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B Mythili

Department of Veterinary
Surgery and Radiology, NTR
College of Veterinary Science,
SVVU, Gannavaram, Krishna,
Andhra Pradesh, India

G Kamalakar

Department of Veterinary
Surgery and Radiology, NTR
College of Veterinary Science,
SVVU, Gannavaram, Krishna,
Andhra Pradesh, India

M Sreenu

Department of Veterinary
Surgery and Radiology, NTR
College of Veterinary Science,
SVVU, Gannavaram, Krishna,
Andhra Pradesh, India

M Srinivas

Department of Veterinary
Surgery and Radiology, NTR
College of Veterinary Science,
SVVU, Gannavaram, Krishna,
Andhra Pradesh, India

Corresponding Author:

B Mythili

Department of Veterinary
Surgery and Radiology, NTR
College of Veterinary Science,
SVVU, Gannavaram, Krishna,
Andhra Pradesh, India

Aetio-pathology and incidence studies on canine elbow hygroma

B Mythili, G Kamalakar, M Sreenu and M Srinivas

Abstract

A prospective study was conducted to record the aetiology and incidence of elbow hygroma in dogs presented to the Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram, Andhra Pradesh from November, 2022 to October, 2023. A total number of 3003 dogs were presented with surgical problems, out of which 11 (0.36%) cases were diagnosed with elbow hygroma. 20 elbows included two unilateral (Right) and nine bilateral hygromas. Highest incidence of elbow hygroma was recorded in young dogs aged between 0-2years (N=17, 85%) that too aged between 4-8 months (N=7, 35%). One each case was recorded in 2-4, 4-6 and 6-8 year age group. Incidence of elbow hygroma was higher in males (N=12, 60%) compared to females (N=8, 40%). Among the various breeds presented with elbow hygroma, Labrador Retriever (N=8, 40%) was the most commonly affected breed followed by German Shepherd (N=6, 30%) and Rottweiler (N=4, 20%) one each (N=1, 5%) was recorded in Belgian Malinois and Mudhol Hound breed. All the dogs were found to be active and floored on hard surfaces which predisposed to hygroma.

Keywords: Incidence studies, canine elbow hygroma, painless inflammatory distension

1. Introduction

Capped elbow or elbow hygroma is a painless inflammatory distension of olecranon bursa caused by repeated trauma over of tip olecranon process of ulna (White, 2003) ^[17]. In young dogs, the protective callus over tip of olecranon will not be formed which predispose the young dogs to hygroma (Fossum, 2007) ^[7]. Bursitis can occur due to direct trauma, leading to acute bursitis (Fossum, 1997) ^[6] or mild but repeated trauma, leading to chronic bursitis (O'Connors, 2005) ^[12]. Fast growing large breed dogs were more prone to hygroma (Nath *et al.*, 2015) ^[11]. Dogs aged less than two years were frequently affected (Pope, 1998 ^[14]; White, 2003 ^[17]; Angelou *et al.*, 2020 ^[1]). Understanding the occurrence of elbow hygroma is preferable in order to proactively prevent its development through precautionary measures.

2. Materials and Methods

The aetiology and incidence of elbow hygroma in dogs was evaluated for a period of one year (November 2022 to October 2023) presented to Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram, Andhra Pradesh. Detailed anamnesis was collected from the owners regarding the floor pattern where the dogs were housed, their age, sex, breed and limbs affected. Body weight of dogs was also recorded to assess the impact on hygroma occurrence.

3. Results and Discussion

A total of 3003 dogs with various surgical problems were presented to the Department of Veterinary Surgery and Radiology and Veterinary Clinical Complex, NTR College of Veterinary Science, Gannavaram, Andhra Pradesh. Among which 11 dogs (0.36%) were diagnosed with elbow hygroma. Two dogs had unilateral (both right) and eight had bilateral capped elbow.

3.1 Aetio-Pathogenesis of Elbow Hygroma

Anamnesis revealed that all the dogs had been residing in homes floored on hard surfaces predominantly resting on their elbows without any soft bedding might have lead.

To accumulation of serous fluid over the olecranon and thus the elbow hygroma as reported by Pavletic and Brum (2015) [13], Kousi *et al.* (2017) [10] and Chaudhuri (2022) [4]. In one instance, hip pathology led to excess weight being placed on the elbows while lying down (White, 2003 [17], Fossum, 2007 [7]). Apart from above a etiologies, other factors like excessive skin movement and subcutaneous connective tissue tear (Shappel and Little, 1992) [15], prolonged sternal recumbency owing to arthralgia (Birnesser *et al.*, 2005) [2], recurrent hitting from horse's shoe (Hayat *et al.*, 2009) [8], neurological signs and chronic recumbency consequent to copper and vitamin A deficiency in tigers (Kaiser *et al.*, 2014) [9] were also on record. In our study, the body weight of the dogs with elbow hygroma ranged between 15 and 32 kg averaging 23.3 kg. This clearly indicates that elbow hygroma is a disease of young dogs of large breed dogs as was also opined by Pope (1998) [14] and White (2003) [17].

3.2 Age-wise incidence of canine elbow hygroma:

Incidence of elbow hygroma was found to be highest in dogs aged between 0-2 years (N=17, 85%) that too aged between 4-8 months (N=7, 35%). This is a significantly high percentage, indicating that elbow hygroma is quite common in young dogs. Elbow hygroma was a disease of fast growing young animals (Angelou *et al.*, 2020) [1]. The fact that younger dogs have less developed protective calluses, especially on the tip of the olecranon bony prominence, made them more susceptible to this condition (Fossum, 1997) [6]. One each case was recorded in 2-4, 4-6 and 6-8 year age (5% each) group. This was relatively low percentage compared to the younger age group but suggests that some older dogs could still develop capped elbow, which might be due to prolonged sitting down posture in old dogs over rough surfaces (Downing, 2016) [5] (Table 1).

Table 1: Age-wise incidence of canine elbow hygroma

S. No	Age	No. of Dogs	Percentage (%)
1	0-4 m	3	15
2	4-8 m	7	35
3	8-12 m	5	25
4	12-16 m	1	5
5	16-20 m	1	5
6	20-24 m	0	0
7	2-4 yrs.	1	5
8	4-6 yrs.	1	5
9	6-8 yrs.	1	5
10	>8 yrs.	0	0

3.2 Sex-wise incidence of canine elbow hygroma

Incidence of elbow hygroma was found to be higher in males (N=12, 60%) compared to females (N=8, 40%). Similarly, Simon *et al.* (2020) [16] and Angelou *et al.* (2020) [1] also reported the highest incidence of elbow hygroma in males. Preponderance of elbow hygroma in males could be attributed to the factors such as heavy body weight, faster growth rate, activity levels, breed predispositions and hormonal differences. Increased body weight in larger and heavier male dogs might exert more and repeated pressure and strain on the elbows, making them more susceptible to developing hygromas (Angelou *et al.*, 2020) [1] (Table 2).

Table 2: Sex-wise incidence of canine elbow hygroma

Sex	No. of Dogs	Percentage (%)
Male	12	60
Female	8	40
Total	20	100

3.3 Breed-wise incidence of elbow hygroma

Breed wise, the incidence of elbow hygroma was highest in Labrador Retriever (N=8, 40%) followed by German Shepherd (n=6; 30%) and Rottweiler (N=4, 20%) one each (N=1, 5%) was recorded in Belgian Malinois and Mudhol Hound breed were observed highest incidence of elbow hygroma was recorded in larger breeds like Great Dane, German shepherd and Saint Bernard (Pope, 1998) [14], Great Dane and English Mastiff (White, 2003) [17], Doberman and Labrador retrievers (Cannap *et al.*, 2012 [3] and Angelou *et al.*, 2020 [1]). In present study also Labrador retrievers, German shepherd and Rottweiler dogs were frequently reported. Large and giant breed dogs grow faster relative to their age, which exacerbates more pressure over tissue below the tip of olecranon and caused the formation of hygroma. Increased rearing of the Labrador breed dogs in around the clinic area also might have predisposed higher incidence rate in this breed (Table 3).

Table 3: Breed-wise incidence of elbow hygroma

S. No.	Breed	No. of animals	Percentage
1	Labrador retriever	8	40%
2	German shepherd	6	30%
3	Rottweiler	4	20%
4	Belgian malinois	1	5%
5	Mudhol hound	1	5%

4. Conclusion

Based on these results, it could be concluded that, maintaining dogs on hard floors the major etiology for occurrence of elbow hygroma in dogs. Fast growing young male dogs of large breed dogs would suffer more. Hence, the owners should be advised to provide the large breed dogs with soft bedding. The authors are thankful to the authorities of Sri Venkateswara Veterinary University for providing necessary facilities in carrying out the work.

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