



SURGICAL MANAGEMENT OF LUMBAR STENOSIS IN A DOG PRESENTING WITH ISOLATED PROPRIOCEPTIVE DEFICITS: A CASE REPORT

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Abstract: A one-year-old male dog presented to the clinic for self-inflicted injury of the hindlimbs and tail following a vehicular accident several months prior. The diagnosis was established after neurologic examination and radiographically performing two incidences of the toraco-lumbar vertebral column, one latero-laterally and the second one ventro-dorsally. The radiography confirmed vertebral canal stenosis at L2-L3 level. Vertebral canal stenosis is a common condition resulting after healing fractures of the vertebral column leading to spinal cord injury in dogs. Vertebral canal stenosis is generally considered to have a good prognosis only with a good management. After few days from diagnosis, the dorsal laminectomy was performed to relieve tension on the spinal cord without stabilization the vertebral column. Immediately after surgery, the patient recovered completely, resuming his walk on all limbs and no longer attacks his hindlimbs and tail. Postoperative management included antibiotics to prevent infections, analgesic and anti-inflammatory steroids medication to control the pain. Although the role of anti-inflammatory steroids is a protective strategy against progressive myelomalacia.

•Introduction

Vertebral canal stenosis represents a pathological narrowing of the spinal canal resulting in compression of the spinal cord and/or associated nerve roots, leading to neurological deficits and locomotor dysfunction in dogs. Although degenerative etiologies are more frequently described in veterinary literature, traumatic vertebral canal stenosis may develop secondary to vertebral fractures, malunion, exuberant callus formation, or chronic instability following vehicular accidents. In these patients, progressive compression of the spinal cord can produce pain, proprioceptive deficits, paresis, self-mutilation, and severe impairment of quality of life. Surgical decompression is considered the gold standard treatment in dogs presenting with clinically significant spinal cord compression and progressive neurological signs. Dorsal laminectomy is a well-established neurosurgical technique used to relieve pressure on the spinal cord by removing the dorsal vertebral lamina and enlarging the vertebral canal. The purpose of this case report is to describe the clinical presentation, diagnostic imaging findings, surgical management, and postoperative evolution of a young dog diagnosed with post-traumatic vertebral canal stenosis at the L2-L3 level several months after a vehicular accident, successfully treated through dorsal laminectomy without vertebral stabilization.

•Material and method

The patient used in this study was a intact male Dachshund diagnosed with lumbar stenosis, weighing 8 kg. The study aimed to diagnose the site of lesion using a radiograph, followed by the surgical remove of the dorsal arch of L2 and L3 to decompression the spinal cord on this level.

The surgery was performed at the „Happy Pet Clinic” Timisoara, Romania. The diagnosis of lumbar stenosis was established based on clinical signs and paraclinical investigations. The radiographic examination shows the site of stenosis (Fig1).

The prognosis was guarded because the lesion is old. As soon as the diagnosis has been established, the surgery was performed at the „Happy Pet Clinic” Timișoara. The surgery consisted of performing the dorsal laminectomy (Fig.2, Fig3).

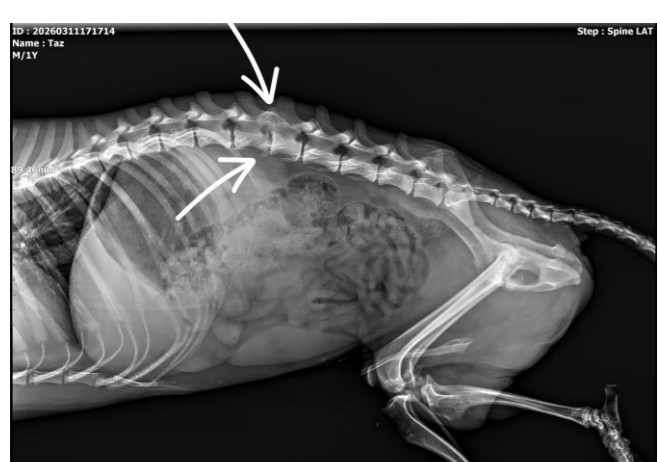


Fig. 1. Latero-lateral digital radiograph, view of the lumbar, sacral and coccygeal segments of the spine showing the lumbar stenosis



Fig. 2. Dorsal aspect of the vertebral arches fusion



Fig. 3. Image during the surgery showing the performing dorsal laminectomy

• Results and discussions

A dorsal midline skin incision was performed over the affected vertebral segment. The epaxial musculature was bluntly dissected and retracted laterally to expose the dorsal arch of the L2 and L3 vertebrae. A dorsal laminectomy was performed using a 2 mm wide Kerison rongeur was used to perform an 8 X 20-mm dorsal laminectomy along the center of the dorsal aspect of the L2 and L3 vertebral bodies to decompress the spinal cord. (Fig4). The haemorrhages were controlled by cauterization with bipolar electrocautery and the bleeding from vertebral canal was stopped using a haemostatic sponge (Fig5).

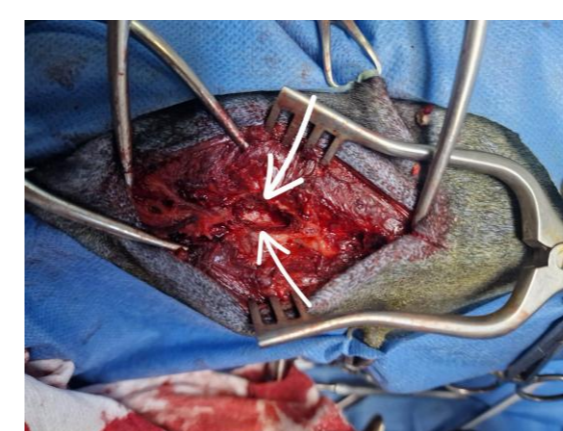


Fig. 4. Image showing the spinal cord after decompression



Fig. 5. Filling the laminectomy area with haemostatic sponge



Fig. 6. The patient immediately after the surgery



Fig. 7. The patient posture at 24 hours after the surgery

Adequate decompression of the spinal canal was achieved, and the surgical site was lavaged with sterile saline before routine closure of the musculature, subcutaneous tissue, and skin.

To prevent infections, the patient received systemic antimicrobial medication represented by ceftriaxone for 7 days after surgery, twice daily, intramuscularly and prednisone in association with gabapentine for pain management for two week's. (Fig6, Fig7).

Traumatic vertebral canal stenosis is an uncommon but clinically significant condition in dogs. It may develop following vertebral fractures or chronic vertebral remodeling after traumatic injury, particularly in cases where healing occurs with excessive bone proliferation or vertebral malalignment.

Clinical manifestations vary according to the location and severity of spinal cord compression but commonly include pain, proprioceptive deficits, paresis, ataxia, and behavioral abnormalities such as self mutilation. Dorsal laminectomy is widely recognized as an effective decompressive technique for relieving spinal cord compression in dogs. In this case, decompression alone resulted in rapid neurological recovery without the need for vertebral stabilization. The favorable postoperative outcome observed in this patient supports the role of early surgical decompression in dogs with chronic post-traumatic vertebral canal stenosis.

• Conclusions

This case report describes the successful surgical treatment of post-traumatic lumbar vertebral canal stenosis in a young dog using dorsal laminectomy without vertebral stabilization. The patient showed rapid postoperative neurological improvement and complete resolution of self-mutilation behavior. Dorsal decompression may represent an effective therapeutic option in selected cases of chronic traumatic spinal cord compression when vertebral instability is absent.