



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(10): 743-745
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www.thepharmajournal.com
Received: 09-07-2023
Accepted: 13-08-2023

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Incidence of long bone fractures in dog: A retrospective study

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Abstract

A survey was undertaken to analyse long bone fractures in dogs reported to Department of Veterinary Surgery and Radiology, Veterinary Clinical Complex, Veterinary College, Bidar. The fracture incidences study was conducted from March 2021 to march 2023. A total of 88 cases of long bone fracture were reviewed. The incidence was higher in young ones. Fracture rate were recorded high in non-descriptive dogs (42.07%). In the sex wise male dogs were affected more (68.18%) than female dogs (31.82%) of all the age groups. Among the various long bones fracture incidence was highest in femur (35.23%) followed by radius and ulna (30.68%), tibia and fibula (23.86%) and humerus (10.23%) respectively. The occurrence of closed fracture was more among them oblique/ transvers fracture was more than comminuted and avulsion fracture.

Keywords: Incidence, fracture, long bone, dog

Introduction

The long bone fractures are the commonly encountered orthopaedic problems in canine practice. Studying the different type of fracture and their incidence will be helpful to develop new treatment methodology for fracture fixation in dogs (Aithal *et al.*, 1999) [1]. Femur fractures were found to be more common, followed by tibia-fibula, radius-ulna, and humerus. The primary factor leading to the fracture was automobile accident (Bidari *et al.*, 2023) [3]. Among the long bones, the femur (37.00%) had the highest incidence of fractures in dogs, followed by the radius-ulna (28.70%), tibia-fibula (20.00%), and humerus (7.90%). (Kallianpur *et al.*, 2018) [12]. A retrospective study was conducted to study the aetiology, prevalence, classification of fracture.

Material and Methods

The dogs of different ages, breeds and sexes presented to the Department of Veterinary Surgery and Radiology of the Veterinary College, Bidar underwent a thorough clinical, orthopaedic evaluation and radiological examination (Fossum, 2007 and DeCamp, 2016) [7, 5]. All available records and radiographs from march 2021 to 2023 were reviewed and information on incidence and different types of fractures was tabulated.

Results and Discussion

A total of 88 cases of long bone fractures were recorded during the period of this study. The results of the present study showed that the pelvic limb fractures were more common in non-descript dogs (42.07%), Labrador (22.66%), Doberman (8.25%), Dachshund (1.25%), Pomeranian (5.43), German shepherd (12.48%) and Mudhol (7.86%). The highest incidence of non-descriptive dogs undergoing long bone fracture due to their free roaming habit which make them more vulnerable to road accident (Maala and Celso, 1975) [15].

Young dogs were more occurrence of fractures due to their active, playful and are not accustomed to cope with the risks of environment (Kolata *et al.*, 1974) [13]. In the present study the incidence of male dogs (68.18%) was more prone to fracture in comparison to female dogs (31.82%). Balagoplan *et al.* (1995) [2], Gahlod *et al.* (2002) [8], Kumar *et al.* (2013) [3] and Jain *et al.* (2018) [11] also reported higher incidence of long bone fracture in male than the females. This might be attributed to the fact that male dogs are more aggressive and tend to wander more than their female counterparts, thus they are more vulnerable to fractures (Kolata *et al.*, 1974) [13].

Further this could also be due to the fact that people like to have male dog more than female dogs, which might be responsible for more population of male dogs (Jain *et al.*, 2018) [11].

Automobile accident was recorded as the major cause of fracture (66.86%), followed by fall from height (22.48%). The other causes of fractures in dogs were dog and pig bite (5.32%), hitting by object (4.16%) and unknown aetiology (1.18%). Several other workers had also reported that road traffic accident was the major cause of fractures in dogs (Scott, 2005; Jani *et al.*, 2014 and Bidari *et al.*, 2023) [17, 10, 3]. In the present study occurrence of fracture was more in femur (37.00%) followed by fracture of radius-ulna (28.70%), tibia-fibula (20.00%), humerus (7.90%). A high incidence of femur fracture has also been reported by several other researchers (Harasen 2003; Beale, 2004 and Elzomor *et al.*, 2014) [9, 4, 6]. In automobile accidents, mostly animals were likely to be hit from behind, as the animals were slow to react from their hind quarters, might be the cause of more fracture in hind limb (Jain *et al.*, 2018) [11].

The incidence of fracture based on type of fracture revealed that closed fractures are more among them transverse and oblique fracture had highest frequency in long bones. Transverse fracture (42.05%) was most commonly encountered followed by oblique (33.68%), spiral (8.24%), multiple (11.69%) and comminuted fracture (4.34%) as per the data collected. Other workers also reported high occurrence of transverse fracture followed by oblique and comminuted (Sirin *et al.*, 2013 and Rhanganani, 2015) [18, 16]. Higher incidence of oblique/transverse fracture indicates that the predominance of bending or compression forces as the cause of fracture (Smith, 1985) [19].

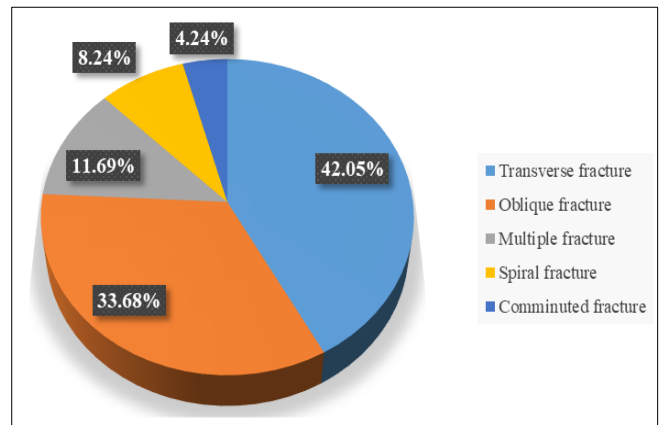


Fig 3: Incidence of fracture according to the type

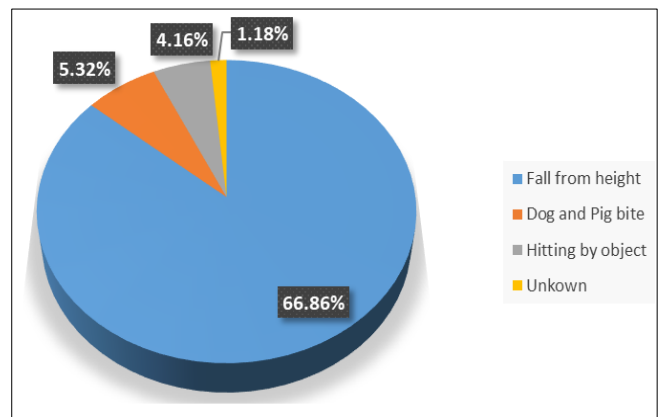


Fig 4: Etiology of Fracture

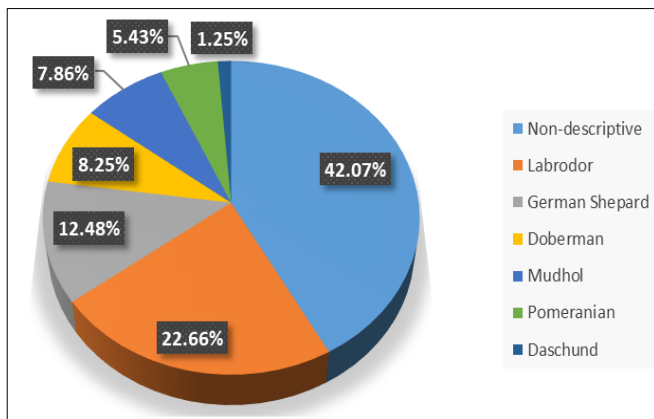


Fig 1: Incidence of fractures according to the breed

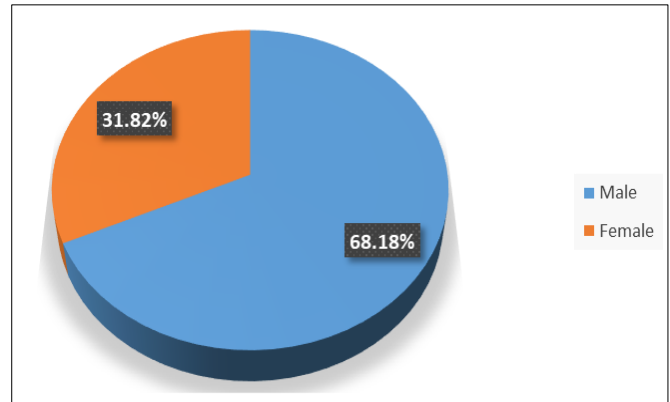


Fig 5: Incidence of fracture based on sex

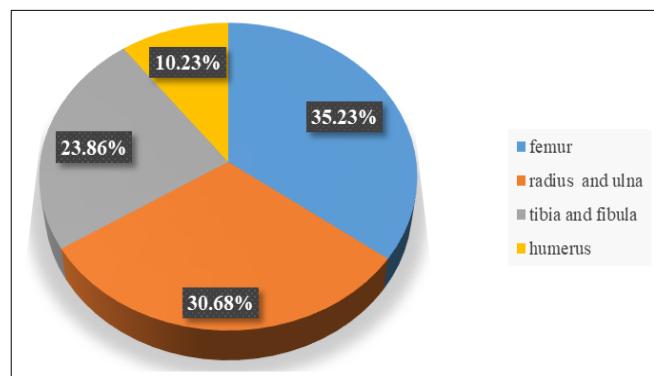


Fig 2: Incidence of fracture according to bone involved

Conclusion

In the present study the incidence of young male non-descriptive breeds was more affected with long bones fracture due to automobile accident as a frequent cause of fracture. Among the long bones, femur bone fracture cases were more with closed and transvers / oblique type of fracture.

Acknowledgement

Authors are thankful to Department of Veterinary Surgery and Radiology, Veterinary College, Bidar, Karnataka.

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