Thoracic Disc Herniation and Dural Arteriovenous Fistula at the Same Level of the Spine

Matti Porras¹, Pentti Kotilainen²

Abstract: We present a patient who had progressive paraparesis. Left lateromedial disc herniation was diagnosed at T10 to T11 level on MR imaging. This was operated on, but 3 months later paraparesis worsened and then a suspicion of spinal vascular malformation arose. Spinal angiogram showed dural arteriovenous fistula at T11 level on the right side. This was operated on, and the patient's clinical condition improved. This case shows how difficult the diagnosis of spinal dural arteriovenous fistulas may be.

Key Words: Disc herniation - Thoracic spine - Vascular malformation - Spinal angiography

S ymptomatic thoracic disc herniation is a rare lesion which accounts for about 1% of all symptomatic spinal column disc herniations [9]. Spinal vascular malformations are also uncommon disorders: 3% to 16% of all spinal space occupying lesions. About 35% of these vascular malformations are dural arteriovenous fistulas [2]. Both disc herniation and vascular malformation may produce symptoms of progressive myelopathy [1, 11]. We present a patient with progressive paraparesis who had left thoracic disc herniation and right dural arteriovenous fistula at T10 to T11 level.

Case Report

A fifty-three-year-old man had had progressive paraparesis but no radicular pain, for at least 6 months, and after that sought medical advice. MR imaging revealed
left mediolateral thoracic disc herniation at T10 to T11 level (Figure 1a). There seemed to be a slight compression on the spinal cord which also showed hyperintensity on T2-weighted images between T9 and T12 levels (Figure 1b). Some small vessels dorsally in spinal canal were also seen but these were interpreted as incidental. Posterolateral decompression, extirpation of the herniated disc and hemilaminectomy was done. Postoperative hematoma developed, and this was operated 4 days later. After these operations the patient had paraparesis and bladder paresis but during rehabilitation weeks he recovered partially. Three months later paraparesis worsened. MR imaging showed a small residual disc herniation and some scar, small vessels in spinal canal and hyperintensity on T2 images in spinal cord like before. The patient's clinical history and also the spinal canal vessels seen on MR imaging aroused a suspicion of spinal dural arteriovenous fistula. Spinal angiogram revealed dural arteriovenous fistula at T11 level. The feeding vessels were from the right T11 intercostal artery and small vessels also from the right T10 intercostal artery. The efferent vein was the right T11 radicular vein which drained to tortuous medullary veins upward and downward (Figure 2). Embolization of the dural arteriovenous fistula was not done because its result was considered uncertain because of the great number of small feeding arteries. Operative extirpation of the fistula and the beginning of the draining vein was done. After the operation the patient's clinical condition was somewhat better than before, and during rehabilitation paraparesis and bladder paresis have partially relieved. MR imaging 3 months after the last operation showed that the spinal cord hyperintensity on T2 images had decreased.

Discussion

Our patient had a disc herniation at T10 to T11 level. It was so large that it may have been symptomatic. The patient had also dural arteriovenous fistula at the same level T11, and probably this was the reason for the clinical symptoms.

Symptomatic thoracic disc herniation is a rare disease: it accounts for less than 1% of discectomies. On the other side approximately 15% of asymptomatic adults have...