CASE REPORT

Conjoined lumbosacral nerve roots: A Case Report and review of literature

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Abstract:
Lumbosacral nerve root anomalies are a rare group of congenital anatomical anomalies. Various types of anomalies of the lumbosacral nerve roots have been documented in the available international literature. These anomalies may consist of a bifid, conjoined structure, of a transverse course or of a characteristic anastomized appearance.

A 52-year-old lady who presented to us, with complaints of lower backache, radiating to the lower limbs for the last 2 years, was admitted. Examination showed restricted SLR and sensory loss at RT L4-L5 dermatome. A standard plain lumbosacral MRI was performed. Sagital MRI did not demonstrate any disc herniation. The axial MRI images showed a conjoined nerve root at L4-L-5 bilaterally. L4 right hemilaminectomy plus flavectomy was done. Postoperative course was uneventful and the patient was discharged ameliorated in his neurological status on day 7th, after operation.

Keywords: conjoined lumbosacral nerve roots, sciatica, backache,

Introduction:
Lumbosacral nerve root anomalies are a rare group of congenital anatomical anomalies. Various types of anomalies of the lumbosacral nerve roots have been documented in the available international literature. In fact, in the presence of nerve root anomalies a wide exposure by hemilaminectomy is necessary. It allows an adequate visualization and mobilization of the involved roots, aids in the definition of the conjoined roots and their origin, thus avoiding the risk of laceration and excessive traction.

Case report:
A 52-year-old lady who presented to us, at our neurosurgical opd, with complaints of lower backache, with radiation to the lower limbs for the last 2 years, more to the right side, was admitted. Examination showed restricted SLR and sensory loss at RT L4-L5 dermatome, other examination was normal. A standard plain lumbosacral MRI was performed. Sagital MRI did not demonstrate any disc herniation (Fig:1). However the axial images showed a conjoined nerve root at L4-L-5 (Fig:2,3) bilaterally. Surgical therapy was performed (L4 right hemilaminectomy plus flavectomy) without discectomy was done. Postoperative course was uneventful and the patient was discharged ameliorated in his neurological status.
status on day 7th, after operation.

Discussion:
Nerve root anomalies are frequently under recognized on advanced imaging studies and are also underappreciated and underreported when encountered surgically.4

The embryological error causing the lumbosacral nerve root anomalies is unclear. The malformations in which the nerve roots emerge at a more caudal level, or in closely adjacent dural openings, or in a common nerve trunk, probably result from defective migration of the roots during the embryonic development, pending the usual unilateral occurrence of these anomalies. The emergence of roots at a more cranial level and the bilateral anomalies of 1 or more roots are probably due to an abnormal emergence of the affected roots from the spinal cord.5

From a clinical viewpoint, anomalies and malformations of lumbosacral nerve roots and their coverings usually do not initially produce any symptoms. It is only when further degeneration of disks and/or vertebral joint occurs (often accompanied by stenosing of the spinal canal and of the root canal entrance) that clinically relevant root compressions may be observed.1

The accurate information derived from MRI of multiple planes may be priceless for the preoperative and diagnostic evaluation of lumbosacral nerve root anomalies. MRI combines the advantages of CT, CT-myelography and classical myelography.2 Moreover, anomalies of the origin, course, length and diameter of the roots, as well as details of the bone and soft tissues around them, are better visualized by MR imaging.2

Artico et al. reported that 0.25% of 1,200 patients who underwent CT or MRI had conjoined nerve roots. Kadish et al. also reported that conjoined L5 and S1 roots are the most frequent (52.2%). Postacchini et al. stated that lumbosacral nerve root anomalies were almost asymptomatic and sometimes presented with symptoms by disc herniation.6

Unidentified nerve root anomalies, conjoined nerve root (CNR) being the most common, may account for some failed spinal surgical procedures as well as intraoperative neural injury. Previous studies have failed to clinically discern CNR from herniated discs and found their surgical outcomes as being inferior.7

Suspecting CNRs preoperatively is beneficial for appropriate treatment and avoiding the risk of intraoperative neural injury. With nerve root claudication and imaging suggestive of a “disc herniation,” the surgeon should be alert to the differential diagnosis of a CNR. Treatment is directed at obtaining adequate decompression by laminectomy and foraminotomy to relieve the lateral recess stenosis. Outcomes can be expected to be similar to routine disc herniations.7

In conclusion, this unusual anomaly may be treated in the same way as other spinal extradural pathologies as long as correct diagnosis, clinical and prognostic evaluation, surgical
planning and management have been carefully performed.

References: