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Acute Thoracolumbar Myelopathy Secondary to Multilevel Intervertebral Disc Extrusion in a Toy Poodle: A Case Report

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Abstract: A 3-year-old intact male Toy Poodle was presented with acute-onset paraplegia, with preserved deep pain perception. Neurological examination was consistent with a T3–L3 myelopathy. Non-contrast computed tomography (CT) raised suspicion of a right-sided extradural lesion extending from T13 to L2. Myelography confirmed spinal cord compression, supporting the diagnosis of intervertebral disc extrusion (IVDE). A right-sided L1–L2 hemilaminectomy was performed, with surgical decompression extending cranially to T13, allowing the removal of the extruded disc material. Postoperative management included analgesia, physiotherapy, electroacupuncture, laser therapy and supportive care.

• Introduction

Thoracolumbar intervertebral disc extrusion (IVDE) is a common cause of acute spinal cord injury in dogs. Computed tomography (CT) is widely used in the investigation of acute thoracolumbar IVDE, allowing the identification of mineralized extradural disc material and facilitate surgical planning.

Myelography may provide additional diagnostic information in cases of spinal cord compression by demonstrating alterations in the subarachnoid contrast column and further characterising the location and extent of extradural lesions. Furthermore, acupuncture and electroacupuncture have been investigated as adjunctive modalities in the postoperative rehabilitation of dogs with intervertebral disc disease (IVDD).

• Materials and methods

A 3-year-old intact male Toy Poodle was evaluated following the acute development of paraplegia. Deep pain perception remained intact, and neurological assessment was consistent with a T3–L3 myelopathy. Complete blood count and serum biochemistry were performed, with no clinically relevant abnormalities detected.

Non-contrast computed tomography (CT) of the thoracolumbar spine was performed, followed by myelography using iohexol (Omnipaque 350 mg I/mL; 0.3 mL/kg) administered via an L5–L6 approach to further evaluate the suspected extradural lesion. (Fig. 1)

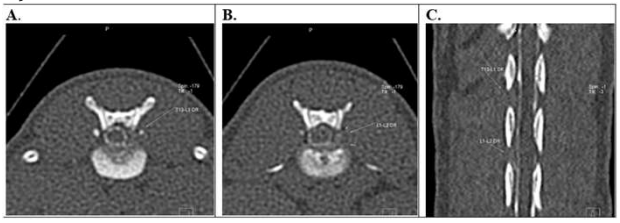


Fig. 1- Post- myelography thoracolumbar CT A. right-sided extradural spinal cord compression at the level of T13–L1 level (white arrow) B. Axial view image of the L1-L2 extradural spinal cord compression (white arrow)
C. Coronal image of the thoracolumbar spine demonstrating two sites of extradural spinal cord compression at the T13–L1 and L1–L2 intervertebral disc spaces (white arrows)

A right-sided L1–L2 hemilaminectomy with cranial extension to T13 was performed to achieve spinal cord decompression. (Fig. 2) Postoperative management included multimodal analgesia with methadone, subsequently replaced by buprenorphine, alongside paracetamol and pregabalin. Electroacupuncture and laser therapy were also incorporated into postoperative rehabilitation.



Fig. 2 Intraoperative photograph showing the spinal cord following right-sided thoracolumbar hemilaminectomy

• Results and discussions

Post-myelography CT revealed two sites of extradural compression (T13–L1 and L1–L2). Following hemilaminectomy and disc material removal, the patient was able to briefly maintain a standing position within 24 hours postoperatively and regained ambulatory function by postoperative day 6. Proprioceptive deficits improved but persisted at the 10-day re-evaluation.

Myelography provided complementary information to CT, further characterizing the extradural compression and supporting surgical planning. The extensive distribution of the lesion guided the surgical approach and extent of decompression. Early functional improvement was observed following surgery, with ambulation regained by postoperative day 6. However, proprioceptive deficits persisted at short-term follow-up.
Postoperative management included multimodal analgesia, electroacupuncture, and laser therapy; their individual contributions to recovery could not be established.

• Conclusions

Myelography provided further characterization of the extradural lesions to facilitate surgical intervention. Surgical decompression was followed by early functional recovery, with ambulation regained by postoperative day 6. Despite persistent proprioceptive deficits at the short-term follow-up, neurological improvement was evident, supporting the value of continued postoperative monitoring.

Electroacupuncture and laser therapy were incorporated as adjunctive rehabilitation modalities, although their individual contributions to recovery could not be determined.

These findings highlight the importance of combining advanced imaging with timely surgical intervention in dogs presenting with acute thoracolumbar myelopathy, particularly in cases of intervertebral disc disease (IVDD).

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