



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(10): 1962-1964
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www.thepharmajournal.com
Received: 05-08-2022
Accepted: 08-09-2022

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Aural haematoma in dogs: An epidemiological study

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Abstract

The study was conducted to record the incidence and risk of aural hematoma in dogs in Veterinary hospitals of Mhow and Indore city. Total cases of dogs registered in Veterinary Clinical Complex, Mhow and Indore Veterinary hospitals from July 2020 to June 2021 for various diseases were 30,290. 108/30290 dogs were diagnosed with aural haematoma. The estimated one year incidence risk for aural haematoma was 0.35%. After accounting for confounding showed highest odds in German Shepherd (32.5%). The result suggest that there are several risk factors for aural haematoma including middle age group dogs (4-6 year), male dogs, ectoparasitic and otitis externa with pricked/erect ears showed increase odds of aural haematoma. The affected cases were diagnosed as unilateral or bilateral ear haematoma in which unilateral ear haematoma with more incidence of left ear (62%) involvement was noticed. with different causative factors responsible for cartilage fracture resulting in haematoma formation like ectoparasites (37%) followed by otitis externa (30%), dermatitis (22%) and trauma/ injury (11%). The study was focused to survey information related to cases of aural hematoma in the dog population and new knowledge of key breed and factors predisposition will contribute to improved breed health control strategies.

Keywords: Aural haematoma, epidemiology, dog, incidence

Introduction

Aural hematoma is one of the most common ear affection encountered in dogs. Physical injury and self-inflicted trauma (Dewangan *et al.*, 2017) ^[4] lead to the accumulation of blood or serum in between the skin and cartilage of the ear, which appears as fluid-filled swelling on the concave surface of the pinna. An aural haematoma may occur unilaterally less commonly present bilaterally. The pathogenesis of aural haematoma remains unclear, although some studies have documented erosion and fracture of the auricular pinnal cartilage as possible causative factors in dogs with aural haematoma. A few theories for cartilage damage have been proposed that mainly focus on self-inflicted trauma from head-shaking (Neill *et al.*, 2021) ^[12]. Otitis externa, otitis media, ectoparasitism, otorrhoea, foreign bodies and dermatitis have been proposed as predisposing factors for aural haematoma (Hewitt and Bajwa, 2020) ^[9] which are a source of irritation that causes ear scratching and head shaking (Parihar *et al.*, 2021) ^[14]. The objective of the study was to record the incidence of aural haematoma in dogs to understand the development and epidemiology of this disease to aware the owner regarding the aetiological factors to lessen the disease prevalence.

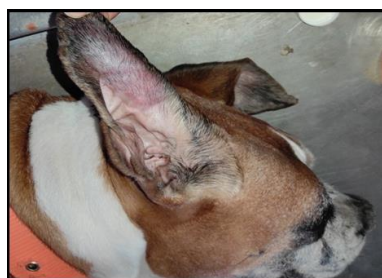


Fig 1: Cases with ear pinna swelling (aural haematoma)

Materials and Methods

The study was conducted in the Department of Veterinary Surgery and Radiology, Veterinary Clinical Complex (VCC), College of Veterinary Science and A.H. Mhow, N.D.V.S.U.

Jabalpur. All the cases of aural haematoma in dogs were reviewed for the breed, age, sex, ear type, the side affected and various etiological factors (such as ectoparasite, otitis externa, dermatitis and trauma or injury to ear pinna). The relevant information was also collected from the Veterinary hospitals, Mhow and Indore city (M.P.). The duration of the study period was from July 2020 to June 2021. Clinical examinations of all animals were performed for the presence of ticks, mites, dermatitis and otitis externa. The dogs were treated as per the cause on the day of presentation.

Results and Discussion

Total cases of dogs registered in Veterinary Clinical Complex, Mhow and Indore Veterinary hospitals from July 2020 to June 2021 for various diseases were 30,290. Out of 30,290 cases, 108 cases (0.35%) were found to be affected with aural haematoma. The incidence was maximum i.e. 47% in the age group between 4-6 years followed by 42.6% in the age group of 7-10 year age group, 8.4% in the age group of 1-3 years and 1.8% in the age of above 10 years (Table 1). Similarly, Gyorffy and Szijarto, (2014) [8] and Lahiani and Niebauer, (2020) [10] reported a high risk of haematoma in the age group 4-6 years. The dogs of this age group has aggressive nature and suppose to do more outdoor activity during this age period which might be contributory factor in the ear flap injury. The excessive secretion of cerumen glands and other factors may also provide a favorable environment to proliferate the ear infection, otitis and haematoma formation (Ahirwar *et al.*, 2007) [1].

Table 1: Age wise incidence recorded in dogs during July 2020- June 2021

S.No.	Age of dogs	Number of dogs with haematoma	Percentages (%)
1.	1-3 years	9	8.4
2.	4-6 years	51	47.2
3.	7-10 years	46	42.6
4.	Above 10 years	2	1.8

Out of 108 cases of dogs, aural haematoma incidence was more in male dogs (81.5%) as compared to female dogs (18.5%). Ashwathkumar (2020) [3] and Al Salihi and Kathem (2021) [2] also reported that males were more prone than female dogs. The study claimed that higher activities like fighting and aggressive behavior of males make the animal more susceptible to pinna injury by biting and chewing of pinna which leads to aural haematomas (Terzier and Borisso, 2018) [15]. Further, male hormones and androgen lead to hyperplasia and hypertrophy of sebaceous glands leads to more sebum formation in ear canal, which provide a good environment to proliferate microorganisms followed by itching and scratching of ear leads to ear haematoma formation. However, the estrogens cause degeneration of sebaceous glands and declines in function, so females may have a lower risk than males (Dezhang *et al.*, 2019) [5]. The cases of haematoma was more in German Shepherd (32.5%) followed by Labrador (24%), Non- descript (21.3%) and Pomeranian (13%). The lower incidence of haematoma was recorded in Pug (2.7%), Beagle (2.7%), Boxer (1.8%), Rottweiler (1%) and Doberman (1%) (Table 2). German shepherds breed has violent temper, which makes these animal more prone to pinna trauma or injury. Furthermore, a breed with more hairs in the ear canal may prevent proper aeration leads ear infection subsequently pawing of ear pinna

which cause fracture of cartilage with chronocity of injury more fibrin deposition in between skin and cartilage and the size of haematoma (Dezhang *et al.*, 2019) [5].

Table 2: Breed wise incidence of aural haematoma recorded in dogs during July 2020- June 2021

S.No.	Breed	No. of dogs	Percentage (%)
1	German shepherd	35	32.5
2	Labrador	26	24
3	Non- descript	23	21.3
4	Pomeranian	14	13
5	Pug	3	2.7
6	Beagle	3	2.7
7	Boxer	2	1.8
8	Rottweiler	1	1
9	Doberman	1	1

Various etiological factors of aural haematoma were recorded in the present study. The most common causative factor recorded was ectoparasites (37%), otitis externa (30%), dermatitis (22%) and trauma/ injury (11%) (Eyarefe *et al.*, 2013) [6] (Table.03). Nema *et al.* (2016) [13] and Eyarefe *et al.* (2013) [6] found that higher incidence was due to ectoparasites (44%) followed by otitis externa (28%) while, Donekar *et al.* (2016) [16] also reported otitis externa found to be more common etiological factor for aural haematoma in dogs. All of mentioned etiology incites the violent head shaking and ear scratching in dog which results rupture of blood vessel and extravasation of blood (Lanz and Wood, 2004) [11]. Accumulated blood separates the skin and cartilage (Falih, (2010) [7] and Nema *et al.* (2016) [13].

Table 3: Various etiological causes of aural haematoma recorded in dogs during July 2020- June 2021

S.No.	Etiological cause	No. of dogs	Percentage (%)
1	Ectoparasites	40	37
2	Otitis externa	32	30
3	Dermatitis	24	22
4	Trauma/Injury	12	11

The incidence of aural haematoma was 62% (48 dogs) in left ear, whereas 38% (27 dogs) in right ear (figure. 01). Aural haematoma was observed 57.5% (62 dogs) in pricked type ear and 42.5% (46 dogs) in dropped type ear during the study (Figure. 02). Similarly, Dezhang *et al.* (2019) [5] and Aswathkumar (2020) [3] reported higher incidence in pricked ear (62.5%) compared to dropped type ear (37.5%). The pricked type ear affected highly might be due to the ear canal was directly exposed to the environment and micro organisms which increase the chances of ear infection and subsequently aural haematoma.

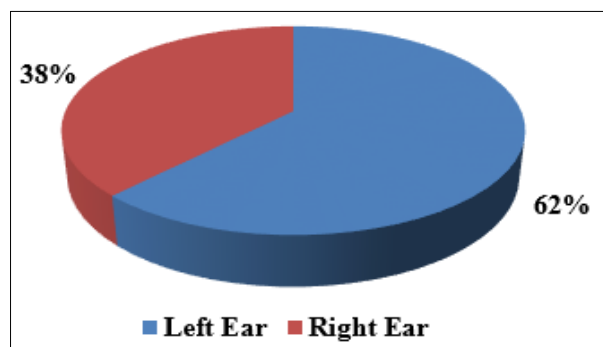


Fig 2: Ear side affected in aural haematoma in dogs

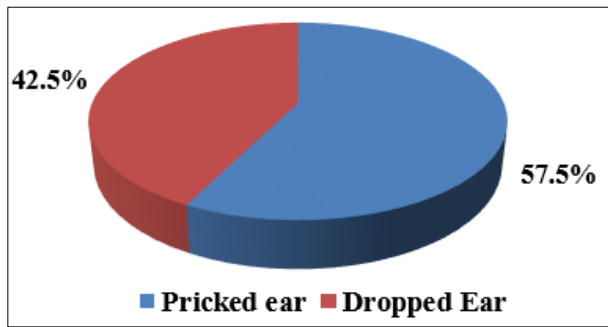


Fig 3: Type of ear affected in aural haematoma in dog

Conclusion

The overall incidence of aural haematoma in dogs was 0.35% in hospitals of Indore and Mhow city. The incidence of aural haematoma was higher in the age group between 4-6 years. Male dogs were affected more as compared to female dogs. The German shepherd breed affected more than other breeds. On basis of result the ectoparasitic infestation is major etiological agent followed by otitis externa, dermatitis and trauma/ injury. Unilateral ear haematoma with more incidence of left ear involvement was noticed. The relevant information should be displayed in Veterinary hospitals and private clinics regarding the etiopathological factors to decrease the incidence rate of aural haematoma formation by taking the preventive measures.

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