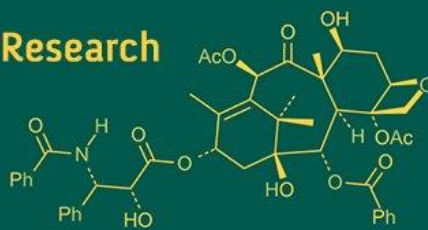
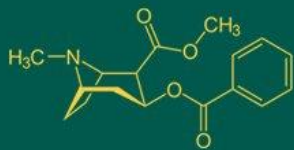


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2026): 5.29
IJABR 2026; 10(6): 833-837
www.biochemjournal.com
Received: 20-03-2026
Accepted: 22-04-2026

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Incidence of pelvic fractures in dogs

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DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i6j.8776>

Abstract

The present study was conducted on clinical cases of dogs presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan for a period of one year from January 2025 to December 2025. Pelvic fractures were most commonly observed in dogs in the age group of 1–3 years (39.13%), with male dogs being affected more frequently than females. Non-descript breeds showed the highest incidence (43.47%), followed by Dachshund and Shih Tzu breeds. Multiple pelvic fractures were more common than isolated fractures, with the ilium and sacroiliac region being the most frequently affected sites. Automobile accidents were identified as the major cause of pelvic fractures, accounting for 91.30 per cent of the cases.

Keywords: Dogs, fractures, Pelvic bone

Introduction

Pelvic fractures are one of the most frequently encountered traumatic orthopaedic conditions in dogs and are commonly associated with high-impact injuries such as automobile accidents and falls from height (Yurtal *et al.*, 2022) [13]. The increasing trend of pet ownership and greater outdoor exposure of dogs have contributed to a rise in the occurrence of pelvic injuries in small animal practice (Flores *et al.*, 2023) [6]. Pelvic fractures often involve multiple bones of the pelvic girdle and may result in severe pain, lameness, and locomotor dysfunction. The incidence study of pelvic fractures provides valuable information regarding age, sex, breed predisposition, bones involved, and aetiology of trauma. Such knowledge helps Veterinary orthopaedic surgeons in planning appropriate diagnostic and therapeutic approaches for successful management of pelvic fracture cases.

Materials and Methods

The study was conducted on incidences of Pelvic fractures of dogs, presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan during period of the study (January 2025 and December 2025). All the information related to age wise, breed wise, different etiological factors, type of bone involvement was collected, tabulated and analysed using standard statistical methods.

Results

A total of 163 canine cases with fractures involving various bones were presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hospital, Hassan, between January 2025 and December 2025. Among these, 23 dogs were diagnosed with pelvic fractures. Pelvic fracture accounted for 14.11 per cent of all canine fracture cases presented during the study period. (Table 1 and Fig. 1)

Age-wise incidence of pelvic fractures in dogs

The age-wise incidence of pelvic fractures was studied by classifying into five groups: 0-6 months, 7–12 months, 1–3 years, 3–5 years, and above 5 years. The high incidence was noted in dogs aged 1–3 years, constituting 39.13 per cent (n = 9), followed by the 7–12 months age group, which accounted for 21.73 per cent (n = 5). Dogs aged 0–6 months represented 17.39 per cent (n = 4), whereas those in the 3–5 years category comprised 13.04

per cent (n = 3). The lowest incidence was observed in dogs above 5 years of age, accounting for 8.69 per cent (n = 2), as presented in Table 2 and Fig. 2.

Gender-wise incidence of pelvic fractures in dogs

Out of the 23 dogs diagnosed with pelvic fractures, 56.52 per cent (n = 13) were males, while 43.47 per cent (n = 10) were females. The gender-wise distribution of pelvic fracture cases is presented in Table 3 and Fig. 3.

Breed-wise incidence of pelvic fractures in dogs

The breed specific analysis of incidence of pelvic fractures revealed the higher number of affected dogs were non-descript breeds (n= 10, 43.47%). This was followed by Dachshund (n=4, 17.39%) and Shih Tzu (n= 3, 13.04%). This was followed by Labrador Retriever (n=2, 8.69%). Golden Retriever, German Shepherd, American Bully and Doberman accounted for one each (4.34 %). The breed-wise occurrence of pelvic fractures in dogs is presented in the Table 4 and Fig. 4.

Bone wise incidence of pelvic fractures in dogs

The distribution of bones involved in pelvic fractures is illustrated in Figure 5. Isolated pelvic fractures were rarely observed, whereas the majority of cases presented with multiple fractures. In 23 cases included in the study, 69 fractures were noticed. Multiple pelvic fractures accounted for 84.52 per cent of the cases. Among these, fractures of the ilium were most common (34.78%), followed by sacroiliac luxation (28.98%). Fractures of the ischium were recorded in 13.04 per cent of cases, pelvic floor involvement was noted in 17.39 per cent, and acetabular fractures were observed in 5.79 per cent of cases. The bone-wise occurrence of pelvic fractures in dogs is presented in the Table 5 and Fig. 5.

Aetiology-wise incidence of pelvic fracture in dogs

In this study, automobile accidents were responsible for most of the pelvic fracture cases in dogs (n=21, 91.30%), while falls from height were recorded in only two cases (8.69%). The aetiology wise occurrence of pelvic fractures in dogs is presented in the Table 6 and Fig. 6.

Table 1: Incidence of pelvic fracture in dogs (from January 2025 to December 2025)

Sl. No.	Number of cases	Total	Percentage (%)
1	Canine fracture cases presented to Dept. of VSR	163	100
2	Dogs with other fractures	140	85.89
3	Dogs with pelvic fractures	23	14.11

Table 2: Age-wise incidence of pelvic fractures in dogs

Sl. No.	Age of the dog	Total cases	Percentage (%)
1	<6 months	04	17.39
2	7-12 months	05	21.73
3	1-3 years	09	39.13
4	3-5 years	03	13.04
5	>5 years	02	8.69
	Total	23	100

Table 3: Gender-wise incidence of pelvic fractures in dogs

Sl. No.	Gender of dog	Total number	Percentage (%)
1	Male	13	56.52
2	Female	10	43.47
	Total	23	100

Table 4: Breed-wise incidence of pelvic fractures in dogs

Sl. No.	Breed of dog	Total number	Percentage (%)
1	Non-descript	10	43.47
2	Dachshund	04	17.39
3	Shih tzu	03	13.04
4	Labrador Retriever	02	8.69
5	German Shepherd	01	4.34
6	Golden Retriever	01	4.34
7	American Bully	01	4.34
8	Doberman	01	4.34
	Total	23	100

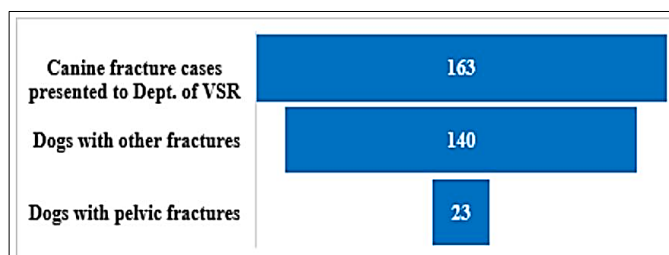
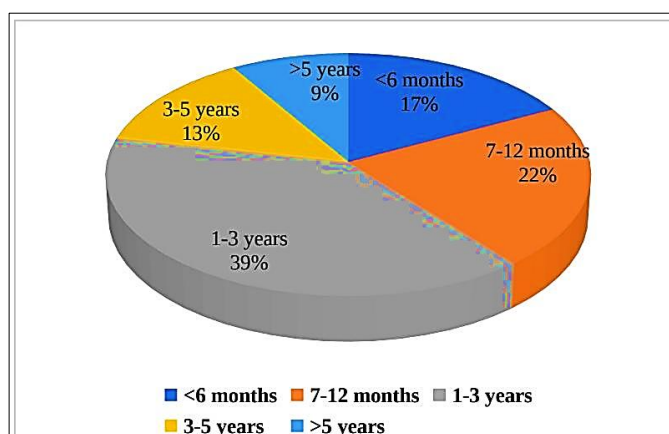
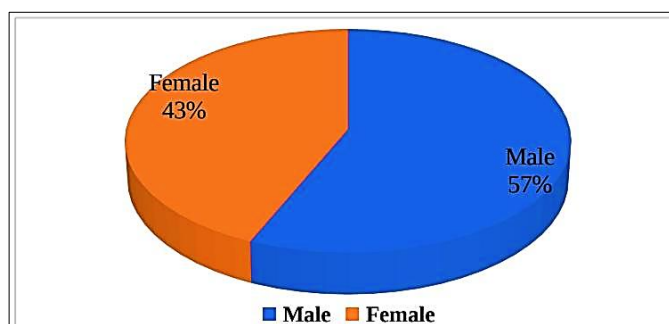
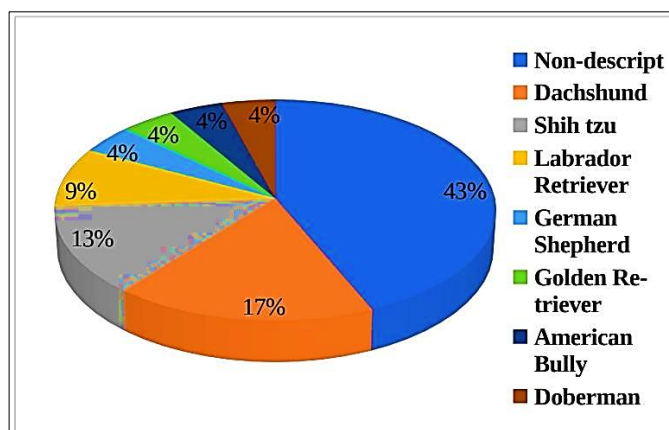
Table 5: Bone wise incidence of pelvic fractures in dogs

Sl. No.	Fracture site	Total number	Percentage (%)
1	Iliac fracture	24	34.78
2	Sacro iliac luxation	20	28.98
4	Pelvic floor fracture	12	17.39
5	Ischial fracture	9	13.04
6	Acetabular fracture	4	5.79
	Total	69*	100

Note: A total of 69 pelvic fracture lesions were recorded in 23 dogs because multiple fracture sites were present in several cases. Percentages were calculated using 69 fracture lesions at the denominator.

Table 6: Aetiology-wise incidence of pelvic fractures in dogs

Aetiology	Total number	Percentage (%)
Automobile accident	21	91.30
Fall from height	02	8.69
Total	23	100

**Fig. 1:** Incidence of pelvic fractures in dogs (n=23)**Fig 2:** Age-wise incidence of pelvic fractures in dogs (n=23)**Fig 3:** Gender-wise incidence of pelvic fractures in dogs (n=23)**Fig 4:** Breed-wise incidence of pelvic fractures in dogs (n=23)

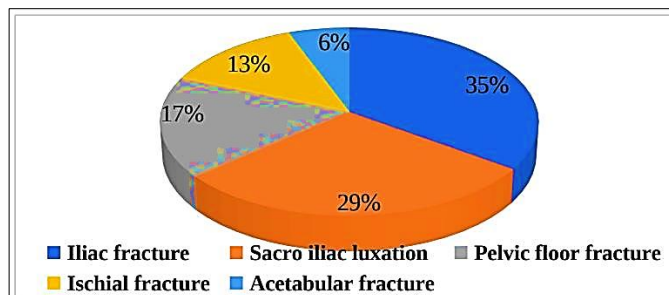


Fig 5: Bone wise incidence of pelvic fractures in dogs (n=23, total fractures is 69)

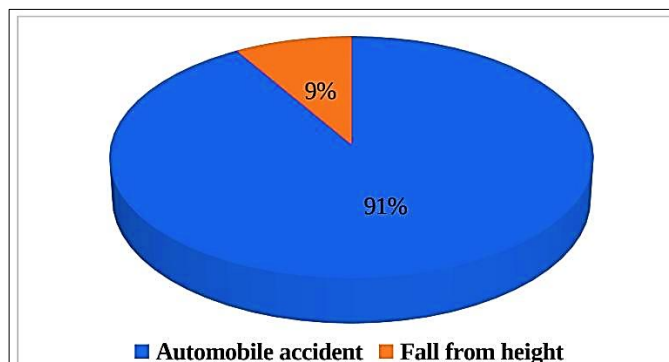


Fig 6: Aetiology-wise incidence of pelvic fractures in dogs (n=23)

Discussion

Incidence of pelvic fractures in dogs

A total of 163 canine cases with fractures involving various bones were presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hospital, Hassan, between January 2025 and December 2025. Among these, 23 dogs were diagnosed with pelvic fractures. The overall incidence of pelvic fractures during the study period was accounted to be 14.11 per cent. Similar observations were reported by Phillips (1979) [11], De Camp *et al.* (2016) and Bouabdallah *et al.* (2020) [1].

Age-wise incidence of pelvic fractures in dogs

The age-wise incidence of pelvic fractures was classified into five groups: 0–6 months, 7–12 months, 1–3 years, 3–5 years, and above 5 years. The high incidence was noted in dogs aged 1–3 years, constituting 39.13 per cent (n = 9), followed by the 7–12 months age group, which accounted for 21.73 per cent (n = 5). Dogs aged 0–6 months represented 17.39 per cent (n = 4), whereas those in the 3–5 years category comprised 13.04 per cent (n = 3). The low incidence was observed in dogs above 5 years of age, accounting for 8.69 per cent (n = 2). These findings were in accordance with Kim *et al.* (2011) [9], Bouabdallah *et al.* (2020) [1] and Yurtal *et al.* (2022) [13]. Anatomically, skeletal immaturity characterized by thinner cortical bone, open physes and relatively higher cancellous bone content reduces bone strength and stiffness, predisposing them to fractures under traumatic stress. In contrast, adult dogs possess thicker cortical bone and greater biomechanical stability, which may offer better resistance to minor trauma (Kim *et al.*, 2011) [9].

Gender-wise incidence of pelvic fractures in dogs

Higher incidence of pelvic fractures was observed in male dogs (n = 13; 56.52%) compared to female dogs (n = 10; 43.47%) in the present study. Similar findings were reported by Bouabdallah *et al.* (2020) [1] and Flores *et al.* (2023) [6].

This may be attributed to the more active nature, territorial and reproductive behaviour of male dogs, along with their greater tendency to roam freely. Increased exposure to road traffic accidents and traumatic injuries in male dogs could also be a contributing factor.

Breed-wise incidence of pelvic fractures in dogs

Breed-wise analysis of pelvic fractures revealed a higher incidence in non-descript breeds (n = 10; 43.47%), followed by Dachshund (n = 4; 17.39%), Shih Tzu (n = 3; 13.04%), and Labrador Retriever (n = 2; 8.69%). Golden Retriever, German Shepherd, American Bully, and Doberman accounted for one case each (4.34%). Similar observations were reported by Simon *et al.* (2010) [12], Hoffberg *et al.* (2016) [8], and Patwa *et al.* (2024) [10]. The higher incidence in non-descript breeds may be attributed to their larger population size and increased free-roaming tendency, predisposing them to road traffic accidents and traumatic injuries.

Bone wise incidence of pelvic fractures in dogs

Multiple pelvic fractures were more common than isolated pelvic fractures, accounting for 84.52 per cent (n = 19) of the cases. Out of 69 fractures recorded in 23 dogs, iliac fractures were the most common (n = 24; 34.78%), followed by sacroiliac luxation (n = 20; 28.98%), pelvic floor involvement (n = 12; 17.39%), ischial fractures (n = 9; 13.04%), and acetabular fractures (n = 4; 5.79%). Similar findings were reported by Draffan *et al.* (2009) [4], Bouabdallah *et al.* (2020) [1], and Catalkaya *et al.* (2024) [2]. The predominance of multiple pelvic fractures and higher incidence of iliac fractures and sacroiliac luxation may be attributed to the rigid ring structure of the pelvis and its major role in weight transmission, while acetabular fractures were less common due to the substantial focal force required to disrupt the articular surface, as reported by De Camp *et al.* (2016) [3].

Aetiology-wise incidence of pelvic fracture in dogs

Automobile accidents were identified as the major cause of pelvic fractures in dogs, accounting for 91.30 per cent (n = 21) of the cases, whereas falls from height were recorded in only two cases (8.69%). Similar findings were reported by Harasen (2007)^[7], Draffan *et al.* (2009)^[4], and Ferreira *et al.* (2020)^[5]. The predominance of automobile accidents may be attributed to the high-energy compressive and shearing forces acting on the pelvic region during vehicular trauma, particularly in free-roaming dogs, as also observed by Yurtal *et al.* (2022)^[13].

Conclusion

In conclusion, pelvic fractures were more commonly observed in dogs aged 1–3 years, male dogs, and non-descript breeds. Multiple pelvic fractures were more frequent than isolated fractures, with iliac fractures and sacroiliac luxation being the most commonly affected sites. Automobile accidents were identified as the major cause of pelvic fractures in the present study.

Acknowledgments

Authors are thankful to Department of Veterinary Surgery and Radiology, Veterinary College, Hassan, Karnataka for their support.

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