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Dog Bite Wounds: A Retrospective Study (114 Cases)

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SUMMARY

Epidemiology of bite wounds in dogs resulted from intraspecies conflict were treated and evaluated from 114 records in 1999-2003 at Small Animal Clinic, Department of Surgery, University of Adnan Menderes in Aydın. Type and time of injury and body areas injured were reviewed in 105 dogs and 9 cats that were bitten by dogs. Male dogs were more frequently bitten than females. The weight distribution of the dog population was varied 61% for small, 14% for medium and 24% for large dogs. The median age of dogs was 2 years (range 1-13 years) and 1.5 years cat (range 1-3 years). The distribution of bite wound injuries over the year was recorded with peaks in May (16%), April (11%), and October (10%). Cats are not as frequently bitten as dogs.

Key words: Dog bite wound– age – body areas

Köpek Isırık Yaraları: Bir Retrospektif Çalışma (114 Vaka)

ÖZET

Bu çalışmada, Adnan Menderes Üniversitesi Veteriner Fakültesi Cerrahi Anabilim dalında 1999-2003 yılları arasında tedavi edilen 114 ısırık vakası epidemiyolojik olarak incelenmiştir. Bu çalışmada, köpekler tarafından ısırılan kedi ve köpeklerin yaş, ısırık şekli, ısırılma zamanı ve ısırılan vücut bölgesine göre toplu bir değerlendirilmesi amaçlanmıştır. Erkek köpekler dişi köpeklerle nazaran daha sıklıkla ısırılmıştır. Isırılan köpeklerin %61'ni küçük cüsseli, %14'nü orta cüsseli ve %24'nü iri cüsseli hayvanlar oluşturmuştur. Isırılan köpeklerde ortalama yaş 2 civarında kedilerde ise 1.5 civarındaydı. Köpeklerde ısırık yaralanmalarının, en çok Mayıs (%16), Nisan (%11) ve Ekim (%10) aylarında olduğu tespit edilmiştir. Kediler köpeklerle nazaran daha az sıklıkla köpekler tarafından ısırılmıştır.

Anahtar kelimeler: Köpek ısırık yarası, Yaş, Vücut kısmı

INTRODUCTION

Bite wounds are one of the most common reasons for admission of dogs and cats veterinary clinics. The exact incidence of dog and cat bites is unknown [8, 9]. Aggressive dogs are mostly characterized as dominant or protective of household members and items. Occurrence of this undesirable dog behaviour is often connected with specific breeds and sex [1, 6]. According to some authors, males tend to be aggressive more often than females [1, 6]. Aggression also changes with age and undergoes individual development [6, 7, 12].

Dog bite wounds can range from minor to extremely complex wounds [11]. This kind of injury has several unique characteristics that distinguish it from other traumatic injuries. The initial skin lesion appearance in many cases is deceptive since most damage occurs in deeper tissues and organs. This is possible due to the loose skin and subcutaneous tissues of dogs and cats that enables the biting dogs' teeth to move quite freely and hence tear and avulse a large amount of muscles, vasculature and internal organs, leaving minimal damage to skin itself [3, 8].

No standard protocol is available for the treatment of bite wounds in dogs and cats. The principles of overall wound care and adequate debridement are widely accepted, but several issues including exploratory surgery in cases of thoracic bite wounds or prophylactic antibiotics remain controversial [7, 14].

The aim of this study is to describe and characterize dog bite wounds and to determine the relationship between the type of injury and the outcome.

MATERIAL and METHODS

Information about dog bites was collected from the ambulance records of Small Animal Clinic, Department of Surgery, University of Adnan Menderes in Aydın, Turkey. In the years 1999 and 2002, a total 114 bitten dogs and cats were treated. Information obtained from these files included the general statistics of the patients (sex, age and weight) and body areas wounded. The results were evaluated separately for dogs of different sizes (small, medium and large) according to their body weight (≤ 10 kg, 11-20 kg, more than 20 kg, respectively). Location of the wounds was assigned to one or more of the following body areas: head, neck, back, thorax, abdomen, perineum, and limbs. Statistical significance of differences was evaluated using χ^2 test. Data was also compared between different weight groups and sexes. Statistical significance was accepted as P-value < 0.05 .

RESULTS

In this study, 114 medical records were reviewed. Of these 105 (89%) were dogs and 9 (11%) were cats. In the dog population, 79 (75%) were male and 26 (25%) were female, whereas in cats five (56%) were male and four (44%) were female. The weight distribution of the dog population was varied 61% for small, 14% for medium and 24% for large dogs. The median age of dogs was 2 years (range 1-13 years) and 1.5 years for cat (range 1-3 years). The distribution of bite wound injuries over the year was documented with peaks in May (16%), April (11%), and October (10%).

Frequency of injury for each body region according to species, sex and size of the animal was presented in Table 1 and 2. In dogs, the most common regions of injury were recorded at back (35 dogs), limbs (32 dogs), thorax (30 dogs) and abdomen (27 dogs). In cats it was the back (four cats) and the limbs.

In the small dogs group the most common body areas involved were thorax and back, which were significantly more common than in the large dogs group ($p<0.05$). In the medium-weight dogs the most common regions of

injury were noted at back, thorax and abdomen. The incidence of back and thorax injuries in this group was significantly higher than in the large dogs group ($p<0.01$ and $p<0.05$). In the large dogs group the most common regions of injury were head and limbs. Head injuries in this group were significantly more common than medium groups ($p<0.05$). Furthermore thorax injuries in this group were significantly less common than small and medium groups ($p<0.05$).

Table 1. Number of dogs with injury to different body areas according to sex and size.

	Dogs (total)	Male dogs	Female dogs	Small dogs (≤ 10 kg)	Medium dogs (11-20 kg)	Large dogs (> 20 kg)
Total number	105	79 (75)	26 (25)	64 (61)	15 (14)	26 (25)
Head (%)	27 (26)	20(25)	7(27)	13(24)	2(13) ‡	12(46) ‡
Neck (%)	9(9)	6(8)	3(12)	4(7)	2(13)	3(12)
Back (%)	35(33)	28(35)	7(27)	20(37) †	11(73) † ‡	4(15) ‡
Thorax (%)	30(29)	24(30)	6(23)	21(39) *	6(40) ‡	3 (12) †*
Abdomen(%)	27(26)	21(27)	6(23)	17(31)	4(27)	6(23)
Perineum(%)	2(2)	2(3)	0	2(4)	0	0
Limbs (%)	32(30)	23(29)	9(35)	18(33)	4(13)	10(38)

* Significant difference between small and heavy weight dogs.

† Significant difference between small and medium weight dogs.

‡ Significant difference between medium and heavy weight dogs.

Table 2. Number of cats with injury to different body areas according to sex and size.

	Cats (total)	Male cats	Female cats
Total number	9	5 (56)	4 (44)
Head (%)	2 (22)	2(40)	0
Neck (%)	2(22)	1(20)	1(20)
Back (%)	4(44)	3(60)	1(25)
Thorax (%)	1(11)	1(20)	0
Abdomen(%)	2(22)	1(20)	1(25)
Perineum(%)	2(22)	2(40)	0
Limbs (%)	3(33)	3(60)	0

DISCUSSION

The results of this study showed that 89% of the evaluated animals were dogs and 11% were cats. Similar results with 94 % dogs and 6% cats were previously reported (13). The lower percentage of cats is probably a reflection of their lower representation in the general hospital population.

In our study, males dogs were almost three time more often (i.e 75% vs. 25%) victims of aggression than females. In a similar study, Shamir et al. (13) found 71% male and 29% female bite victims. A similar proportion, namely 78% males and 22% females was also reported by Kolata et al. (10). The reason that males were more common than females in the bitten population is most likely related to the influence of sex hormones.

The median age of dogs in this study was 2 years. The highest incidence of bite wounds was in one- and two- year - old animals although the age range from 6

months to 12 years was presented Griffen and Holt (5) and 2-7 years by Shanir et al. (13). In this study, the age range was 1-13 years. Kolata et al. (10) found the median age of injured dogs to be 1.9 years which is in accordance with the present study and they suppose that young dogs learn to cope with the hazards of their environment through experience. Moreover, the early social experiences and interactions with humans and other dogs may predispose dogs to avoidance and fearfully aggressive behaviours (1).

Most of the bite wound cases were referred to Small Animal Clinic in May, April and October. This may be due to the national holidays when the owners have more time for putdoor activity with their dogs. A similar observation was made in people bitten by dogs where most bites cases between April and September, when the weather is conducive to outdoor activity, and more people are brought into contact with animals (4, 12).

Injuries were observed in all areas of the body including back, thorax and abdomen in dogs. Cowell and Penwick (2) showed more extremity injuries and less thoracic injuries whereas Kolata et al. (10) indicated less thoracic and abdominal injuries in dogs. The prevalence of head injuries in the general bitten dog population was quite similar with the other studies. Large dogs had significantly more bite wounds to the head than medium- and small- size dogs.

This retrospective presents further information regarding the epidemiology of dog bite wounds. It was concluded that small dogs were at higher risk for bite wounds in general and had more severe and multiple injuries.

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