

Persistent Low Back Pain Secondary to Postoperative Adhesive Arachnoiditis: A Case Report

James B. Meiling, D.O.¹, Jason A. Lee, D.O.^{1,2}

¹Department of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, MN; ²Division of Sports Medicine, Department of Orthopedics, Mayo Clinic, Rochester, MN

FIGURE 1



Figure 1: MRI of the lumbar spine, sagittal view
Figure 2: MRI of the lumbar spine, axial views

Adhesive arachnoiditis can be visualized on an axial view of the lumbar MRI by the presence of an “empty sac sign,” where the nerve roots of the cauda equina are displaced peripherally towards the edge of the central spinal canal. These nerve roots become clumped together and adhered to the edges, leaving the central portion open with the false appearance of absent nerves.

CASE DIAGNOSIS

Postoperative adhesive arachnoiditis

CASE DESCRIPTION

A 61-year-old female with remote history of bilateral L4 laminectomy presented with years-long, insidiously-starting low back pain that radiated into the left hip and laterally down the left leg to the left ankle. Her pain worsened with movement, particularly at night. She denied numbness, tingling, incontinence, or saddle anesthesia, but endorsed weakness of the left lower extremity, with recent falls. She had previously tried physical therapy, Gabapentin, spinal cord stimulator implantation, left L5/S1 selective nerve root blocks, and an ultrasound-guided left piriformis tendon sheath injection, all without long-term improvement of her symptoms. Physical exam was non-contributory. Lumbar spine MRI showed displaced nerve roots of the cauda equina below L3 to the periphery of and adhering to the dural sac, an “empty sac sign,” (Figures 1-2) indicative of adhesive arachnoiditis. Her persistent pain was caused by postoperative adhesive arachnoiditis, occurring from her prior L4 laminectomy, which effectively impinged on several nerve roots.

DISCUSSION

Arachnoiditis is a painful condition associated with inflammation of the arachnoid mater, one of the meningeal layers that surround the spinal cord. The most common precipitating factors of arachnoiditis include infection, intracranial or intraspinal hemorrhage, herniated discs, and intrathecal medications or contrast.¹ Spinal surgery may also be a risk factor for adhesive arachnoiditis, much like intra-abdominal surgery is a risk factor for peritoneal adhesions in the gut. That being said, it is typically associated with disc-related surgeries and arachnoiditis is often only incidentally found on later imaging.¹ Rarely does this postoperative adhesive arachnoiditis result in persistent, unrelenting pain, like is seen with our patient.

CONCLUSIONS

Postoperative adhesive arachnoiditis is usually a non-painful, often incidental, imaging finding, but rarely it can present as chronic low back pain when the adhesions impinge on the spinal nerve roots.

REFERENCES

1. Steinmetz, M.P. & Benzel, E.C. (2017). Arachnoiditis. *Benzel's spine surgery: techniques, complication avoidance, and management*. (3rd ed., pp1807-9). Elsevier.

FIGURE 2

