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Multiple Thoracic Disc Herniations

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Summary

Multiple thoracic disc herniation is a rare disease. There are only 12 cases reported in the literature. They were treated surgically. Two cases of multiple thoracic disc herniations subjected to laminectomy without discectomy are presented in this report.

Keywords: Laminectomy; Multiple disc herniation; Thoracic disc herniation; Thoracic spine.

Introduction

Disc herniations in the thoracic spine account for about 0.3% of all disc operations. There are only 12 multiple thoracic disc herniations reported in the literature which were treated surgically. Thirteen patients with thoracic disc herniations were operated on in our department between 1958–1989. Two of them were multiple thoracic disc herniations. In this report these cases are presented and the literature on multiple thoracic disc herniations is reviewed.

Case Reports

Case 1. A 45-year-old man, air-compressor operator, complained of severe thoracic back pain with marked weakness of his lower extremities during the six months before admission. There was no history of trauma. Conservative management did not improve his condition. The patient was referred to our hospital.

On examination, rectal tone was decreased. He had 2/5 strength in the hip flexor and extensor muscles and 3/5 strength in the plantar flexor and dorsiflexor muscles bilaterally. He had mild sensory deficit up to T 8. Exaggerated tendon reflexes in the lower extremities, absence of the abdominal reflexes and bilateral Babinski signs were observed. Blood, urine and biochemical analyses revealed no abnormalities.

Iohexol myelography and postmyelographic CT showed multilevel disc herniations at T 7–8, T 8–9 and T 9–10 levels (Figs. 1 and 2). At operation a T 7–10 laminectomy was performed as described below. In the postoperative period he was relieved of back pain.

On examination at the 10th month after operation, he had minimal weakness in his legs and slight increase in deep tendon reflexes. There was no other complaint.

Case 2. A 23-year-old woman suffered from numbness in her legs for four months. Thoracic and lumbar back pain appeared three months before admission. One month before entry into hospital there was weakness in her legs. There was no history of sphincter abnormality or trauma.

Neurological examination revealed mild paraparesis. Pain sensation was decreased below T 7. She had bilateral Babinski responses and ankle clonus. Rectal tonus was normal. The deep tendon reflexes were hyperactive. Myelography with Iohexol and CT scanning revealed T 7–8 and T 8–9 disc herniations (Fig. 3). A laminectomy was performed at T 7–9. At the 18th month after operation she only had slight weakness in her right leg.

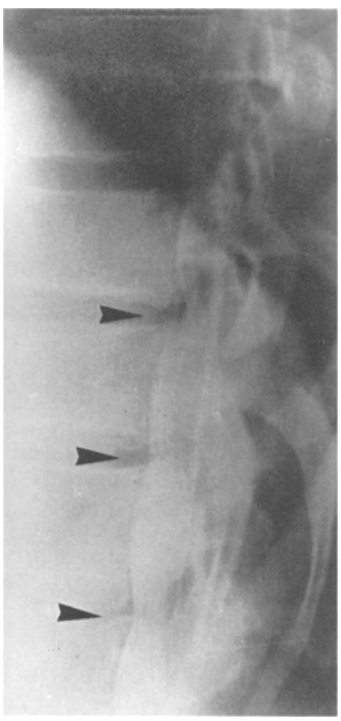

Fig. 1. Myelography showing T 7–8, T 8–9, and T 9–10 disc herniations

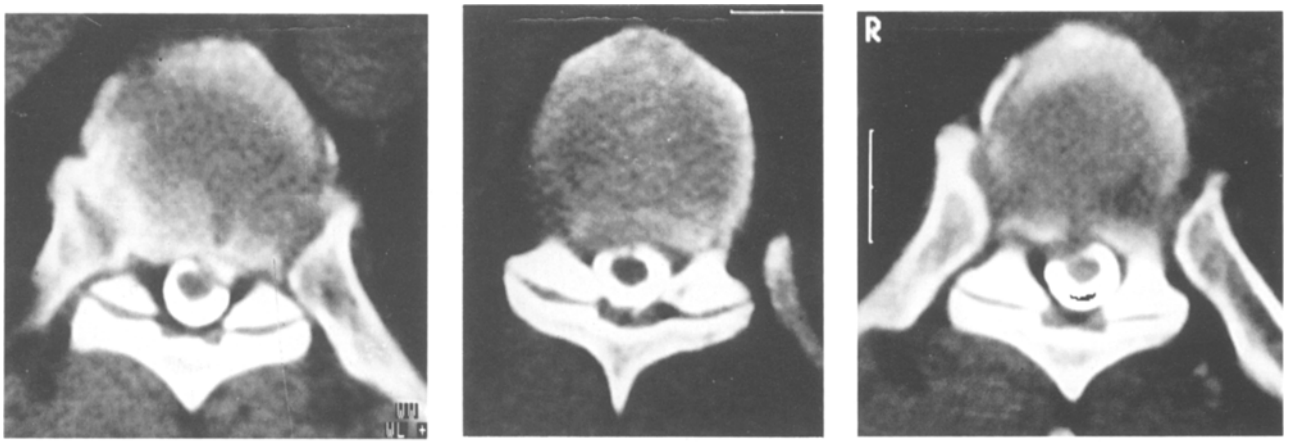

Fig. 2. Postmyelographic CT showing the herniated thoracic discs at T7–8 (a), T8–9 (b), and T9–10 (c) levels

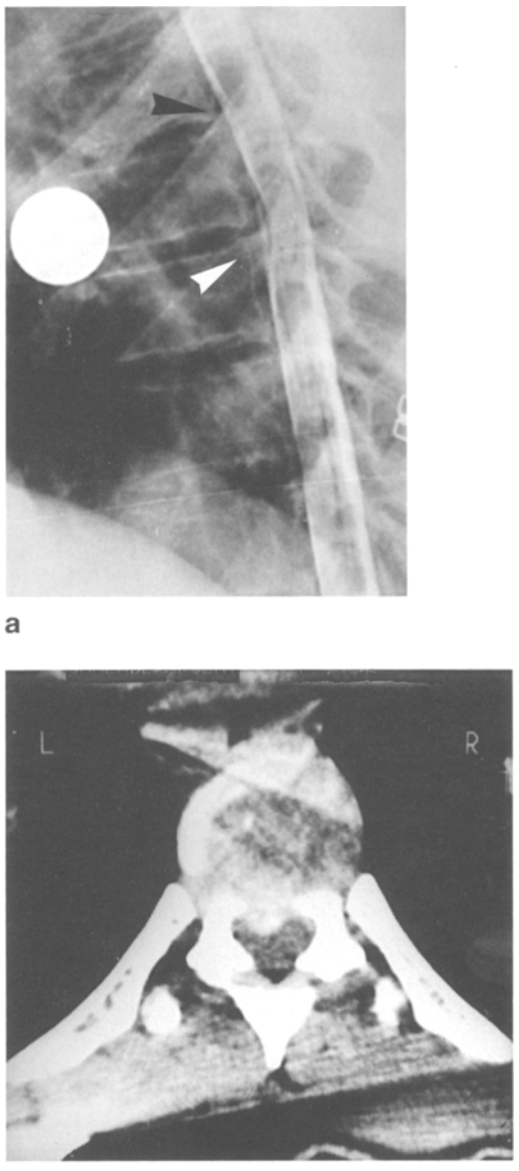

Fig. 3. Myelography (a) and CT of case 2. Herniated intervertebral discs are seen at the T7–8 (b) and T8–9 (c) levels

Surgical Procedure

After the midline skin incision, paravertebral muscles were stripped bilaterally. The laminae of the affected levels were thinned by high-speed air drill and laminectomy was performed very carefully with a thin Kerrison rongeur. Medial facetectomy was also performed on Case 1. In this case, lateral parts of the superior and inferior articular facets were not removed. The ligamenta flava were dissected cautiously from the dura by microsurgical techniques and dural adhesions were set free in the spinal canal. The dura was not opened and the disc was not removed.

Discussion

Svien and Karavits (1954) were first to report multiple thoracic disc herniations[19]. There are twelve cases in the literature, treated by surgery up to 1989 (Table 1). There are also some other reported cases which were not treated surgically or the kind of surgical technique performed was not stated[2, 15]. The diagnosis of thoracic disc herniation may increase after widespread use of CT and MRI.

Multiple thoracic disc herniation have been reported at every level, but they occur most frequently at the lower levels. Weakness of the posterior longitudinal ligament at the lower thoracic spine may be the causative factor. In adults, the intra-articular ligament extends within the costovertebral joint from the rib head to an adjacent intervertebral disc. This ligament has a vestigial nature. In adults the intra-articular ligament is absent at the 1st, 10th, 11th, and 12th costovertebral joints[12]. This could is another reason for their predilection at lower thoracic levels. A spinal space-occupying lesion is especially prone to cause neurological deficit when it is located in the thoracic region because

Table 1. *Review of Cases*

Reference	Age/sex	Main symptom	Levels	Technique	Result
(42)	39/M	Pain	T 1–2 T 2–3	Hemilaminectomy Discectomy	Impr
(45)	17/M	Numbness Weakness	T 7–8 T 8–9	Laminectomy Discectomy	Good
(1)	26/F	Pain Weakness	T 10–11 T 11–12	Laminectomy Discectomy	Good
	43/F	Pain Numbness	T 11–12 T 12–L 1	Laminectomy Discectomy	Excl
(9)	?	?	T 9–10 T 10–11	Laminectomy Discectomy	Bad
(6)	41/M	Pain	T 6–7 T 7–8	Costotrans. Pediculectomy Discectomy Fusion	Good
(11)	32/F	Numbness Weakness	T 11–12 T 12–L 1	Laminectomy Discectomy	Impr
(15)	51/F	Pain Weakness	T 5–6 T 8–9	Transthoracic Discectomy	Good
(8)	39/F	Pain Neur. Blad.	T 10–11 T 11–12	Costotrans. Discectomy	Good
	38/F	Pain	T 11–12 T 12–L 1	Costotrans. Discectomy Fusion	Excl
	61/M	Weakness	T 4–5 T 5–6	Transthoracic Discectomy	Excl
(38)	38/M	Numbness	T 5–6 T 6–7 T 7–8 T 8–9 T 9–10	Transthoracic Discectomy Fusion	Excl

of the narrowness of this part of the spinal canal. Cord ischaemia is an important factor in producing myelopathy together with the mass effect[4, 10]. Myelography, postmyelographic CT and recently MRI are very useful in establishing the diagnosis.

The surgical procedures which have been used in the treatment of single level thoracic disc herniations are also used for multiple ones: Lateral costotransversectomy (Hulme 1960), transthoracic disc excision (Perot 1969), lateral hemilaminectomy and partial facetectomy (Carson 1971) and the posterolateral approach (Patterson and Arbit 1978) are described. In single level herniation these techniques are helpful. But in multilevel herniations they have some disadvantages as they may have in some single level cases[5, 10, 11, 16].

At first laminectomy and discectomy were used for the treatment of thoracic disc herniations. Later it was reported that this technique was harmful to the cord and mechanical or vascular damage was probable[3, 4, 10]. In Singounas' series eight patients were treated by laminectomy without discectomy[18]. He reported that they were in good condition postoperatively.

According to Hardy, multilevel disc excision carries some risk of cord ischaemia because of spinal instability[17]. There is no spinal instability in thoracic laminectomy without discectomy. But other techniques require fusion with wire, autogenous bone graft or Harrington rods. The advantages of laminectomy without discectomy are: not disturbing the spinal stability and vascularity, no need for fusion procedures, it is not an extensive operation and permits early mobilisation of the patient.

Yamamoto reported that the only successful form of treatment of thoracic spinal stenosis is posterior decompression[21]. This may also be true for multiple thoracic disc herniations.

Our cases are the first two multiple thoracic disc patients in the literature, treated by laminectomy without discectomy. Both our patients were relieved of their complaints. So, we think a careful laminectomy without discectomy, using the operating microscope, is a useful technique in the treatment of multiple thoracic disc herniations.

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