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CLINICAL EPIDEMIOLOGICAL ANALYSIS OF ENTROPION IN DOGS AND CATS: RETROSPECTIVE STUDY (2013-2020) IN THE VETERINARY HOSPITAL OF THE FEDERAL UNIVERSITY OF JATAÍ

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ABSTRACT

Entropion is characterized by the inversion of the eyelid margin. It can affect the upper eyelid, the lower eyelid or both, be unilateral or bilateral and manifest a series of clinical eye signs in dogs and cats. Given the clinical importance of entropion, this study aimed to analyze the clinical and epidemiological aspects of this important disease in dogs and cats that were attended and surgically treated in the Veterinary Ophthalmology Department of the Veterinary Hospital of the Federal University of Jataí in the period from 2013 to 2020. Weight, gender, species, breed and age of patients diagnosed and treated for entropion were also evaluated, in addition to the main clinical signs presented. In the period, entropion corresponded to 6.2% of the total number of the casuistry in ophthalmic care. No sexual predisposition was found for ophthalmopathy. 89, 2% were canine and 10.8% were feline. In this clinical epidemiological study, it was found that the most affected canine breeds are Shar-Pei and Chow Chow. Shar-Pei dogs, almost in their entirety, presented the alteration prior to the first year of life. In both dogs and cats, the most common clinical signs were epiphora, conjunctival hyperemia, ocular discharge, blepharospasm and pruritus. All cases were treated with surgical intervention.

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INTRODUÇÃO

Entropion is a multifactorial condition that can affect cats and dogs and is characterized by the inversion of the eyelid margin. It can affect the upper eyelid, the lower eyelid or both, and be unilateral or bilateral. The inversion of the palpebral margin results in irritation of the cornea and conjunctival mucosa, due to eyelashes or eyelid hair (Stades and Gelatt, 2008; Daneze et al., 2017; McDonald and Knollinger, 2019; Asti et al., 2019). Entropion is described in several dog breeds, worldwide, with Chow Chow and Shar-Pei being the most cited. It is usually diagnosed in dogs under one year of age (Asti et al., 2019). Entropion can be classified as primary and secondary, with the secondary subdivided into spastic and scarring (White et al., 2011). Primary entropion occurs from anatomical abnormalities of the tarsus, orbit, eyeball and their interrelationships. The secondary can occur from acquired ocular changes, such as trauma, loss of periorbital fat and changes in the size of the eyeball (Viana et al., 2006; White et al., 2011). Secondary spastic entropion is induced by blepharospasm and retraction of the eyeball resulting from chronic

eye pain and irritation, while scarring arises from eyelid deformities acquired from post-traumatic injuries and chronic inflammations such as conjunctivitis or surgery (Read and Broun, 2007; Pedretti et al., 2018). Breeds as the English Springer Spaniel, Labrador Retriever, American Bulldog, Rottweiler, Chow Chow, Shar-Pei, and giant breeds such as Saint Bernard and Mastiff are more prone to primary entropion, of which the Shar-Pei breed is more predisposed due to presence of abundant wrinkles in the facial region and deeper orbits (Viana et al., 2006; McDonald and Knollinger, 2019). On the other hand, primary entropion in cats is considered uncommon, however, facial features of breeds such as Persian and Maine Coone make them predisposed to primary entropion (White et al., 2011). Entropion is characterized by the inversion of the eyelids. The clinical signs are multiples as the most frequent ones include blepharospasm, ocular or periocular pruritus, corneal ulceration, corneal neovascularization, conjunctivitis, keratitis, epiphora, photophobia and purulent secretion (Lusaand Amaral, 2010). Due to clinical signs, correction of entropion is always needed (Daneze et al., 2017). Therefore, surgical correction is the treatment of choice for entropion, and the prognosis

is generally favorable (McDonald and Knollinger, 2019; Asti et al., 2019). Data on the casuistry of ophthalmic procedures in dogs and cats in veterinary hospitals have become scarce and need to be analyzed, due to their relevance, seeking to characterize the epidemiological profile and prevalence of an ophthalmic disease or region (Cruz-Pinto et al., 2015). In addition, these parameters may change over the years, following the evolution of the PET sector, the relationship between pets and humans and changes in the search for certain breeds (Ataide et al., 2020). Given the clinical importance of entropion, this study aimed to analyze the clinical and epidemiological aspects of this ophthalmopathy in dogs and cats that were attended and surgically treated in the Veterinary Ophthalmology Department of the Veterinary Hospital of the Federal University of Jataí (UFJ) in the period from 2013 to 2020.

MATERIALS AND METHODS

This study carried out a retrospective study of the total number of cases of entropion, seen at the Veterinary Ophthalmology Department at the Veterinary Hospital of the Federal University of Jataí (HV-UFJ), between September 2013 and September 2020. For data collection, the HV-UFJ ophthalmic care registration document was accessed, from which the number of entropion cases was raised in relation to the total number of ophthalmic cases treated in the aforementioned period. Were also evaluated: weight, gender, species, breed and age of patients diagnosed and treated for entropion, in addition to the main clinical signs presented. Entropion cases treated at the general medical clinic and not referred to the Veterinary Ophthalmology Department, as well as those without surgical resolution were not considered in this study. From the data collected, percentage analyzes of the number of cases of entropion treated at HV-UFJ were performed in relation to the total number of cases assigned to the department in the period. The percentage relationship between males and females attended to for the case of entropion and the percentage of dogs and cats affected were also obtained. For the breed, a survey of the most affected was made, while for age, mean, standard deviation, mode and median of the collected sample were calculated. Regarding weight, mean and standard deviation were obtained. The clinical signs evidenced by the clinical examination were arranged in a table with emphasis on the most prevalent. In this study, animals diagnosed with entropion had or did not have other concomitant ophthalmic changes. In addition, cases of unilateral, bilateral, with or without compromising of both eyelids were considered.

RESULTS AND DISCUSSION

Between 2013 and 2020, a total of 37 cases of entropion were treated at the Veterinary Ophthalmology Department of the HV-UFJ, out of 596 total ophthalmic cases, corresponding to 6.2% of the total. The years with the highest number of entropion visits were 2013, 2015 and 2016. Among the patients treated for entropion, about 49% were male and 51% female. The equivalence between males and females with entropion suggests that there is no sexual predisposition for ophthalmopathy, a data not found in the consulted literature. Among the animals diagnosed with entropion, 89.2% were of the canine species (33) and 10.8% of the feline species (4). These data corroborate with Gelatt and Whitley (2011), who pointed out the development of entropion as a common condition in dogs, mainly of purebred breeds, and less frequent in felines. Among the canines, the two most affected breeds were Shar-Pei (30.30%) and Chow Chow (27.27%) (Figure 1). These two breeds tend to be more predisposed to congenital entropion, mainly due to the existence of wrinkles on the skin, droopy eyes and narrow eye opening (Gonçalves et al., 2013). In these breeds, the same percentages were verified for both sexes (50%), as this reinforces the percentage margin of males and females compared to the total n of this study. Following the analysis, the occurrence in percentage in different canine breeds were evaluated being Shih Tzu (12.12%), Non Defined Breed (NDB) (9.09%), Rottweiler (6.06%), French Bulldog (6.06%), Golden

Retriever (3.03%), Pit Bull (3.03%) and Bull Terrier (3.03%). Among the cats, 50% were NDB, 25% Siamese and 25% Persian. When affected, secondary entropion is the most common, but in pure breeds like Persian and Maine Coone, primary entropion is more common. According to White et al. (2011), the incidence of entropion in felines is low, which was compatible with this study (10.8%).



Figure 1. Male Chow Chow patient, 1,5 year old (18 months), with inversion of the lower right eyelid margin and upper and lower left eyelids

Similarly, among the affected breeds, 25% belonged to the Persian breed. The mean age of the dogs was 2.27 ± 2.68 years, while the mode was 1-2 year(s), and a median of one year (12 months). In breeds with greater predisposition, changes begin before one year of age, but in cases of secondary entropion it can occur at any age (Lusaand Amaral, 2010; Asti et al., 2019). The mean body weight of the 33 dogs with entropion was 17.02 ± 9.84 kg. For felines, the mean age was 1.20 ± 1.22 years and body weight 2.80 ± 0.74 kg. In this study, the vast majority of tutors sought out the Veterinary Ophthalmology Department after one year of age or when the clinical signs worsened and compromised the animal's well-being. Not all animals diagnosed with entropion were followed up until the end of the surgical treatment, either due to economical unavailability of the tutor or no attendance to the follow ups. The most evident clinical signs in patients with entropion were epiphora, conjunctival hyperemia, mucopurulent eye discharge, blepharospasm and pruritus (Table 1). The clinical signs did not manifest themselves in isolation, but simultaneously with others such as epiphora, conjunctival hyperemia, mucopurulent eye discharge, blepharospasm or pruritus.

Table 1. List of clinical signs seen in animals with entropion admitted at the Veterinary Ophthalmology Department at the HV-UFJ between 2013 and 2020

Clinical signs seen in animals with entropion	Nº of animals with manifestation
Epiphora	19
Conjunctival hyperemia	16
Mucopurulent eye discharge	16
Blepharospasm	13
Ocular / periocular itching	9
Corneal neovascularization	6
Corneal ulcer	5
Corneal edema	5
Chromodacrioreia	4
Corneal pigmentation	3
Descemetocoele	2
Periocular edema	2
Scarring corneal leukoma	2
Failure to respond to the threat	1
Prolapse of the third eyelid gland	1
Lush corneal fibrous tissue	1
Uveitis	1
Periocular Alopecia	1

According to Viana et al. (2006) and Lusaand Amaral (2010), the most common clinical signs are photophobia, epiphora, blepharospasm, conjunctival hyperemia and itching in the affected

area, coinciding with the main clinical signs seen in the animals in this study. In more chronic cases, corneal ulceration and vascularization, descemetocoele (Figure 2), conjunctivitis and purulent secretion can occur. All cases in this study that were resolved with surgical intervention to correct entropion, a involution of the vast majority of the clinical signs and a better life quality of the patient were seen. Some tutors seek the ophthalmology service due to the chronic chromodacriorea that the animal presents (Figure 3).

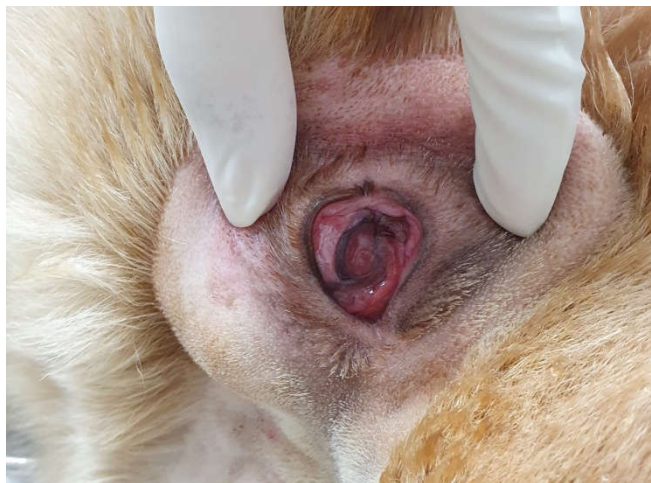


Figure 2. Chow Chow dog, male, 1,5 year old (18 months), showing corneal edema, neovascularization, descemetocoele, intense episcleral hyperemia and uveitis in the left eye due to chronic entropion in the upper and lower eyelids

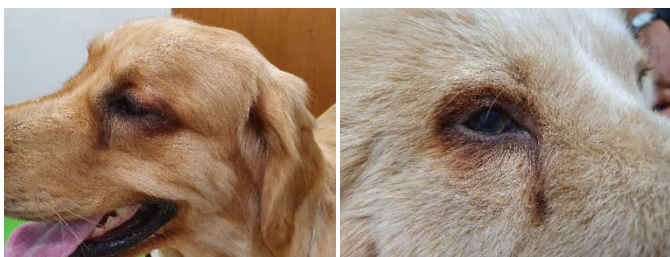


Figure 3. Dogs with chromodacriorea due to entropion

Chromodacriorea, also known as “tear stain”, is a change in the color of the hair around the eyes caused by tearing (Gussoni and Barros, 2003). The tear in constant contact with skin and hair in the periocular region, facilitates the proliferation of bacteria, most of the time non-pathogenic, but capable of causing a foul odor and producing dark colored substances. Additionally, one of the components of the tear is similar to lactoferrin, a porphyrin with bacteriostatic action that, when accumulated, can lead to a brownish brown color of the skin and hair (Valduga, 2012). The causes of chromodacriorea due to constant tearing and or epiphora include: dacryocystitis, congenital atresia, ectopia and imperforated nasolacrimal duct, cicatricial obstruction of the nasolacrimal duct, lacrimation syndrome and pigmentation in dogs (Valduga, 2012). Other causes are mentioned, such as: ciliary disorders, allergic dermatitis, allergic conjunctivitis and entropion (Gussoni and Barros, 2003). Entropion may be related to chromodacriorea to cause epiphora, and, consequently, pigmentation of hair around the eyes, and should be included in the list of disorders that cause this important clinical change. One dog had ulcerative keratitis with extensive fibrous or granulation tissue on the ocular surface, with no response to the blink-to-threat test, both secondary to entropion. It is known that concomitant to inflammation and corneal ulcers, reflex iridocyclitis (anterior uveitis) may occur, due to the sharing of vessels of the common limbus between these structures.

Other concurrent changes to keratitis, skin and hair friction are corneal neovascularization and edema, with or without fibrosis and pigmentation depending on the chronicity (Gelatt and Whitley, 2011).

Final Considerations

Entropion is a common ophthalmopathy in dogs and less frequent in cats. In this clinical epidemiological study, it was found that the most affected canine breeds are Shar-Pei and Chow Chow, with no sex predilection. Shar-Pei dogs, almost in their entirety, presented the alteration before the first year of life. In both dogs and cats, the most common clinical signs were epiphora, conjunctival hyperemia, eye discharge, blepharospasm and pruritus, with all cases resolved with surgical intervention. Thus, in view of the clinical and epidemiological aspects of entropion, when early diagnosis and knowledge of its particularities are considered, surgical intervention can be made and thus, the quality of life guaranteed to the animal.

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