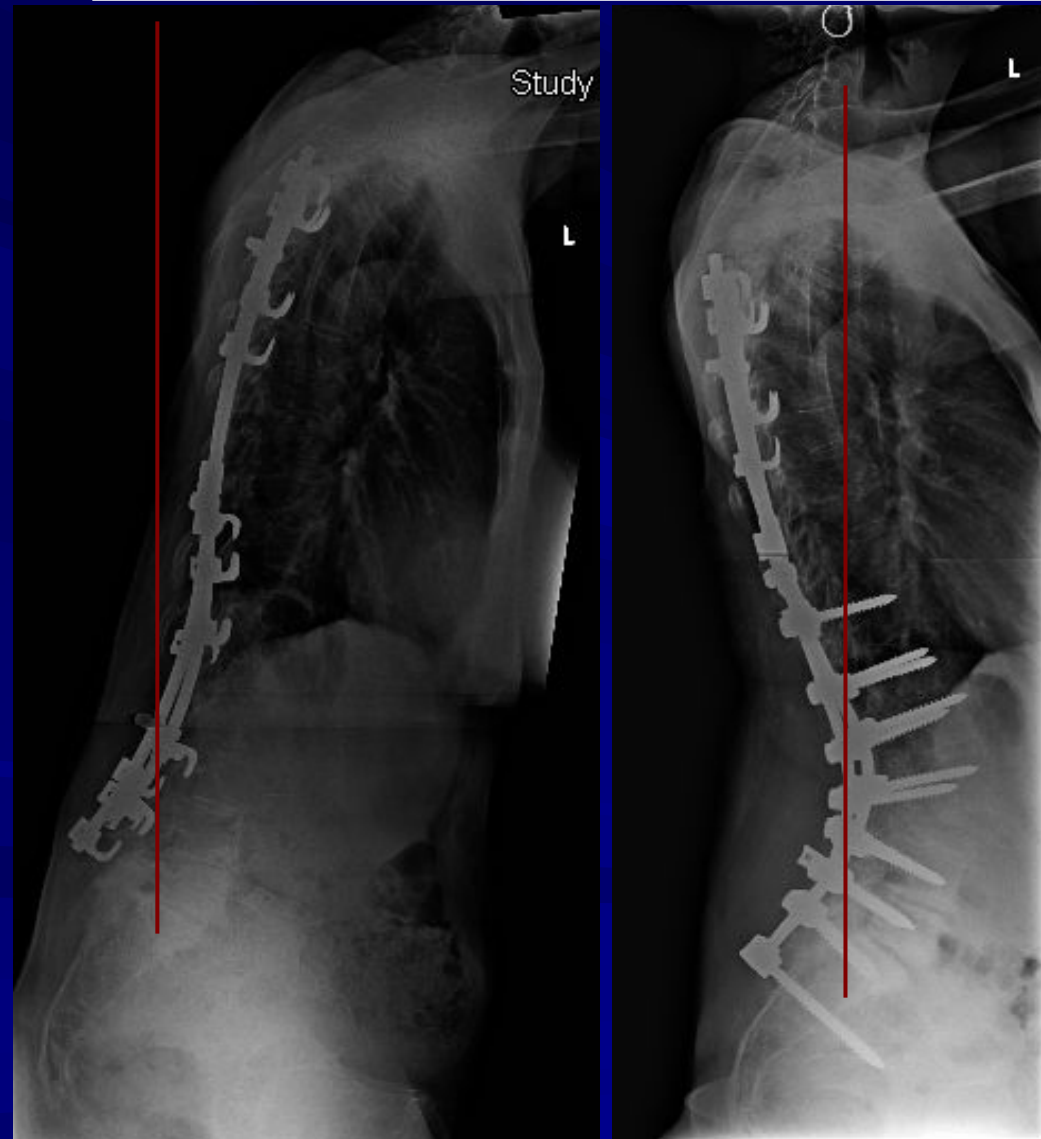
Pre-Op/Post-op Comparison



The patient is balanced in coronal plane, and is no longer leaning to the right.

Her symptoms have resolved, and she is very happy with the outcome.

Pre-Op/Post-op Comparison



The patient's balance has been restored. Her head is now directly over her hips, which will help reduce muscle fatigue and pain.