

CAUDA EQUINA SYNDROME (CES) – CASE STUDY –

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Abstract

Cauda equina syndrome (CES) is a rare syndrome that has been described as a complex of symptoms and signs. In this study was taken one dog with paraplegia, which was treated with anti-inflammatory and analgesic. The diagnosis was using modern techniques RMI. This technique of diagnosis is one of the most effective. Dog was treated surgically by laminectomy. After 24 hours at the laminectomy high postoperative patient and two months after surgery, show no clinical neurological symptoms.

Keywords: dog, cauda equina syndrome, magnetic resonance imaging (MRI).

INTRODUCTION

Cauda Equina Syndrome (CES) is caused by compression of the nerve roots passing between the last lumbar vertebra and the sacrum toward the tail at the level of the lumbosacral junction. Dogs with abnormal shape to their last lumbar or sacral vertebrae and German Shepherd Dogs are predisposed to developing lumbosacral stenosis (www.sagecenters.com). The most common cause of cauda equina syndrome is narrowing of the vertebral canal at the level of the lumbosacral joint. The fully developed CES is accompanied by sensory and motor disorders such as low-back pain, saddle anesthesia, and motor weakness of lower extremities leading sometimes to paraplegia or bladder dysfunction. These clinical symptoms are related to a sustained stimulation of the cutaneous, muscular and visceral nociceptive afferents (Maršala et al., 1995; Orendáčová et al., 2001a,b). Several examination are use to confirm CES such as x-rays, myelogram, epidurogram, computed tomography, and magnetic resonance imaging (MRI). Our study suggests that MRI has some advantages in evaluating CES at dogs. Similar study was inducing in other countries such as Japan. In

Romania country is not similar studies have been made. The aim of the present study was to use MRI to diagnose and treat the animal through the laminectomy procedure.

MATERIALS AND METHODS

Study was conducted in June 2013. The dog arrived at the clinic for consultation, he manifested paraplegia of the posterior limbs 24 hours before, and these symptoms were not related to the trauma. The dog included in this study was from Bucharest and it was examined in the Veterinary Clinic (H.P.) of the Timișoara. The dog taken in the study was French Bulldog breed, age 4 year ago, male, M.I. owner. When this dog-arrived present facies unchanged anuria, with two episodes by one month previous walking difficult it was treated with antiinflammatory and analgesic. After this treatment the dog, felt better after that has not gave up these drugs. It has been the clinical examination, the additional examination (RMI) and the treatment (surgical procedure).

RESULTS AND DISCUSSIONS

Clinical Examination

The animal present's normal body temperature, its respiratory and cardiac frequency is within normal values, biochemical parameters and blood results not modified. Neurological tests point out the paralysis of the posterior limbs, with persistence of profound sensibility and the absence of superficial sensibility. After neurological examination were also present: exaggerated patellar reflexes, flexor reflex abolished, tibial reflex abolished, absence correctional reaction, reflex panicular abolished L6-L7, anal reflex present globe bladder (fig. 1).

Additional Examinations

An MRI was done at the County Hospital, Timisoara, which pointed out a protrusion of the intervertebrae L6-L7 (fig. 3).

Diagnosis

Cauda Equina Syndrome.

Treatment

Surgical Procedure

In this case, when the dog is not responding to conservative, medical therapy or exhibiting neurologic symptoms, surgical intervention is necessary. The procedure used is called a dorsal laminectomy and involves removing the 'roof' of the spinal canal to release the entrapped nerve roots and remove the associated ruptured intervertebral disc.

The dogs were anesthetized with a mixture of ketamine and xylazine (100 mg/kg and 15 mg/kg i.m.), propofol (2 mg/kg) and artificially ventilated by a respirator with oxygen. A lumbar laminectomy of the sixth and seventh lamina was carried out in order to gain access to the spinal marrow.

In the operating room the dog is positioned face down and after the area is cleansed with an antiseptic solution, the incision is then made through the skin and down to the spinal process (fig. 2).

Sub conjunctive tissues are then incision until the dorsal lumbar fascia.

The fascial incision and the supraspinal ligament.

Multiple lumbar muscles are detached from the spinos process (fig. 4).

Sectioning the transverse processes and the dorsal portion of the vertebral.

Body emphasizing spinal cord (fig. 5).

L6 L7 intervertebral disc removal and spinal decompression (fig.6).

Hemostasis was secured with ultracision Harmonic Scalpel.

Collagen dressing (fig. 7).

Postoperative treatment containing corticotherapy 5 days, antibiotherapy 5 days and a bladder catheter the first 24 hours for analgesics administration.



Fig. 1



Fig. 2

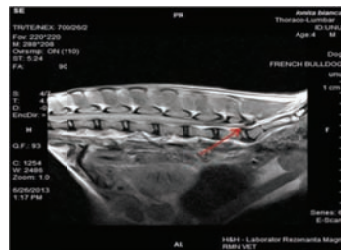


Fig.3

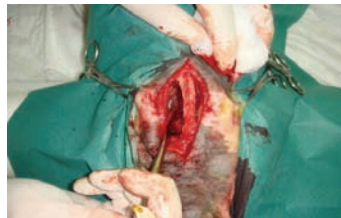


Fig.4

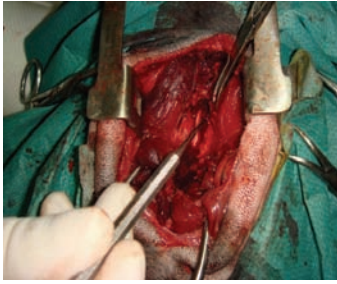


Fig. 5

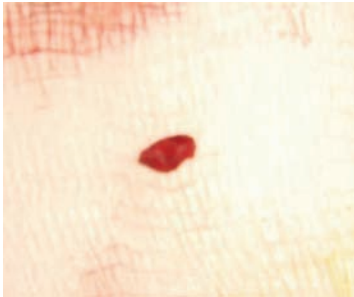


Fig. 6



Fig. 7

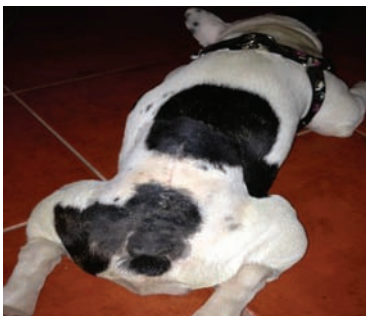


Fig. 8



Fig. 9

Hathcock et al. (1988) showed that it was difficult to diagnose the cauda equina syndrome, because survey radiography or myelography has not been able to reveal the cauda equina syndrome.

This technique laminectomy surgically has proven to be effective in this case. 24 hours of surgery the dog stood up and at the two months after the patient was completely recovered without neurological symptoms (fig 8, 9).

Surgery is commonly recommended in dogs that do not respond to medical treatment, have progressive clinical signs, or have more severe neurological deficits.

The efficacy of medical therapy may only be seen in patients that have minimal neurological deficits. In general, about half of the patients may respond to treatment.

In some cases at dogs with cauda equina will have a weakness or lameness in one or both hind limbs, which occurs secondary to compression of the nerve root supplying the sciatic nerve as it exists at the lumbosacral joint. If the compression of the nerve root causes significant pain, dogs may hold up a limb after exercise or cry out. Severe compression of the nerve roots can lead to fecal and urinary incontinence, which is irreversible in most cases (<http://holisticandorganixpetshoppe.com/spine-diseases-in-dogs.html>).

In an experimental animal model, Delmarter et al. (1991) found that dogs whose cauda equina had been artificially compressed all recovered function within 6 weeks, regardless of duration of compression. Despite these studies, all authors still recommend that

surgery occur as soon as possible to maximise functional recovery, especially of micturition. In a 2004 follow-up study with rats, Sekiguchi found that mild cauda equina compression, induced tumor necrosis and degeneration associated with macrophage invasion. They also discovered that lesions proximal to the dorsal root ganglion may not produce significant allodynia (Sekiguchi et al., 2004).

REFERENCES

- Delamarter RB., Sherman JE., Carr JB. 1991. Cauda equine syndrome: neurologic recovery following immediate, early or late decompression. *Spine*, 16, 9, 1022–1029.
- Hathcock J.T., Prechman R.D., Dillon A.R. 1988. *Vet Radiol. Ultrasound.*, 29, 4-15.
- Maršala J., Šulla I., Jalč P., orendáčová J. 1995. Multiple protracted cauda equina constrictions cause deep derangement in the lumbosacral spinal cord circuitry in the dog. *Neurosci Lett*, 193, 97-100.
- Orendáčová J., Čížková D., Kafka, J., Lukáčová, N., Maršala, M., Šulla, I., Maršala, J., Katsube, N. 2001a. Cauda equina syndrome. *Prog Neurobiol*, 64, 613-637.

CONCLUSIONS

Postoperative evolution of the clinical case has been very good.

24 hours postoperative, the patient is able to move without the help of the owner.

After two months postoperative the animal is completely healed, and does not manifest any neurological symptoms.

- Orendáčová J., Maršala M., Čížková D., Kafka J., Račková EN., Šulla I., Vanický I., MARŠALA J. 2001b. Fos protein expression in sacral spinal cord in relation to early phase of cauda equina syndrome in dogs. *Cell Mol Neurobiol.*, 21, 413-419.
- Sekiguchi M., Kikuchi S., Myers RR. 2004. Experimental spinal stenosis: relationship between degree of cauda equina compression, neuropathology, and pain. *Spine*, 29 (10), 1105-1111.

www.sagecenters.com

<http://holisticandorganixpetshoppe.com/spine-diseases-in-dogs.html>