



## Prevalence of Canine Otitis Externa in Jammu

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Received: 12 February 2014; Accepted: 20 April 2014

### ABSTRACT

To examine dogs with otitis externa in order to study the prevalence of otitis externa in dogs, a study was undertaken on 273 dogs presented at the Teaching Veterinary Clinical Complex and Referral Hospital R.S Pura, Central Veterinary Hospital Talab Tillo and private pet clinics in Jammu region during the period starting on August to December (2011). The incidence of otitis externa stood at 21.97 percent (60 cases), from all the skin infections in canine population (273 cases). The influence of age, breed and sex on the incidence of otitis externa was also studied. The results of the study revealed higher occurrence of cases during the month of August (28.33 percent), followed by October (26.66 percent), and the least in December (10.00 percent). The dogs belonging to the age group of 3 years and above showed greater susceptibility (55 percent) to ear afflictions, followed by 1 to 3 year age group (25 percent), and the least (20 percent) in the age group below 1 year. German Shepherds followed by Labrador Retrievers and Cocker Spaniels were the most frequently affected breeds. Male dogs showed greater involvement than females.

**Keywords:** Prevalence, Canine, Otitis

Otitis externa is one of the common problems among dogs. It causes great discomfort to the affected dog. The practicing Veterinarian may get frustrated as the relapses are very common due to treatment failures and if left untreated the consequences may be very serious (Kumar *et al.*, 2002a). Otitis externa is a syndrome not a diagnosis (August, 1998). Keeping this in mind following study has been undertaken.

### MATERIALS AND METHODS

#### Diseased dogs

Dogs suffering from Otitis externa presented at Referral Veterinary Hospital of the Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University



of Agricultural Sciences and Technology – Jammu as well as Central Veterinary Hospital, Animal Husbandry Department, Talab Tillo Jammu contributed the subjects of study. The study was conducted from August to December 2011.

### Healthy dogs

Six apparently healthy dogs with no ear affection and kept under the same environmental conditions, irrespective of age, sex and breed were chosen randomly to act as control for the present study.

## RESULTS AND DISCUSSION

During the study period (August to December) a total of 273 dogs were presented for treatment at Teaching Veterinary Clinical Complex, (TVCC), Central Veterinary Hospital, Animal Husbandry Department (CVH), Talab Tillo, Jammu in Jammu region. Out of two hundred and seventy six cases, sixty cases (21.97 percent) were found positive for otitis externa from all skin diseases (Table 3). The present study envisaged to identify the specific microbiological agent(s) in the pathogenesis of otitis externa in dogs was undertaken with a view to make accurate diagnostic approach and accordingly plan rational, effective therapeutic measures in identified cases. It is not always easy to determine the accurate prevalence of otitis externa in the canine population. Mild cases are not always detected by the owner and consequently the dog is not presented for aural treatment. In the present investigation, ear infection accounted for 60 cases and thus, out of all skin infections of dogs the overall prevalence of otitis externa stood at 21.97 percent.

### Age-wise prevalence

On the basis of observations made during the study under report and presented in Table 2, the age-wise distribution of otitis externa suggests higher 33 (55.00 percent) prevalence in adult dogs belonging to 3 years and above age group, followed by 15 (25.00 percent) in 1 to 3 year age group, and the least 12 (20.00 percent) in the age group below 1 year.

**Table 1:** Age related per cent prevalence of otitis externa in canine

Age Group	Bacterial	Fungal	Parasitic	Mixed	Total
<1yr	(2)11.11%	(3)33.33%	(4)28.57%	(3)15.78%	20.00%
1-3yr	(6)33.33%	(1)22.22%	(3)21.42%	(5)26.31%	25.00%
>3yr	(10)66.66%	(5)55.55%	(7)50.00%	(11)57.89%	55.00%

### Breed-wise Prevalence

Observations shown in Table 2 reveal breed-wise prevalence observed during the course of present study which was found to be highest in German Shepherd dogs

18 cases (30.00 percent), followed by 11 cases of Labrador (18.34 percent), 9 cases of Cocker Spaniel (15.00 percent), 6 cases of Dalmatian (10.00 percent), 5 cases of Doberman (8.34 percent), 5 cases of mixed (8.34 percent) and 2 cases of Spitz (3.34 percent), 1 case each of Boxer, Lhasa Apso, Great Dane and Bakherwal.

**Table 2:** Breed wise prevalence of otitis externa in canines

S. No.	Breed	No. of cases	Percentage
1	German Shepherd	18	30.00%
2	Labrador	11	18.34%
3	Cocker Spaniel	9	15.00%
4	Dalmatian	6	10.00%
5	Doberman	5	8.34%
6	Crossbred	5	8.34%
7	Spitz	2	3.34%
8	Great dane	1	1.66%
9	Lhasa apso	1	1.66%
10	Boxer	1	1.66%
11	Bakherwal	1	1.66%
	<b>Total</b>	<b>60</b>	<b>100</b>

### Sex-wise prevalence

Under present investigation, sex-wise distribution of otitis externa suggested that higher prevalence was recorded in male dogs 37 (61.67 percent) than in recorded in females 23 (38.33 percent) (Table 3).

**Table 3:** Sex wise prevalence of otitis externa in canines

Type of otitis externa	No. of male	No. of female
Bacterial	11 (61.11)	07 (38.88)
Fungal	06 (66.66)	03 (33.33)
Parasitic	08 (57.14)	06 (42.86)
Mixed	12 (63.15)	07 (36.84)
Total	37(61.67)	23(38.33)

Figures in parenthesis indicate percentage

### Bacterial otitis externa

The overall prevalence of bacterial otitis externa was found to be 30.00 percent. Dogs of three years or above three years of age were more susceptible (66.66 percent) followed by dogs of one to three years of age (33.33 percent) (Table 1). Males (61.11 percent) were more susceptible than females (38.88 percent) (Table 3).



### **Fungal otitis externa**

The overall prevalence of fungal otitis externa was observed to be 23.33 percent. Prevalence was more in dogs of three years or above three years of age (55.55 percent) (Table 1) and males were more susceptible (66.66 percent) than female dogs (33.33 percent) (Table 3).

### **Parasitic otitis externa**

The overall prevalence of mixed otitis externa was found to be 31.66 percent. Age related prevalence regarding parasitic otitis externa showed that dogs of three years or above three years of age were more susceptible (50.00 percent) (Table 1) and males were more susceptible (57.14 percent) than female dogs (42.86 percent) (Table 3).

### **Mixed otitis externa**

The overall prevalence of mixed otitis externa was found to be 31.66 percent. Prevalence was more in dogs of three and above three years of age (57.89 percent) (Table 1). Males (63.15 percent) were affected more than females (36.84 percent) (Table 3).

## **PREVALENCE**

During the present study out of 276 cases, sixty cases (21.97%) were found positive for otitis externa, Grono (1969), McKeever and Globus (1995) and Ettinger and Feldman (2000) who found it to be 20 percent. Sabolic (1997) also reported the contribution of otitis externa to be 22 percent. Grono and Frost (1969) and Carlotti (1991) reported incidence of ear infections to be 12 percent. Earlier, Baxter and Lawler (1972) reported incidence of otitis externa to be as low as 7.5 percent. However, in two reports the incidence of otitis has been reported by very high at 70 percent (Sharma and Rhoades, 1975) and 84.6 percent (Nagata and Sakai, 1999). Ear infection is known to be caused by various etiological agents either involving primary factors as well as perpetuating factors. In the present study, majority of cases of otitis externa were found to be caused by bacterial organisms followed by fungal agents. Certain factors such as presence of cerumen within the ear canal, pendulous ears and relative humidity were incriminated for favouring the growth of microorganisms in order to cause otitis. The fairly large contribution of otitis externa to the overall dermatological disorders of canines, as recorded in the present study, appears to be affected by favourable climatic conditions for the propagation of aetiological agents, mainly *Malassezia pachydermatis*, resulting in otic infections. Perusal of information gathered from the owners revealed regular cleaning practices after the bath were not followed in most of the cases consequently causing the accumulation of the water inside the ear canal which might have lead to increase in the moisture thus contributing in otitis externa.

### Age-wise Prevalence

Dogs suffering from otitis externa of age group of three years and above showed more susceptibility and dogs belonging to age group of below one year are less susceptible in present study. The findings collaborate with the reports of various earlier workers suggesting higher incidence of ear infections in adult dogs (Grono, 1969; Grono and Frost, 1969; Grono, 1980 and Carlotti, 1991). Staroniewicz *et al.*, (1995) and Kiss *et al.*, (1997a) reported higher incidence in the age group of 2-5 years. Baxter and Lawler (1972), Sharma and Rhoades (1975), Gedek *et al.*, (1979) and Nair (2004) also recorded higher incidence of otitis in dogs aged between one to six years. So, also Hayes *et al.*, (1987) and Chaudhary *et al.*, (2003) noticed greater incidence of otitis in age group of one year to 14 years old dogs. In contrary to present findings, Kim and Choi (1999) and Mhatre (2005) observed higher incidence of otitis in young dogs in the one to three years age group. However, Fraser *et al.*, (1970); Carlotti and Laffort (1996) and Nuttal (1998) reported no apparent relationship between the incidence of otitis and the age of the affected animals.

### Breed-wise Prevalence

The highest occurrence of otitis externa was observed in German Shepherd (30%). The findings of the study concur with a report from Ludhiana in Punjab by Chaudhary and Mirakhr (2002), recorded highest (31.14 percent) incidence of otitis in German Shepherd breed, followed by Spitz (29.87 percent), Mongrel (18.8 percent) and Cocker Spaniel (6.49 percent). Similarly, in a report from Gujarat state, Nair (2004) also recorded out of 57 cases, 34 German Shepherd dogs suffering from otitis externa, followed by Mongrel (11), and Spitz (8). Other breeds showed involvement in lesser frequency. However, Mhatre (2005) reported higher incidence in Mongrel and Spitz breeds (7 cases each) which accounted for 25.92 percent cases, closely followed by German Shepherd (6 cases). Other breeds observed to be affected with otitis in the study were Labrador (3), Doberman (2), Great Dane and Cocker Spaniel (1 each). Earlier, Grono and Frost (1969) and August (1988) attributed greater vulnerability of German Shepherd breed to otitis on account of hyperactivity of cerumen producing glands. Kiss *et al.*, (1997a) also recorded highest incidence of otitis externa in German Shepherd (28.5 percent). Carlotti and Laffort (1996) suggested that West-Highland terriers, Basset hounds, Dachshunds and Cocker Spaniels breeds of dogs were predisposed to fungal otitis externa caused by *Malassezia pachydermatis* infection. Bass (2004) emphasized that Shar-Pie breed having stenotic canals with numerous folds gets predisposed to chronic otitis externa, whereas Cocker Spaniels suffer more from otitis externa with more severe proliferative changes in horizontal ear canals than other breeds of dog. Further, Labrador Retrievers and Springer Spaniels have more apocrine tubular glands than other breeds, which predispose them to otitis. In a reports by



various groups of workers incidence of otitis externa have been recorded in breeds such as Cocker Spaniel, Labrador, Scottish Terrier, Miniature Poodle, Dachshunds, Australian Terrier, German Shepherd, Scottish Collies, Maltese Breed, Shih tzu Breed, Setters and Pointers (Grono, 1969; Grono and Frost, 1969; Fraser *et al.*, 1970; Baxter and Lawler, 1972; Pugh *et al.*, 1974; Rybnicek *et al.*, 1992; Uchida *et al.*, 1994; Ahmed, 2000). Various workers have reported that the long and narrow ear canals, pendulous ears, and high density of sebaceous glands in the ear canals of dog breeds (Spaniel) predispose them to ear infection (Baxter and Lawler, 1972; Sharma and Rhoades, 1975).

Similarly, Ascher *et al.*, (1988) noticed otitis externa most frequently in dogs with long, pendulous and drooping ears compared to dogs with semi-erect or erect ears as well as Mongrels. Such findings have also been earlier reported by Tufvesson (1955), Joshua (1958), Priester (1970), Karatzias and Sarris (1980) and Baba *et al.*, (1981). Carlotti (1991) noted auricular hypertrichosis in Poodle and Bichon breeds and ceruminous otitis in German Shepherd and Belgian Shepherd dogs. However, Kihyang *et al.*, (1999) reported otitis to be more common in breeds of dogs having erect and hairy ears (42.3 percent) followed by pendulous eared breeds (38.5 percent). Hairs are present often within the canal and many breeds have long hairy pendulous earflaps. The hairs in the ear canal or on the concave side of the pendulous ear conches and abnormalities in the structure of the ear canal such as stenosis which often present in Shar-pei dogs, predisposes the dogs to otitis (Popovici, 2005). However, Nuttal (1998) and Yoshida *et al.*, (2002) also did not see any significant difference between breeds vis-a-vis occurrence of otitis externa.

### **Sex-wise Prevalence**

Male dogs (61.67%) showed higher incidence of otitis externa in present study. The present findings concur with the reports of various workers who also suggested higher incidence of otitis in male dogs (Grono, 1969; Grono and Frost, 1969; Hayes *et al.*, 1987; Kiss *et al.*, 1997a; Fraser *et al.*, 1961; Chaudhary and Mirakhur, 2002; Phutane and Joseph, 2003; Nair, 2004 and Mhatre, 2005). Even though males appeared to be more prone to infection, no possible evidence was forthcoming to envision the role of male sex hormone, testosterone to enhance the susceptibility to the causative micro-organism. It is, however, possible that androgen hormones tend to increase sebum production, which appears to be a predisposing factor to flare up latent infection, whereas estrogens elicit an opposite response. Since dog owners usually prefer male dogs as companion animals, it is quite possible that the higher incidence recorded in male dogs might be primarily related to this selective preference of the pet lovers. In contrary to the present findings, Houdshell and Henssey (1972) and Carlotti (1991) suggested high incidence of canine otitis externa in females than males. No indication of sex predisposition has been

reported for canine otitis externa by various other workers (Fraser *et al.*, 1970; Baxter and Lawler, 1972; Sharma and Rhoades, 1975; Carlotti and Laffort, 1996 and Nuttal, 1998).

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