

Case Study

Provided by Neurosurgery Center of Colorado
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Special surgery to treat 35 year-old woman with **unusual neck fracture**.

Rolling her van while at work, the neck pain was intense. What she did not realize was that the unusual nature of her cervical fracture helped avoid almost certain paralysis. Films in a nearby emergency room revealed a cervical fracture and a collar was recommended. However, the injury healed poorly and her neck pain continued to worsen and she developed numbness in her hands and difficulty walking. This industrious woman, just 35 years of age, found she could no longer perform her demanding job. Her doctor ordered x-rays and a CT scan of her neck and was shocked with the results. Although solidly healed, her neck had fused with one vertebrae slipped off on the one below. Anxious, she presented for a neurosurgical opinion.

The x-rays and scans were indeed dramatic. Her neck had broken in the front and back. Likely, the slip had developed over time, one cervical vertebrae sagging on the vertebrae below, until it could slide no further, and then healed. The roof of the spinal canal had broken off during the accident and had spared her from injuring her spinal cord. Over time, the fractures had fused solidly. The choices were limited: continue pain medications and pain therapies, which were not helping, or “re-break” the neck in a controlled fashion, correct the misalignment, stabilize the spine, and allow time for bone fusion to occur again. In view of the worsening pain, her problems with numbness and walking, and her young age, there was really only one good option.

The surgical procedure consisted of three surgeries in one, all performed on the same day. During the first procedure, through an incision in the back of the neck, the fusion of the back part of the spine (the lamina and facets) was surgically released and the wound was closed. Then, through an incision in the front of the neck, the two crushed vertebrae were removed and, carefully using traction under x-ray guidance, the neck was straightened. A special “cage” implant filled with bone chips was implanted to reconstruct the vertebrae and was then secured with a titanium plate attached to the front of the spine. This wound was then closed, she was turned back over on the operating table and the previous neck wound was re-opened. Screws and rods were attached to the back of the spine to further stabilize the spine. An external halo brace was the final security used to ensure her spine would hold together while waiting for bone healing to occur.

She wore the halo for 3 months and one month later returned to work. A year after surgery she reports to feeling “wonderful”. She now wears her seatbelt.

MRI image of patient's cervical spine prior to surgery showing severe deformity secondary to misaligned fusion of her vertebrae:



Postoperative XR of the cervical spine after anterior and posterior fusion with a complete correction of the deformity:

