



ISSN: 2456-2912

VET 2024; 9(6): 731-733

© 2024 VET

www.veterinarypaper.com

Received: 30-11-2024

Accepted: 31-12-2024

G Narendra Bhargav

M.V.Sc. Scholar, Department of Veterinary Surgery & Radiology, NTR C.V.Sc., Gannavaram, Andhra Pradesh, India

Dr. R Mahesh

Assistant Professor and Officer in Charge, Department of Veterinary Surgery and Radiology, SVVU SSVH, Visakhapatnam, Andhra Pradesh, India

Dr. Ch. Mallikarjuna Rao

Assistant Professor, Department of Veterinary Surgery & Radiology, NTR C.V.Sc., Gannavaram, Andhra Pradesh, India

Dr. K Suresh

Professor and Head, Veterinary Clinical Complex, NTR C.V.Sc., Gannavaram, Andhra Pradesh, India

Dr. V Devi Prasad

Professor and Head, Department of Veterinary Surgery & Radiology, College of Veterinary Science, Garividi, Andhra Pradesh, India

Corresponding Author:

G Narendra Bhargav

M.V.Sc. Scholar, Department of Veterinary Surgery & Radiology, NTR C.V.Sc., Gannavaram, Andhra Pradesh, India

Incidence of femoral fractures in dogs

G Narendra Bhargav, R Mahesh, Ch. Mallikarjuna Rao, K Suresh and V Devi Prasad

Abstract

The present study investigated the incidence of femoral fractures in dogs presented at Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram, and Super Specialty Veterinary Hospital, Visakhapatnam over one year period (from December 2023 to November 2024). Out of 362 dogs treated for fractures, with 81.49% (N=295) being long bone fractures in which femoral fractures were the most common 40.34% (N=119), followed by tibia-fibula, radius-ulna and humerus fractures. Fractures were most frequent in dogs under one year old, followed by those aged 1-3 years, 3-10 years, and above 10 years. Males were reported to be affected more than females. Automobile accidents were the leading cause, followed by falls and trauma from inanimate objects. The highest incidence was recorded in nondescript breeds compared to others. Young male, nondescript dogs reported the highest incidence of femoral fractures.

Keywords: Dog, incidence, fracture, femur, femoral fractures, highest incidence

Introduction

The femur, or thigh bone, is the longest and strongest bone in a dog's body, playing a crucial role in weight-bearing, movement, and stability. Despite its strength, femoral fractures are among the most common orthopaedic injuries in dogs, often caused by significant trauma such as automobile accidents, gunshot wounds, or falls, which generate forces like bending, compression, shearing, and torsion that exceed the bone's strength (Jain *et al.*, 2018) [1]. Johnson *et al.*, (1994) [2] and Aithal *et al.*, (1999) [3] reported femoral fractures accounting for 24.4% and 38.56% of long bone injuries respectively. Ali (2013) [4] highlighted a higher incidence in young dogs with indicating rates up to 57.69%. An investigation was carried out with the objectives of determining the incidence of femoral fractures in dogs.

Materials and Methods

A review of femur fracture in dogs was evaluated for a period of 12 months (from December 2023 to November 2024) at Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram and Super Speciality Veterinary Hospital, Visakhapatnam. Diagnosis was established through a comprehensive approach that included anamnesis, clinical signs, orthopaedic examination and confirmation by radiographic imaging. Data related to age, sex, breed and the underlying causes of femur fractures were collected, compiled, and systematically analysed for the study.

Results and Discussion

Out of 362 fractures of various bones presented to the Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram, and the Super Specialty Veterinary Hospital, Visakhapatnam, from December 2023 and November 2024, 81.49% (N=295) involved long bone fractures. Femur fractures representing higher 40.34% (N=119), followed by tibia-fibula at 26.78% (N=79), radius-ulna at 21.02% (N=62), and humerus at 11.86% (N=35) among long bone fractures (Figure 1). These findings align with previous studies by Harasen (2003) [5]; Beale (2004) [6] and Elzomor *et al.*, (2014) [7]. Markel *et al.*, (1994) [8] emphasized that, despite the protective muscle mass surrounding the femur, it is still more commonly vulnerable to fractures.

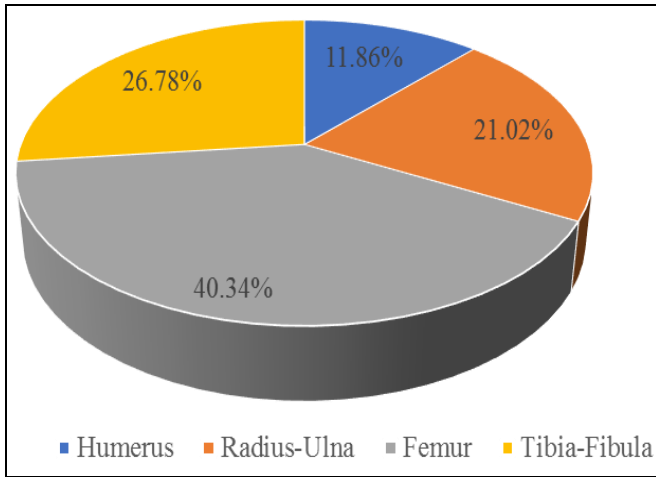


Fig 1: Bone-wise distribution of long bone fractures in dogs (N=295)

In the present study, the age-wise distribution of femoral fractures showed the highest incidence in dogs under one year, accounting for 51.26% (N=61) of cases. Dogs under 1-3 years contributed 26.05% (N=31), followed by 3-10 years at 16.81% (N=20). The lowest incidence was recorded in dogs above 10 years, comprising 5.88% (N=7), (Figure 2). Similar findings have been documented by Kemper and Diamante (2010) [9] and Libardoni *et al.*, (2016) [10], with a higher incidence of fractures in younger animals. The higher susceptibility in juveniles may be due to their increased activity levels and lack of hazard awareness, as suggested by Kolata *et al.*, (1974) [11]. Aithal *et al.*, (1999) [3] highlighted that the thinner cortices of young dogs make them more prone to fractures, as their bones cannot resist even for minor trauma.

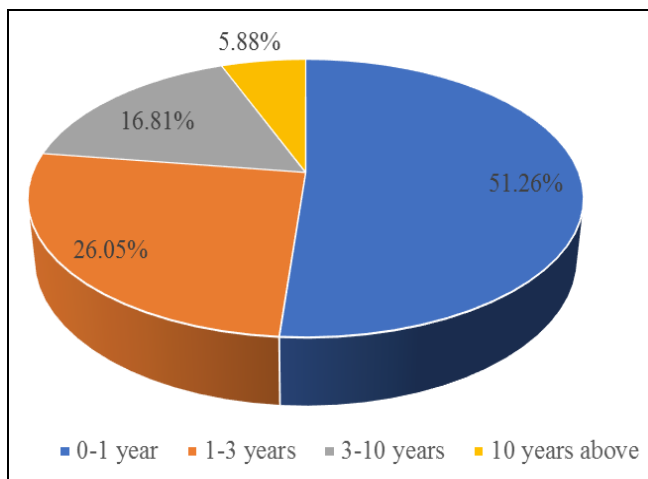


Fig 2: Age-wise distribution of femur fractures in dogs (N=119)

The highest incidence of femoral fractures was recorded in male dogs 53.78% (N=64), compared to females 46.22% (N=55) out of a total of 119 cases (Figure 3). A similar trend was observed in studies conducted by Aithal *et al.*, (1999) [3]; Kemper and Diamante (2010) [9]. Kolata *et al.*, (1974) [11] proposed that the higher incidence in males could be attributed to their aggressive nature and increased tendency to roam, which makes them more susceptible to road traffic accidents, falls, and jumps. Based on etiological factors, it was shown that automobile accidents were the leading cause of femur fractures. Accounting for 51.26% (N=61) of cases, followed by falls

from heights at 26.89% (N=32). Trauma caused by inanimate objects contributed to 13.45% (N=16) of cases, while dog fights and unknown factors accounted for 5.04% (N=6) and 3.36% (N=4), respectively (Fig. 4). Similar findings were reported by Ali (2013) [4] and Jain *et al.*, (2018) [1] who identified road traffic accidents as a major cause of fractures in dogs. Harasen (2003) [5] suggested that dogs are often struck from behind due to their slower reaction time, leading to a higher frequency of hindlimb fractures during automobile accidents.

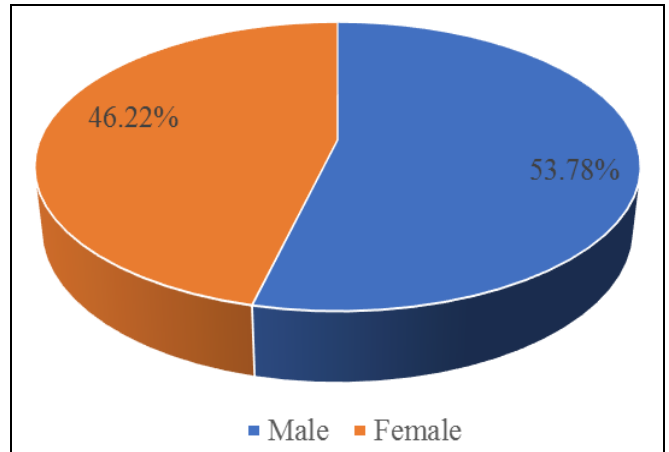


Fig 3: Sex-wise distribution of femur fractures in dogs (N=119)

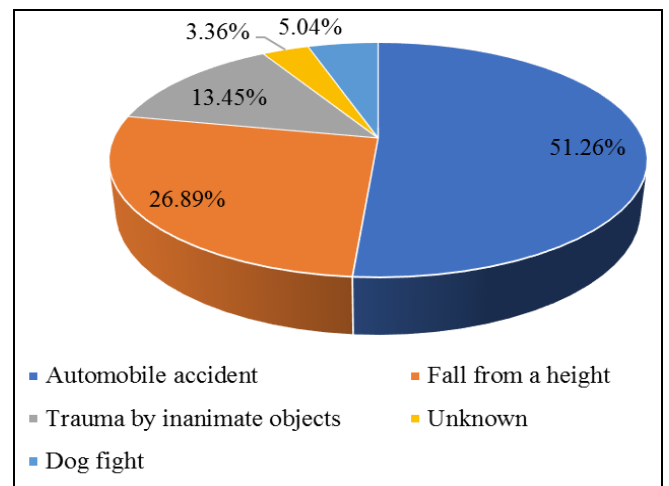


Fig 4: Distribution based on etiological factors for femur fracture in dogs (N=119).

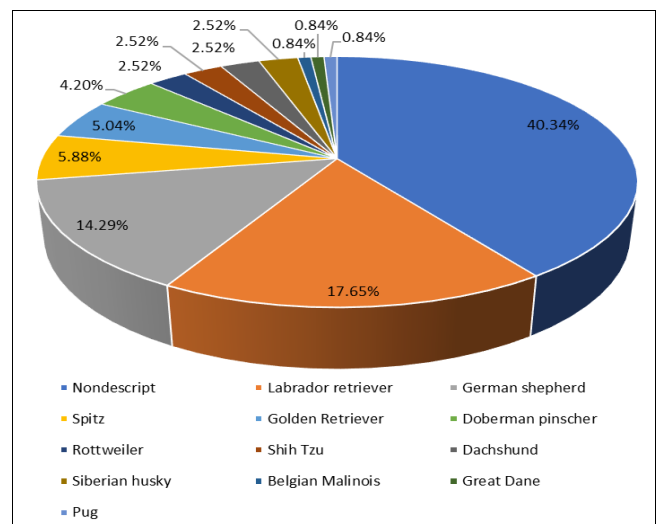


Fig 5: Distribution based on breed for femur fractures in dogs. (N=119).

The breed-wise analysis of femoral fractures revealed the highest incidence in nondescript for 40.34% (N=48) followed by Labrador Retrievers 17.65% (N=21), German Shepherds 14.29% (N=17), Spitz 5.88% (N=7), Golden Retrievers 5.04% (N=6), and Doberman Pinschers 4.20% (N=5). Rottweilers, Shih Tzus, Dachshunds, and Siberian Huskies each accounted for 2.52% (N=3), while Belgian Malinois, Great Danes, and Pugs were contributed 0.84% (N=1) each (Figure 5). Similar trends have been reported by (Sumiran *et al.*, 2021^[12], and Gaddam *et al.*, 2021^[13]). The higher incidence in nondescript dogs could be due to their larger population and free-roaming nature, making them more vulnerable to automobile accidents Aithal *et al.*, (1999)^[3].

Conclusion

This study concludes that, the highest incidence of femoral fractures are commonly observed in young, male nondescript dogs. Automobile accidents were identified as the leading cause, followed by falls and trauma from inanimate objects.

Conflict of Interest

Not available

Financial Support

Not available

Reference

- Jain R, Shukla BP, Nema S, Shukla SS, Chabra DC, Karmore SK. Incidence of fracture in dogs: A retrospective study. *Vet Pract.* 2018;19(1):63-65.
- Johnson JA, Austin C, Breur GJ. Incidence of canine appendicular musculoskeletal disorders in 16 veterinary teaching hospitals from 1980 through 1989. *Vet Comp Orthop Traumatol.* 1994;7(2):56-69.
- Aithal HP, Singh GR, Bisht GS. Fractures in dogs: A survey of 402 cases. *Indian J Vet Surg.* 1999;20(1):15-21.
- Ali LB. Incidence, occurrence, classification, and outcome of small animal fractures: A retrospective study (2005-2010). *Int J Anim Vet Sci.* 2013;7(3):191-196.
- Harasen G. Common long bone fractures in small animal practice—Part 1. *Can Vet J.* 2003;44(4):333.
- Beale B. Orthopedic clinical techniques: femur fracture repair. *Clin Tech Small Anim Pract.* 2004;19(3):134-150.
- Elzomor ST, Sheta EME, Farghali HA, Ashour AE. Prevalence of femoral fractures in dogs and cats. *J Egypt Vet Med Assoc.* 2014;74(2):269-278.
- Markel MD, Sielman E, Rapoff AJ, Kohles SS. Mechanical properties of long bones in dogs. *Am J Vet Res.* 1994;55(8):1178-1183.
- Kemper B, Diamante GAC. Retrospective study of appendicular skeleton fractures in dogs treated at the Veterinary Hospital of Universidade Norte do Paraná (UNOPAR) from January 2007 to March 2009. *J Health Sci.* 2010;12(2).
- Libardoni RDN, Serafini GMC, Oliveira CD, Schimites PI, Chaves RO, Feranti JPS, et al. Appendicular fractures of traumatic etiology in dogs: 955 cases (2004-2013). *Ciênc Rural.* 2016;46:542-546.
- Kolata RT, Kraut NH, Johnson DE. Fractures in dogs. *J Vet Med Educ.* 1974;164:499-502.
- Sumiran N, Rao T, Latha C, Kumar D, Lakshman M. Incidence, occurrence, and classification of tibial diaphyseal fractures in dogs. *Int J Livest Res.* 2021;11(9):9-15.

- Gaddam V, Podarala V, Rayaduram Venkata SK, Mukku SL, Devalam R, Kundu B. Multi-ion-doped nano-hydroxyapatite-coated titanium intramedullary pins for long bone fracture repair in dogs-Clinical evaluation. *J Biomed Mater Res Part B Appl Biomater.* 2022;110(4):806-816.

How to Cite This Article

Bhargav GN, Mahesh R, Rao CHM, Suresh K, Prasad VD. Incidence of femoral fractures in dogs. *International Journal of Veterinary Sciences and Animal Husbandry.* 2024;9(6):731-733.

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.