



Canine Aggression to People.

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Introduction

Even though dog possession dates long back in history, development and urbanization have brought about several changes and modalities in man/animal relationship. There are different reasons to have dogs as pets: emotional, recreational, security, etc; which have increased canine population and breeds worldwide. The interest in the study of this coexistence and its consequences is on the growth, being lesions caused by animal attacks one of the least favorable ones. Dog bites are the most frequent animal aggressions to human beings ^{(1) (2)}.

Dogs show different types of aggressiveness, not necessarily genetic or pathologic, when they attack people for different causes. In general, their attacks are expressions of behavior depending on the animal's breeding and learning and of varying manifestations depending on situations generated by man ^{(3) (4)}. Dogs have a complex social structure in which roles are determined in terms of dominant and subordinate. This is fundamental in the administration of resources and the cohesion of the pack. The domestic dog shows behavioral patterns proper of this social organization towards the people they live with as they substitute its pack. Hierarchies are established during its growth in which it has to learn its subordinate position under a dominance not always exerted by its owner which gives rise to conflicts such as aggression ^{(4) (5)}. When it is manifested, it is described as aggression for dominance. In general, dog owners constitute the group of people more frequently bitten, what can be explained through a higher contact with the animal and their tendency to a lesser avoidance of other people's dogs and even of dogs without owners ⁽⁶⁾.

Trauma due to bites involve consequences for man such as zoonotic disease transmission, different types of infections –particularly severe in immunodepressed individuals-, lesions of varying severity, psychological trauma and economic costs of various degrees ⁽⁷⁾. For dogs that cause severe injuries, the most frequent treatment is euthanasia ⁽⁸⁾. In recent years, this has been object of serious discussions and even legislations have been passed mostly in relation to certain breeds classified as aggressive, highlighting the importance this topic has for public health, veterinary medicine and the responsible ownership of these pets. Under different approaches and with results associated to different realities, publications of pediatricians, surgeons, hospitals, veterinarians and antirabies centers about the clinic-epidemiological aspects of dog bites at people, both in Europe and in several countries of South

America, state that the most frequently attacked people are children and that the attackers are mostly known dogs and dogs with owners ^{(1) (9) (10)}.

This is ratified by records from Durand Hospital and the Luis Pasteur Zoonoses Institute, both dependent of the Health Secretary of the Buenos Aires government ⁽⁷⁾.

The Institute reports that in Buenos Aires province 100,000 people are annually attended for lesions caused by dogs and cats in governmental institutions. There is a relevant study carried out in La Plata ⁽¹⁰⁾. There are also data from Dean Funes, Cordoba, in which the Department of Pediatrics and Pediatric Surgery of a private institution reported that for 5 months during the 90s 22 bites had been attended in the emergency room – representing 3.6% surgical consultations and 4% of the total consultations of the period ⁽⁷⁾. A study carried out in Mendoza in 2004 reports that out of more than 5,000 accidents, 7% were dog bites; and there are updated studies in other provinces as well ^{(12) (13)}. As far as Santa Fe province refers, an epidemiological study concluded in 1997 in Rafaela, accounts for human lesions due to external causes stating that most of the cases of exposition to animated mechanical forces are related to dog bites occurring in children while playing with dogs in home yards or sidewalks ⁽¹⁴⁾. In December 2004 a study carried out on dog bites reported at the Dr Orlando Alassia Children Hospital of Santa Fe city, among other conclusions, states that the most serious lesions are primarily on faces being children under 6 years of age the frequent victims of medium size and large dogs either own pets or neighbors' ⁽¹⁵⁾. Similar results can be read in a study performed in Tierra del Fuego in 2005 in which 55% of the lesions were on lower limbs but when they were on neck and head the most frequent victims were children ⁽¹⁶⁾.

The study also points out that people of certain occupations such as postmen or delivery people constitute a high risk population for animal bites ⁽¹⁷⁾. Moreover, the veterinarian professionals also constitute a high risk group for canine bites ⁽¹⁸⁾.

A presentation dealing with responsible ownership of dogs and cats suggests an inter-disciplinary and inter-area action program developed in Rosario in 1999 in which the high demand of clinical attendance for animal aggressions and a large number of stray dogs are referred to ⁽¹⁹⁾.

Materials and methods

A descriptive epidemiological study was carried out on people with dog bites using reports from Service for Medical Assistance of the Community (SAMCo), under the Ministry of Public Health and Environment of Santa Fe, from Centro Asistencial Zona Norte and from private practice offices from 2006-2008 in Arequito, Santa Fe province. Arequito is located south of the province with a population of 7,000 inhabitants and an urban canine population of approximately 3,500 animals – a 2:1 dog-person relation. Like other towns in the Pampa region, its economy is based on agricultural production

Local police data with reports for lesions caused by dog bites were included to search for people who had not asked for assistance in health care centers.

A survey form was drawn to get information of patients, aggressors, patient/aggressor relationship, place and situation in which bites took place as well as the anatomic site of the lesions.

Age, gender, occupation, bitten part of body (head, neck, trunk and upper and lower limbs); relationship victim/aggressor, place and situation in which bites took place (activities on course when the attacks happened) were the aspects considered in people.

All individuals from birth to 12 years of age (end of primary school) were considered children; adolescents from 13-18 years of age; and adults from 19 on. Breed, age, size, sex and whether they had identified owner or not were the aspects considered in biting animals.

Moyer classification 1968 as modified by Dr. Patrick Pageat was employed to classify the aggressions according to the observed behavioral sequences ⁽⁴⁾.

Data were processed according to Epi-info program.

Results

During the period of this study, 141 affected individuals were recorded: 32 in the administrative site of the town-hall, 11 in police stations and 98 medical visits to SAMCo. Interviews could be carried out to 105 people (74%). Incomplete medical records made it impossible to localize the remaining patients.

Adults accounted for 67 % of the victims, 21% were children and 12% adolescents.

Lesions were more in males (59%) than in females (41%) and no specific occupation of the classical trend of bites (such as postmen, delivery people, veterinarians, etc.) could be highlighted.

The lesions were predominantly on limbs (84%), particularly lower limbs (67%) and other topographic regions such as the face (8.60 %). Suture was the treatment of choice in 10.47% of the recorded lesions, 36% were performed on children.

Bites occurred mostly in the afternoon (69,5%). Public places (75%) were the most frequent places of attacks, 17% in neighboring homes and 4.75% in the owners' houses. The remaining bites could not be identified.

Known dogs with owners accounted for 46% of the attacks (in five cases to family members) out of which 83% attacked neighbours.

Aggressions were distributed along the period of study without significant seasonal patterns; however, 80% occurred on weekdays.

Out of the total of animals, 24 (22.86%) were identified breeds (12 German Shepherds, 5 Rottweilers, 4 Greyhound, 1 British Epagneul ,1 British Cocker Spaniel, 1 Pit bull Terrier); while 59 were either mongrels or unidentified.(56%) and no information could be obtained of 22 attackers (21%).

Males accounted for 67% of the biters. Aggressions were mostly carried out by adult animals (83%). Medium size animals (45%) and large animals (41%) were responsible for most of the incidents.

Animals with history of attacks to people reached 36%. Except for one individual, all dogs were loose at the moment of the attack. These animals were either involved in fights or running after a female in heat.

Predominance of aggression for persecution associated to depredation (50 cases = 48%) and territorial aggression (28 cases = 27%) are described. Hierarchical aggressions re-directed and due to fear were infrequent (12%) and those aggressions due to maternity were not considered. Semiological identification was not possible in 14 incidents (13%). In each attack only one dog was involved, even though in some of the opportunities the aggressor was interacting with congener(s), was fighting or running in group with other males after a female in heat. All of the aggressive attacks were carried out by loose dogs wandering in the urban area.

Discussion

According to results, the typical victim was a male adult with lower limb lesions caused in the street by an adult male mongrel, medium size and possibly relapsing, belonging to a neighbor and in moments in which either people or animals probably spend more time outdoors. Although there have not been fatal victims, there are hints of severity as suggested by the presence of injured children, facial lesions and suture therapeutic needs.

The fact that children are not among the most frequently injured people and that reports of bites from own animals is significant when compared to other studies. This could be attributable to the sources of information which do not include, for instance, surveys to other people or veterinary clinics.

Description of context in which the aggressions take place should be improved. The information provided, however, constitutes a step forward in the identification of the factors that represent a health risk and it is useful to strengthen or implement new health strategies that would contribute in reducing the incidence of dog bites to people. The need of adopting health prevention and education such as a method to reach the aim at responsible ownership of dogs in urban environments is highlighted

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