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## Monikakrish K

Department of Veterinary  
Surgery and Radiology,  
Veterinary College and Research  
Institute, TANUVAS,  
Namakkal, Tamil Nadu, India

## Jayakumar K

Department of Veterinary  
Surgery and Radiology,  
Veterinary College and Research  
Institute, TANUVAS,  
Namakkal, Tamil Nadu, India

## Vijayakumar M

Department of Veterinary  
Surgery and Radiology,  
Veterinary College and Research  
Institute, TANUVAS,  
Namakkal, Tamil Nadu, India

## Balachandran P

Department of Veterinary  
Surgery and Radiology,  
Veterinary College and Research  
Institute, TANUVAS,  
Namakkal, Tamil Nadu, India

## Corresponding Author:

### Monikakrish K

Department of Veterinary  
Surgery and Radiology,  
Veterinary College and Research  
Institute, TANUVAS,  
Namakkal, Tamil Nadu, India

## Incidence of thoracolumbar spinal disorders in dogs: A retrospective study

Monikakrish K, Jayakumar K, Vijayakumar M and Balachandran P

### Abstract

The incidence of thoracolumbar spinal disorders were obtained for a period from October 2019 to January 2021 at Small Animal Surgery Unit, Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal, Tamil Nadu. The incidence of thoracolumbar spinal disorders were observed in relation to age, breed, sex, pregnancy status and etiology were recorded.

**Keywords:** Incidence, thoracolumbar disorder, dogs

### Introduction

Spinal trauma is a common cause of spinal cord dysfunction in dogs. Spinal trauma can occur either from exogenous or endogenous spinal injury. Automobile-related injury is the most common exogenous cause of trauma to the spine in small animals (Bagley, 2000) <sup>[1]</sup>. Clinically spinal injury was classified by upper motor neuron (UMN) syndrome and lower motor neuron (LMN) syndrome. The diagnosis of upper motor neuron bladder syndrome and lower motor neuron bladder syndrome was based on neurological examination and localization of the spinal segment. Upper motor neuron bladder syndrome resulted due to spinal cord lesion involving segments are T<sub>3</sub> - L<sub>3</sub> and lower motor neuron bladder syndrome resulted due to a spinal cord lesion involving segments are L<sub>4</sub> - S<sub>3</sub> (Griffith, 1989) <sup>[2]</sup>. Thoracolumbar spinal disorders are diagnosed by detailed neurological grading (Griffith, 1982) <sup>[3]</sup>, plain radiographic examination and confirmed by myelography. The present paper records the incidence of thoracolumbar spinal disorders in and around Namakkal district.

### Materials and Methods

Orthopaedic and neurological examination carried out in dogs presented to the Small Animal Surgery Unit, Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal over a period of 16 month (Oct 2019-Jan 2021) for condition related to the spinal injury. Out of 5,022 dogs presented during the period, 122 dogs were tentatively diagnosed as thoracolumbar spinal injury. Detailed neurological examination with plain radiography was performed to diagnose the spinal cord lesions and further confirmation was done by myelography. Among 122 cases, 16 cases were selected for myelography based on compliance and acceptance of the owner for regular and inpatient treatment. Myelography was performed under general anaesthesia. The dogs were premedicated with butorphanol tartrate and diazepam at the dose rate of 0.2mg and 0.5mg per kg body weight i.v. respectively and general anaesthesia was induced with propofol at the dose rate of 4mg/kg body weight intravenously. Cervical myelography was performed by using Iohexol (350 mg/ml) at the dose rate of 0.5 ml/kg body weight through cisterna magna puncture into the subarachnoid space. The incidence of thoracolumbar spinal disorders with relation to age, breed, sex, pregnancy status and etiology were analysed after the myelographic diagnosis and presented in percentage.

### Result and Discussion

The age-wise incidence of thoracolumbar spinal disorders were 77.04 per cent (n=94), 17.21 per cent (n=21) and 5.75 per cent (n=7) for 0 - 5 years, 6 - 10 years and 11 - 15 years respectively. These findings were concurred with the Bali *et al.* (2009) <sup>[4]</sup> where the authors reported that the young animals were mostly affected due to their active and roaming behaviour which was prone for automobile accident.

The breed-wise incidence of thoracolumbar spinal disorders among the 122 dogs were Chippiparai 1.63 per cent (n=2), Dachshund 6.56 per cent (n=8), Doberman 2.46 per cent

(n=3), German Shepherd 5.74 per cent (n=7), Great Dane 0.82 per cent (n=1), Labrador Retriever 7.38 per cent (n=9), Lhasa Apso 0.82 per cent (n=1), Mongrel 57.38 per cent (n=70), Mudhol hound 0.82 per cent (n=1), Rajapalayam 0.82 per cent (n=1), Rottweiler 3.28 per cent (n=4), Saint Bernard 0.82 per cent (n=1), Spitz 9.84 per cent (n=12), Terrier 1.63 per cent (n=2). The breed wise incidence of the thoracolumbar spinal disorder was concurred with Pushkin (2003) <sup>[5]</sup> who reported that the per centage incidence of spinal cord compression in various breeds were Boxer were 3.37 per cent, Cocker Spaniel 1.12 per cent, Dachshund 13.4 per cent, Doberman 10.11 per cent, Great Dane 1.12 per cent, German Shepherd 11.23 per cent, German Shepherd cross dog 1.12 per cent, Labrador Retrievers 3.37 per cent, Mongrel 40.4 per cent and Spitz 14.6 per cent respectively out of 89 cases in a study carried out between 2002-2003. The highest incidence in Mongrel dogs which could be due to its increased population, roaming behaviour and exogenous trauma caused most commonly by automobile accidents, malicious injuries and falls.

The sex-wise incidence of thoracolumbar spinal disorders were 78.69 per cent (n=96) in male and 21.31 per cent (n=26) in females. The findings of the present study as reported by Burkert *et al.* (2005) <sup>[6]</sup>. This could be due to male animal population is predominant.

Pregnancy status – all the female dogs were non-pregnant.

The incidence of vertebral fracture, spinal cord compression, vertebral luxation, vertebral dislocation and spondylitis disorders were 32.79 per cent (n=40), 23.77 per cent (n=29), 18.03 per cent (n=22), 14.75 per cent (n=18) and 10.66 per cent (n=13) respectively. In the present study, the incidence of vertebral fractures were correlated with the report of Voss and Montavon (2004) <sup>[7]</sup> who recorded higher incidence of fractures and luxations which could be due to trauma, including road traffic accidents and falls in 14 (63.64 per cent) of the 22 dogs studied.

### Conclusion

The highest incidence of thoracolumbar spinal disorders were found in male Mongrel dogs between the age group 0 - 5 years. Vertebral fractures were found most common thoracolumbar spinal disorder in dogs.

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