Multiple thoracic disc herniations

Case report

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A patient with herniated thoracic discs in tandem is reported. The previous literature is reviewed. Difficulties with the preoperative diagnosis and the surgical approach to these lesions are discussed.

KEY WORDS • intervertebral disc • thoracic spine • myelopathy • multiple disc herniation

Thoracic disc protrusions account for less than 4% of all disc herniations. Multiple thoracic disc herniations are decidedly rare and can be difficult to distinguish from other extradural masses at the thoracic level. In the case presented here, the preoperative studies did not clearly indicate multiple thoracic disc herniations; however, a wide laminectomy with adequate lateral exposure allowed successful removal of the disc herniations at adjacent levels.

Case Report

This 32-year-old woman noted intermittent numbness and weakness in her left leg for 6 months. She developed acute pain in her upper lumbar area and in both lower extremities immediately prior to admission. Weakness of the lower extremities and urinary incontinence developed shortly after. There was no history of trauma.

Examination. The patient weighed 300 lb and was 5 ft 9 in. in height. Rectal tone was decreased. She had 2/5 strength in the hip flexor and extensor muscles and in the knee extensor muscles bilaterally. She had 3/5 strength in the left plantar flexor, dorsiflexor, and extensor hallucis longus muscles. Pain sensation was decreased from L-3 through S-5 bilaterally. Position and vibratory sensation were diminished bilaterally below L-3. Deep-tendon reflexes were absent in the lower extremities, and there were bilateral Babinski signs.

Plain spine x-ray films revealed advanced degenerative changes in the lower thoracic and upper lumbar areas. A myelogram with metrizamide instilled by lumbar puncture demonstrated a complete block at L-2. Metrizamide introduced via a C1-2 puncture demonstrated a block at the T-11 level with the suggestion of an extradural mass on the left. A postmyelogram computerized tomography (CT) scan showed spinal cord compression from T-11 to L-1 by an extradural mass anterior and to the left of the cord. Calcification was noted in the extradural defect at the T11-12 and T12-L1 disc spaces.

The patient was initially treated with steroids and showed some improvement in strength. Although multiple disc herniations could not be excluded due to the presence of calcification in the extradural mass at the disc spaces, the radiological studies were also thought to be consistent with an epidural metastatic neoplasm or calcified posterior longitudinal ligament.

Operation. A T10–L2 laminectomy was performed. Herniated thoracic discs were noted at the T11–12 and T12–L1 levels. The laminectomy was extended laterally to the left. The pedicles were removed and the disc protrusions were excised. Postoperatively, the patient had improved strength and sensation in the lower extremities and resolution of her bowel and bladder incontinence. After a course of physical therapy she was able to ambulate with the assistance of a walker.
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Discussion

Middleton and Teacher\(^1\) first reported a case of thoracic disc herniation in 1911. Love and Kiefer\(^2\) later estimated that for every 100 cases of intervertebral disc protrusions, only two or three were thoracic. Logue\(^3\) reported a 4% incidence of thoracic disc herniation when compared to all disc protrusions. A more recent estimate by Love and Schorn\(^4\) placed the incidence at 0.5% of all disc ruptures. Multiple thoracic disc protrusions are rare.\(^1,2,3,9\) When Abbott and Retter\(^5\) reported two cases of multiple thoracic disc herniations in 1956, a total of 64 thoracic disc herniations had been reported and only four of those were at multiple levels.

Although thoracic disc herniations have been reported at every level, 75% occur below T-8, with disc protrusions at T-11 being most frequent.\(^2,3\) Multiple disc protrusions have been reported at the T1–2 level by Svien and Karavitis.\(^6\) Van Landingham\(^7\) reported one patient with protrusions at the T7–8 level, and Abbott and Retter\(^5\) had two cases: one at T10–11 and the other at T11–12. In our case, multiple herniations were noted at the T11–12 and T12–L1 levels. It has been suggested by Haley and Perry\(^8\) that disc protrusions occur with the greatest frequency in the areas of greatest spine mobility, which in the thoracic spine occurs at the lower levels.\(^8\) Some series implicate trauma as a cause of thoracic disc herniation, but other authors cite a low incidence of antecedent trauma. Arce and Dohrmann\(^9\) suggested that trauma plays an important role in patients who present with a brief history. In our case, the duration of symptoms exceeded 6 months and there was no history of trauma. The roentgenographic studies did demonstrate evidence of degenerative spine disease. The patient was also markedly overweight.

Logue\(^1\) described disc space calcification in 70% of plain spine films of prolapsed thoracic disc, compared to 4% incidence in a series of controlled thoracic roentgenograms. Similar figures have been recorded by McAllister and Sage,\(^10\) who found a 75% incidence of calcification associated with prolapsed thoracic discs compared to 4% of controls. In contrast, Baker, et al.,\(^11\) indicated that disc calcification was not a useful sign and in only five of 43 cases did it help to diagnose thoracic disc protrusion. Thomson\(^12\) reported 10 cases in which myelography was diagnostic. These figures are supported by other reports.\(^11,12,13,14\) Love and Schorn,\(^13\) however, found that myelography was diagnostic in only 56% of the cases. Recently, CT scans have been helpful in showing thoracic disc disease, particularly in patients with negative or equivocal myelograms.\(^3\)

The first operative approach for herniated thoracic discs was laminctomy; however, this approach produced poor results.\(^1,2,3,4,8,13,18,20\) Perot and Munro\(^19\) reviewed 91 patients treated by laminectomy and found that 40 were unimproved and 22 were worse. Arseni and Nash\(^4\) also found that 60% of their patients had fair or unchanged results following laminectomy. Hulme\(^8\) used an extended costotransversectomy to approach the herniated disc and reported encouraging results in four of six patients. A transthoracic lateral approach has also been described.\(^18,19\) In 1978, Patterson and Arbit\(^17\) described an extrapleural posterolateral approach that included laminctomy and removal of a pedicle, a modification of an approach originally proposed by Carson, et al.\(^6\) The recent literature documents the superiority of these newer approaches.\(^9,10,14,20\)

A laminectomy was planned in our patient because a two-segment block was identified preoperatively suggesting the presence of an epidural neoplasm. In retrospect, calcification of the extradural defects at the level of the vertebral interspaces favored a diagnosis of multiple disc herniations. After protruded discs were noted intraoperatively, the laminctomy was extended laterally with removal of part of two pedicles on the left. This lateral extension of the exposure allowed removal of the disc fragments without significant manipulation of the cord.

References

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