

Intr radicular herniated lumbar disc

Case report

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✓ An unusual case is presented in which a fragment of herniated lumbar disc was found within the sheath of the S-1 nerve root. The possible pathogenic factors are discussed.

KEY WORDS • intervertebral disc displacement • intr radicular disc herniation • lumbar disc • spinal nerve root compression

THE penetration by a ruptured intervertebral disc through the spinal dura mater was described by Dandy in 1942.³ Since then, 49 cases of intradural disc invasion have been collected.^{2,4,5} We have not found a previous report describing the invasion of the radicular sheath by a ruptured disc. The purpose of our communication is to describe and comment on a patient who exhibited this phenomenon.

Case Report

This 34-year-old male bricklayer presented with a 2-year history of fluctuating low-back pain with intermittent episodes of radiation to the posterior part of his left lower limb. The last episode of this sciatic pain occurred 3 months before admission. Four weeks prior to consultation, the pain suddenly increased in intensity after a strenuous movement, and did not subside with conservative treatment.

Examination. On admission, the man complained of excruciating pain in his left leg and foot. His back was bent and he kept the left hip and knee flexed to obtain some relief. All movements of his low back were painful, and ambulation was almost impossible because of the pain. Neurological examination revealed a positive straight-leg raising sign at a minimal angle on the left and at 25° to 30° on the right. The left ankle jerk was absent, and there was weakness in plantar flexion. The cutaneous territory of S-1 was hypesthetic.

Plain radiographs of the lumbosacral spine were normal. Metrizamide myelography (Fig. 1) showed widen-

ing and amputation of the left S-1 root and displacement of the whole dural sac to the right, with a 2-mm space between the subarachnoid space and the pedicle of L-5 on the right and a 14-mm space on the left. There was a conjoined root at L5-S1 on the right, and several arachnoidal pouches of the sacral roots.

Operation. A left hemilaminectomy of L-5 was extended to the right, with excision of the spinous process and resection of part of the posterior arch of S-1, to expose the lesion. The left S-1 nerve root was enormously dilated. Any attempt to mobilize the root was impossible due to the dense adhesions to the anterior wall of the spinal canal. The left S-2 nerve root was also slightly enlarged but it was easily mobilized. The swollen S-1 root displaced the dural sac to the right side of the spinal canal (Fig. 2 left). Under the surgical microscope the S-1 radicular sheath was opened longitudinally, and the posterior and anterior rootlets were identified. With microdissection, the rootlets were isolated from a hard mass which occupied the inside of the root sheath and was adherent to its walls (Fig. 2 right). The mass was extirpated in one piece (Fig. 3 left) exposing a small opening in the anterior wall of the radicular sheath. The intr radicular disc fragment measured nearly 2 cm (Fig. 3 right). The dense external adhesions between the sheath and the spinal canal were dissected until free mobilization of the root was achieved. The longitudinal incision was closed with interrupted stitches and then the remainder of the L5-S1 intervertebral disc was removed. The nerve root and

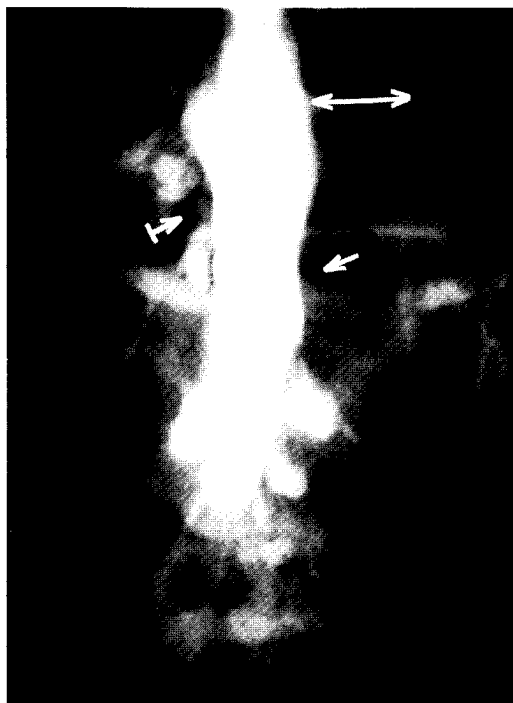


FIG. 1. Metrizamide myelogram, anteroposterior view, demonstrating the sacral arachnoid pouches, the amputation of the left S-1 nerve root (plain arrow), the conjoined right L-5 and S-1 nerve roots (ended arrow), and the wide displacement of the dural sac from the left L-5 pedicle (double arrow).

the manipulated area were covered and protected with a free fat graft.

Postoperative Course. There was immediate relief of the radicular pain. On the 10th day, the patient was discharged with residual absent left ankle jerk and some weakness in his left leg. At the last follow-up review 7 months after the operation, a great motor improvement was noted. The patient had returned to his previous job.



FIG. 2. Intraoperative photographs. *Left:* Comparison of the swollen left S-1 nerve root and the dural sac. *Right:* The left S-1 nerve root has been opened longitudinally, and the rootlets are dissected and separated from the intr radicular mass (arrow).

Discussion

The penetration of an extruded disc through the dura mater has been explained as being due to adhesions that attach the dural sac to the anterior wall of the spinal canal. These attachments are often normal at the L4-5 level,¹ or may develop after previous operations.⁶ With fixation of the dural sac, extruded disc material may break through the posterior longitudinal ligament and the dura mater.

We think a similar mechanism involved the nerve root area in our case. A swollen nerve root dilated and thinned out the sheath which became fixed to the spinal wall with adhesions restricting its mobility. Fragility of the radicular sheath wall, due to its dilatation and perhaps to a congenital weakness, can be suspected in view of the other abnormalities in the same segment,

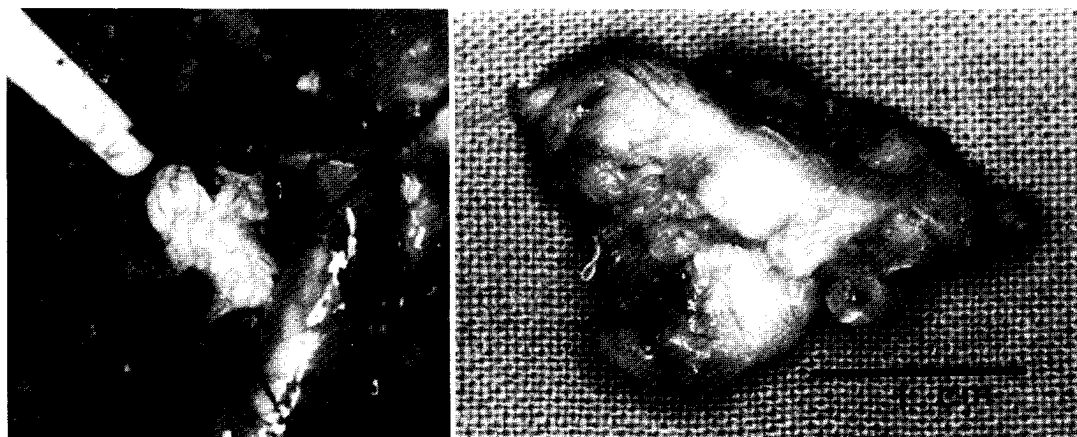


FIG. 3. *Left:* Intraoperative photograph showing the large disc fragment at the moment of its extirpation from inside the sheath of the nerve root. *Right:* The disc material removed from the radicular sheath.

including the conjoined root on the right side and the multiple sacral arachnoidal pouches. The disc fragment was forcefully extruded, escaped through the thinned lateral expansion of the posterior longitudinal vertebral ligament, and broke through the weakened nerve root sheath which was tethered to its surroundings.

References

1. Blikra G: Intradural herniated lumbar disc. *J Neurosurg* **31**:676-679, 1969
2. Ciappetta P, Delfini R, Cantore GP: Intradural lumbar disc hernia: description of three cases. *Neurosurgery* **8**: 104-107, 1981
3. Dandy WE: Serious complications of ruptured intervertebral disks. *JAMA* **119**:474-477, 1942
4. Roda JM, Gonzalez C, Blázquez MG, et al: Intradural herniated cervical disc. Case report. *J Neurosurg* **57**: 278-280, 1982
5. Smith RV: Intradural disc rupture. Report of two cases. *J Neurosurg* **55**:117-120, 1981
6. Teng P, Papatheodorou C: Intrathecal dislocation of lumbar intervertebral disc. *Neurochirurgia (Stuttg)* **7**:57-63, 1964

Manuscript received July 27, 1983.

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