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PRELIMINARY RESEARCH REGARDING CLINICAL AND MORFOLOGICAL FINDINGS IN NEGLECTED DOGS

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Abstract

The study aimed to present the clinical and morphological findings in neglected dogs during the period of 2015-2018 recorded in a private veterinary practice, in Bucharest, Romania. The purpose of this study was to identify and classify forms of passive abuse along with their effects on canine individuals. During the aforementioned period, 41 dogs were included in the study. Routine clinical and paraclinical methods of examinations were used, as well as after treatment follow-up. Several types of passive abuse have been recognised, such as lack of water and food, shelter, veterinary care and absence of proper surveillance. Lack of veterinary attendance was identified in 65% of studied animals (n=27), 26% were deprived of shelter (n=11), and 20 % were deprived of food and water (n=8). The dogs presented specific clinical signs and morphological features of malnutrition (n=8, 20 %), extremely large tumoral lesions (n=17, 41%), or severe parasitic dermatitis (n=10, 24%). Eleven dogs (26%) were deprived of shelter and surveillance. Multiple types of neglect were identified in the same dog (n=20, 49%).
Conclusions: 44% of animals were older than 8 years (n=18), twelve animals died (30%) and 29 individuals (70%) were fully or partially recovered cases.

Key words*: abuse, dog, malnutrition, neglect, neoplasia.*

INTRODUCTION

The relationship between humans and animals is characterized by some paradoxes that are obvious in the extreme expressions of infinite love, unexplainable hatred and the most ruthless forms of cruelty to animals (Livingston, 2001). The issue of violence against animals is very complex. Considering these acts as being committed against the life and body of living beings, they also pose a threat to the environment; however, some deviant forms of animal behavior are closely associated with different forms of violence against humans (Bell, 2001).The Five Freedoms For Animal Welfare have been established as a guideline for the welfare of animals: freedom from hunger or thirst; freedom from discomfort; freedom from pain, injury, or disease; freedom to express normal behavior; and freedom from fear or distress (Merck, 2007). Under current legislation, pet owners must adhere to certain principles. The basic principle of animal welfare refers to the fact that no one has to produce unnecessary pain, physical or mental suffering or abandon the animal, and financial excuses do not alleviate that responsibility. Any owner of a pet must be responsible for his/her health and well-being, as well as ensuring all conditions, along with care and attention, taking into account the ethological needs, depending on species and breed (sufficient food and water, possibility of movement, taking necessary measures for preventing animal straying). (Merck,2007; Legea 205/2004; Legea 9/2008). Shelters and accessories for restraint must be constructed and maintained in such a way for having not sharp or protruding edges that can injure the animal (Legea 205/2004; Legea 9/2008). This study is focused on dogs which have been presented by their owners in different stages of malnutrition, having extremely large tumoral lesions, severe parasitic dermatitis and other type of passive abuse, such as neglected fractures or wounds caused by the lack of shelter.

According to the explanatory dictionary of Romanian language, abuse is defined as violation of legality, an illegal act, an offense committed by someone's overthrow of his authority, an offense committed by deceiving

someone's trust. Moreover, definition of neglect is: who does not perform his duties with sufficient care; indolent, careless.
Abuse of animals can be defined as a deliberate or neglectful act of injuring or killing an animal. Neglect can be an act of omission or commission. It is often a continuum of action or lack of action by the owner over a prolonged period of time (Merck, 2007).
Classification of abuse takes several forms: neglect, beating, starvation, stabbing, zoophilia, burning, boiling, immersion in various substances, hanging, strangling, throwing an animal from upper floors, placing in a microwave oven, decapitation, alive skinning (Ciobotaru,2013).
The forms of passive abuse are the lack of food and water, lack of shelter and lack of veterinary care (Munro, 2008).

MATERIALS AND METHODS

The period analyzed in this study was 2015-2018. During the aforementioned period, 41 dogs were included. The data, collected from a private veterinary practice, have been statistically processed and interpreted in 2018.
In order to characterize the type of abuse on neglected animals, the following methods were used: clinical evaluation (inspection, auscultation, palpation, percussion, temperature monitoring) and paraclinical examination: laboratory investigations (haematological and biochemical blood work), imaging diagnostic (ultrasound or x-ray).
Body condition have been assessed in order to objectively consider or exclude malnutrition. Thus, WSAVA Global Nutrition Committee standard have been used for assessment. The method is particularly suited to live animals, but it have been also applied on corpses. Regardless the state of animal (dead or alive), the values of body weight as well as body score have been compared with those of breed standard (Laflame, 1997; Merli, 1987; Mitranescu et al. 2017).
Another methods used in this study was the necropsy and histopathological investigation for tumoral lesions, as well as parasitological examination. Progression of clinical status of each animal have been followed until corresponding healing or death. Symptomatic or etiological treatment was provided according to each case, involving surgical removal of tumors, followed by cytopathological or histopathological diagnosis, treatment of fractures and wounds, antiparasitic, antimycotic and antibiotic treatment, along with supportive medication.

RESULTS AND DISCUSSIONS

The main types of passive abuse, according to the literature are: lack of veterinary assistance, lack of adequate supervision and shelter and lack of food and water (Munro, 2008). The framing of the results obtained in this study and the percentage representation are shown in Figure 1.

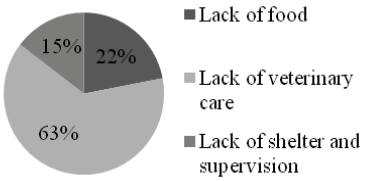

Figure 1 - Types of passive abuse

The lack of veterinary care is featured by all severe diseases, which are clearly visible (odor, swelling, bleeding, pain) as being in a very advanced stage of evolution and those where presentation to veterinarian for receiving medical help was not made at in very early stages of disease.
Gender had almost equal incidence in neglected animals, the difference between male and female being insignificant (Figure 2). The age presented small variations, many of the animals being over 8-year-old (figure 3).

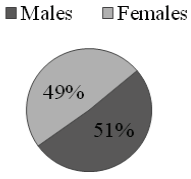

Figure 2 - The gender ratio

In terms of age, individuals under two years of age represented 19% of the studied animals (n = 8), those aged two to eight years accounted for 37% (n = 15), and those over eight years represented 44% of the sample (n = 18) as in Figure 3.

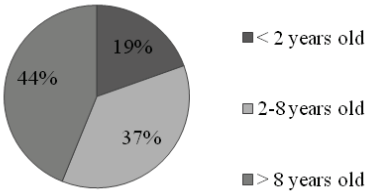

Figure 3 - The age of the subjects of the study

Lack of veterinary care- Neoplasia

Seventeen dogs were diagnosed with tumoral disease. Various actions have been taken for the animals with tumors (Figure 4). The following assessments have been done: CBC count, biochemical panel along with ultrasound and x-ray for assessing the clinical stage of disease. Surgical removal has been done subsequently in almost a half of animals followed by histopathological diagnosis. Animal examination must always note obvious signs, such as: odour, suppurative discharge associated with tumoral lesion, hemorrhage, and physical deformities due to excessive volume of tumor (Merck, 2007).

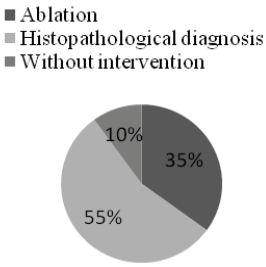

Figure 4 - The measures taken for diagnostic

Histopathological diagnosis revealed both benign tumors and malignant tumors, as well as various embryonic origin of tumors (Table 1).

Table 1. The origin and the type of analyzed tumors

Embryonic origin	*Count*	*%*	*Type*	*Count*	*%*
Mesenchymal	5	45	Malign	10	91
Epitelial	5	45	Benign	1	9
Neuroectodermal	1	10			

From the 11 samples collected and examined, there was 9% benign tumors identified (n = 1), and 91% (n = 10) of malignant tumors.

In the case of 53% (n=9) patient recovery was achieved, while 47% (n= 8) died of various reasons. (Figure 5).

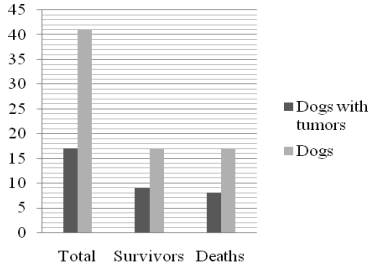

Figure 5 - The survival rate of the ones with tumors

Various causes of death were established after necropsy in dogs with tumors: postoperative complications, malnutrition, self-mutilation and associated traumatic shock, paraneoplastic syndrome and cardiopulmonary failure. Patient euthanasia was considered as final decision in irrecoverable cases, featured by impairment of basic physiological abilities or poor evolution of disease (inability to breathe or nourish properly, repeated recurrence of the tumoral process with concurrent tumoral invasion of nose and mouth), resulting in poor life quality (Table 2).

Table 2. The cause of death for individuals with tumors

Cause of death	*Individuals*
Complications	1
Self-mutilation	1
Malnutrition	2
Paraneoplasic disease	1
Euthanasia	2
Chronic disease	1

Lack of veterinary care- Fractures

Neglected fractures are also features of animal deprivation of proper medical care. The dogs with fractures have been treated by surgical approach (n=2, 4.9%). Follow-up of first case proved partial recovery caused by excessive callus formation (x-ray diagnosis). The second case have been presented with open fracture of forelimb, with complication such as skin and bone necrosis and severe secondary infection. The odour and the deformity were significant.

Both cases survived due to surgical and drug therapy.
The literature mentions the same findings in old, untreated fractures. Periostal proliferation, which is the first step in external callus formation, may begin 24 hours after the fracture but is not grossly visible at that time. Primary mineralization of the callus occurs approximately in the first week post-fracture, being observed radiologically within 2 weeks. Older fractures present callus. The neglected fractures lead to skin lesions when the animal attempts to protect its affected area. The fracture site is contaminated with soft tissue and bone necrosis occurs (Munro, 2008).

Lack of veterinary care- Parasitic dermatitis
The results refers specifically to parasite dermatological conditions, such as demodicosis and sarcoptic mange, coexisting with various secondary infections (*Staphylococcus* spp*., Streptococcus spp., Candida albicans, Aspergillus* spp*.)*. The patients with parasitic dermatitis were brought for medical care after a long period of time from the onset of clinical signs, along with localized or generalized pruritus and alopecia, as well as secondary infections. Complete healing after antiparasitic treatment was observed in all monitored cases (n=10, 24%) with disappearance of characteristic symptoms. Long-lasting treatment protocol has been applied, adapted to etiological agent, those being either *Demodex canis* or *Sarcoptes scabies*.
The literature mentions that demodicosis is often associated with cases of neglect, generalized demodicosis being fatal if left untreated (Merck, 2007).

Lack of veterinary care- Myasis
The dogs (n=2, 4.9%) that arrived in the clinic have presented various wounds associated with wound peripheral congestion, necrosis, and subcutaneous myasis at various stages of evolution, shock, expressed as semi-conscious state and even to unconsciousness. One of cases was older than eight years of age, and the other younger. None of those two patients could be saved because of the extensions of the lesions and complications.
Forensic entomology could be of value in determining the length of time of neglect in such cases (Merck, 2007).
The neglect of the owner has a major role in the onset of myasis, as it seemed to be the result of an unhealed wound, as well as the dirty hair along with the presence of feces. The onset of myasis is favoured by some mandatory conditions: wounds that results in blood clot, necrotic tissue, feces or urine that will attract flies. Moreover, the animal must be somewhat helpless and incapable of cleaning (elderly, debilitated). Consequently, rapid cleaning of any injury and proper medical care will greatly reduce the risk of infestation. The risk is further increased if the animal spends most of its life outdoor (Anderson et al., 2004).
In our study, myasis was framed as secondary complication of wounds. The owners have declared that bite wounds have been noticed, days or even a week before medical examination. The animal had been bitten by dogs of the same family, or of the neighbor, lacking immediate veterinary assistance, although the patients have presented lack of appetite, apathy and prolonged lateral decubitus.

Lack of supervision and shelter
Lack of supervision results in high possibility of bite wounds produced by congeners, varying in intensity, as well as wounds induced by contact with a very tight collar (Munro, 2008).
Six patients (n=6, 15%) have been examined, each presenting various conditions resulting from lack of shelter and supervision. Some of them (n=2) were sheltered in heterogeneous groups, with no regard for age or personality. Survival rate reached 50% of cases (n=3), being concurrent with the same number of deaths, induced by traumatic shock and other medical conditions, such as stage four dirofilariasis.
Some of the wound have featured epidermolysis in the cases were the collar was too tight. The bite wounds were followed by skin necrosis. Survivors have shown some symptoms attributable to posttraumatic shock, like trembling, hiding in the back of the cage, barking, drinking and eating only when alone, this characteristic behavior being induced by various stimuli (other dogs, noises, people).

The literature states that collars can cause severe infection and serious disfigurement of the neck, and the infection can eventually result in septicemia (Merck, 2007).

Lack of food-Malnutrition

The issue of improper feeding resulting in malnutrition may be considered an act of animal cruelty. Starvation can be caused by food deprivation, poor quality food, inappropriate food, intermittent feeding, or a lack of appetite which is often due to underlying disease (Merck, 2007). Other definitions states that malnutrition is the condition that occurs when a diet supply nutrients were given in insufficient amounts (Mitrănescu et al., 2017) malnutrition or inadequate feeding occurring as a result of insufficient or deficient food intake, or due to poor digestion or poor nutrient assimilation (Munro,2008).

Animals with advanced malnutrition status (BCS 1, BCS 2) were presented in this condition due to the lack of food, impossibility of moving to a food source (multiple fractures) and cancer cachexia. The aforementioned situations have been framed as passive abuse, since in all the cases observed (n=8, 20%), early presentation to the veterinarian along with food intake would have improved the body and health condition of those animals. The two cases in which the death occurred, were co-associated with neoplastic causes.

The clinical aspects of malnutrition were exhaustion, the animals could not maintain posture, along with persistent lateral decubitus.

Ribs were easily palpable with minimal fat covering; the lumbar vertebrae were obvious; obvious waist has been seen behind ribs and minimal abdominal fat was observed.

Biochemical tests can be useful in detecting malnutrition in clinical practice, but difficult to interpret in the context of hepatic disease (Merli et al., 1987). The biochemical parameters have been observed in dogs with protein-deficient diet and they have confirmed that dogs were in a state of protein malnutrition as they fell below the reference range and presented significantly different values of urea, serum albumin and total serum protein. The subcutaneous connective tissue presented reduced adipose tissue, and skin wrinkled after dehydration. Protein deficiency determines the presence of a rough, dry hair coat. Muscular mass atrophy occurs at monogastric at 24 hours of starvation. The spinal and thigh muscles are first affected and then the process expands (Munro, 2008).

CONCLUSIONS

There have been 41 cases of neglect (passive abuse), framed in following categories: lack of veterinary assistance, lack of adequate supervision and shelter and lack of food and water.

Advanced stages or terminal tumoral diseases, severe parasitic dermatitis, deprivation of shelter and supervision malnutrition were conditions with the highest incidence in this study.

Two or more types of passive abuse occurred concurrently represented by lack of veterinary care, lack of food or lack of shelter and adequate supervision.

Death occurred in 30% (n=12) of cases, following consecutive complications.

The highest incidence of abuse was observed in animals that aged more than 8 years (44%).

Partial or total recovery of animals was found in 70% of cases (n=29).

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