

C7-T1 DISC HERNIATION TREATED BY POSTERIOR APPROACH: CASE REPORT

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ABSTRACT

C7-T1 disc herniation is a rare condition that constitutes only 4-8% of all cervical disc herniations. Cases have been treated by anterior and posterior approaches. For the anterior approach, there are many limitations and potential complications. The operation area is close to important visceral structures. So, inadvertent traction and/or dissection can lead to several complications, including oesophageal perforations, vertebral artery injury, pneumothorax and laryngeal/tracheal injuries. The cervicothoracic junction is limited by the manubrium and clavicle bone. A manubriotomy or sternotomy may be required to widen the operation area. This procedure causes patients intense pain despite continuous medications, including narcotics. A posterior approach to C7-T1 disc herniations can be performed with a low rate of complications in appropriate cases.

Keywords: C8 radiculopathy, C7-T1 disc herniation, cervicothoracic junction, posterior approach

INTRODUCTION

Most cervical disc herniations are observed between the C3 to C7 disc spaces. C7-T1 disc herniation is a rare condition that constitutes only 4-8% of all cervical disc herniations^(1,2). A detailed neurological examination needs to be supported by magnetic resonance imaging (MRI) and electromyogram (EMG) findings for an accurate diagnosis. Cases have been treated by the anterior⁽³⁻⁶⁾, and posterior approaches^(7,8) and both have advantages and limitations. We aimed to demonstrate the C7-T1 disc herniation treated by the posterior approach.

CASE REPORT

A 61-year-old male patient presented to our clinic with severe pain and numbness radiating from his neck to the medial side of his right forearm and right digits 4 and 5. His neurological examination showed hypoaesthesia at both the ulnar side of his right forearm and hand without any motor deficit. His deep tendon reflexes were normal, and Spurling test was positive. His cervical MRI showed a disc herniation that narrowed the right neural foramina at the C7-T1 level (Figure 1). We performed an electrodiagnostic study and confirmed the right C8 radiculopathy. The patient, who had not any benefit from conservative treatment, underwent a "C7 hemilaminotomy with right T1 foraminotomy" for a posterior approach to the nerve

root to be decompressed. Postoperatively, his radiculopathy improved, and his cervical MRI displayed nerve root decompression (Figure 2). He was discharged two days later.

DISCUSSION

C7-T1 disc herniation is a rare condition among all cervical disc herniations. Most of these disc herniations occur laterally and cause radiculopathy rather than myelopathy because of the absence of Luschka joint at this level⁽⁹⁾. A detailed neurological examination needs to be supported by MRI and EMG findings

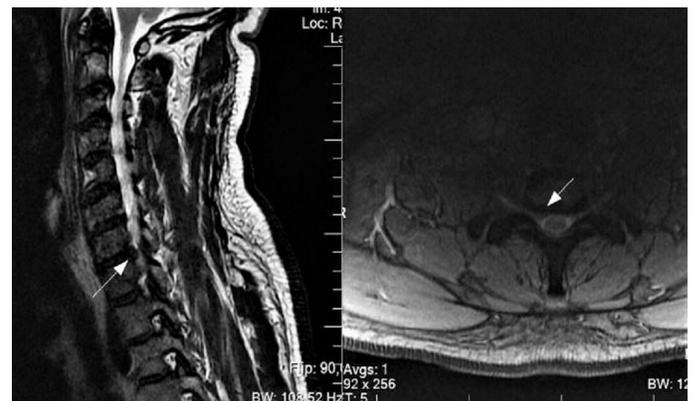


Figure 1. Preoperative cervical MRI showing a disc herniation that narrows the right neural foramina at the C7-T1 level
MRI: Magnetic resonance imaging



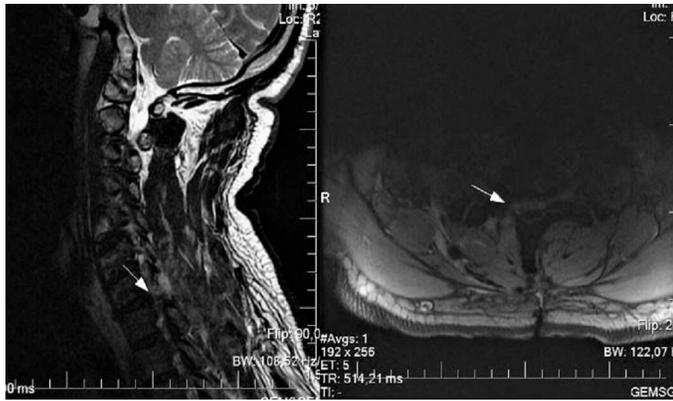


Figure 2. Postoperative cervical MRI displaying nerve root decompression
MRI: Magnetic resonance imaging

for an accurate diagnosis. Surgery can be performed by both an anterior or posterior approach; both techniques have advantages and limitations. The cervicothoracic region can be reached by the anterior approach with the classic supramanubrial Smith-Robinson technique. However, the operation area is close to important visceral structures (trachea, oesophagus, large vessels, ductus thoracicus, sympathetic ganglia) so inadvertent traction and/or dissection can lead to several complications, including oesophageal perforations, vertebral artery injury, pneumothorax, Horner syndrome, dysphagia, dysphonia, hoarseness because of laryngeal/tracheal injuries⁽⁷⁾. The cervicothoracic junction is limited by the manubrium and clavicle bone^(3,4). A manubriotomy or sternotomy may be required to widen the operation area. This procedure causes patients intense pain despite continuous medications, including narcotics⁽⁵⁾. In addition, the cervicothoracic junction is a transition zone from cervical lordosis to thoracic kyphosis, so it is difficult to obtain bone fusion⁽⁷⁾. Anterior fusion has been shown to reduce motion by 50% to 100%, which may improve axial neck pain. This approach, however, may result in increased stress on the adjacent vertebral segments^(7,10,11). As compared with the anterior approach, the posterior approach is a relatively safe procedure with a very low rate of complications (0-4%)^(1,12-14). Most of them are wound infections and serous drainage^(13,14). In conclusion, the posterior approach to C7-T1 disc herniations can be performed with a low rate of complications in appropriate cases.

Ethics

Informed Consent: The patient signed informed consent form.

Authorship Contributions

Surgical and Medical Practices: H.S., B.K., Concept: A.S., Design: A.S., Data Collection or Processing: B.K., Analysis or Interpretation: A.S., H.S., Literature Search: A.S., B.K., Writing: A.S.
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