Title: Retrospective Study of Eyelid Masses in Dogs and Cats: Clinical Data from 2023 to 2025.

Final Degree Project

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Extraordinary Call

Index

Abstract

Eyelid masses are a common ophthalmic finding in companion animals, particularly in geriatric dogs and cats. These lesions can cause ocular discomfort or functional impairment, and in some cases, may be malignant (especially in feline patients). This study aimed to retrospectively describe the clinical presentation and biological behaviour of palpebral masses over a 28-month period at a Veterinary Teaching Hospital.

Clinical reports from January 2023 to April 2025 were reviewed, identifying 60 cases of canine and feline patients. Data collected included species, age, sex, breed, affected eye and eyelid, clinical signs, histopathological diagnosis (when available), treatment, and recurrence. Descriptive statistics were used for data analysis.

Most cases (90%) were observed in dogs, with only 10% affecting cats. The most animals were geriatric, and no sex predisposition was observed. In dogs, Meibomian gland epitheliomas and adenomas were the most common diagnoses, characterized by a predominance of benign behaviour. Feline cases, by contrast, predominantly malignant, with squamous cell carcinoma being the most prevalent diagnosis.

Mast cell tumours were rare but showed species-specific behaviour. All three melanocytic tumours identified were benign melanocytomas; no malignant melanomas were observed.

Certain lesions, such as dermoid cysts and inflammatory pseudotumours, clinically resembled neoplastic processes but were histologically benign. Recurrence was more common in cats, matching the typically more aggressive nature of feline eyelid tumours.

The findings obtained in this study align with previously reported patterns of canine and feline eyelid neoplasms, confirming the benign predominance in dogs and malignant potential in cats. Early diagnosis and complete excision were associated with favourable outcomes. However, limitations such as incomplete medical records, lack of histopathological diagnostic in some cases, and possible geographic bias should be considered when interpreting the results.

1.Introduction

In veterinary medicine, ophthalmology plays a key role in safeguarding both animal health and client satisfaction, as ocular disorders represent a significant proportion of clinical consultations. One of the frequent reasons for ophthalmic visits is the presence of eyelid masses (Esteban, 2007), which are defined as uncontrolled growths of abnormal cells or tissues in the eyelid region (Labelle & Labelle, 2013; Withrow et al., 2013; Romairone Duarte & Cartagena Albertus, 2014).

1.1 Anatomy of the eyelid

The eyelid is an accessory structure of the eye composed of skin, muscle, fibrous tissue, glands and conjunctiva. Its primary function is to protect the ocular surface from trauma or exposure to harmful substances and foreign bodies, while also removing them through blinking. In addition, the eyelid prevents ocular dehydration and mechanical abrasion, which could otherwise result in serious injury (Wyman, 1988; Esteban, 2007; Gelatt, 2014).

This function is achieved through the production and distribution of the lipid portion of the precorneal tear film, which complements the aqueous layer by reducing tear time evaporation (Wyman, 1988; Esteban, 2007; Gelatt, 2014). Another crucial function is to facilitate tear drainage into the nasolacrimal system (Wyman, 1988; Esteban, 2007).

To perform these functions, the eyelid comprises the following anatomical components (Peterson-Jones & Crispin, 2013; Gelatt, 2014):

- **External skin:** thin, mobile and flexible, bearing finer hairs near the margin on the upper eyelid. Eyelashes or cilia are also present at the eyelid margin.
- **Tarsus and fibrous tissue:** provide structural support and serve as attached points for muscles and glands.
- **Meibomian (tarsal) glands:** there are usually between 30 and 40 of these glands, which produce lipids on the free edge of the eyelid.
- **Palpebral conjunctiva:** lines the inner surface of the eyelids, reflects at the fornix and continues as the bulbar conjunctiva covers the globe.
- **Orbicularis oculi muscle:** facilitates eyelids closure. Movement in which the upper eyelid is the most important.

- **Additional muscles:** the levator palpebrae superioris, Müller's muscle (sympathetically innervated), and malaris muscle work in concert to enable coordinated eyelid movement.

- **Eyelid margins:** the free edge (margo intermarginalis) is hairless and includes a grey line where Meibomian glands open. This anatomical feature is a surgical reference for the correct alignment of the eyelid margins in reconstructive surgery. Other glands, such Moll and Zeiss glands (modified sweat glands) contribute to ocular surface protection through lipid film secretion.

- **Lateral canthal ligament:** its main function is to limit the horizontal eyelid mobility and helps maintain the natural contour of eyelid.

- **Commissures (canthi):** The points where the eyelids margins converge, depending on their location, they are called medial or lateral canthus. The medial canthus includes structures like the lacrimal puncta and the semilunar fold. Lateral canthus is more mobile and less prominent.

1.2 Background and Current Status

Palpebral masses are a common ophthalmic condition in companion animals, particularly in dogs, where they occur more frequently than in cats (Esteban, 2007; Muñoz-Duque et al., 2019). These lesions are often associated with geriatric animals. However, the aetiology, biological behaviour and prevalence of different tumour types vary significantly between species.

1.2.1 Eyelid tumours in dogs

Dogs exhibit a higher incidence of eyelid tumours compared to other companion animals. These lesions are predominantly benign and rarely metastatic (Conceição et al., 2010; Zibura et al., 2019). The most common eyelid neoplasms in dogs include:

- **Sebaceous adenoma (Meibomian gland adenoma):** this is the most common tumour in dogs (Petersen-Jones & Crispin, 2002). It is benign and predisposes breeds such as Labrador Retrievers, Poodles, and Cocker Spaniels, which were also among the most frequently affected breeds in recent retrospective studies (Conceição et al., 2010; Winer et al., 2019). It usually appears on the eyelid margin

with well-defined, exophytic nodules, which are usually formed by well-differentiated Meibomian cells (Labelle & Labelle, 2013).

- **Meibomian gland epithelioma:** like the previous type, the nodules are often located on the lateral part of the upper eyelid. Predisposition has been reported in breeds such as Labrador Retrievers and Cocker Spaniels and Shih Tzus (Conceição et al., 2010; Dubielzig, 2011; Winer et al., 2019; Romainore Duarte, 2021). Its cells are well differentiated but have a higher mitotic index (Labelle & Labelle 2013).

- **Sebaceous adenocarcinoma:** also, like adenoma, it differs in that it has signs of malignancy such as high cellular pleomorphism and high mitotic rate (Labelle & Labelle, 2013). However, metastasis is not usually observed (Peterson-Jones and Crispin, 2002).

- **Cutaneous histiocytoma:** unlike most eyelid masses observed in dogs, typically affects animals under three years of age. Breed predisposition has been noted in Labrador Retrievers, Boxers and Rottweilers (Withrow et al., 2013; Rakich & Latimer, 2015). It originates from Langerhans cells, is slow-growing and benign, with a smooth, pink appearance (Willis & Wilkie, 2001). They usually resolve spontaneously within a few weeks (Peterson-Jones and Crispin, 2002; Romainore Duarte & Cartagena Albertus, 2014).

- **Melanoma/melanocytoma:** These tumours usually present as pigmented masses with variable biological behaviour. In dogs, they are most often benign (Turner & Nind, 2010; Romainore Duarte & Cartagena Albertus, 2014; Guerra et al., 2021). Although some studies have described their presence in breeds such as Doberman Pinschers and Hungarian Pointers, no consistent breed predisposition has been demonstrated (Guerra et al., 2021). Melanocytic tumours typically originate in the skin of the eyelid, where they grow superficially as solitary lesions and rarely recur following complete surgical excision. Metastatic behaviour is more commonly associated with melanomas of oral or interdigital origin, which are more aggressive and characterised by high mitotic index, nuclear atypia, poor pigmentation, tissue and lymphatic invasion, and ulceration (Grahn & Peiffer, 2007; Guerra et al., 2021).

- **Papilloma:** common in young dogs, this is a viral neoplasm normally associated with oral papillomatosis (Mendirichaga and Vergara, 2013). It grows rapidly and has a cauliflower-like appearance (Turner & Nind, 2010; Romainore Duarte &

Cartagena Albertus, 2014). It can remit spontaneously, but this is a rare phenomenon (Esteban, 2009).

- **Mastocytoma:** This neoplasm typically occurs in middle-aged to older dogs, with a mean age around 9 years. Breed predisposition has been reported in Golden Retrievers, Labrador Retrievers, Boxers, and American Staffordshire Terriers (Blackwood et al., 2012; Rakich & Latimer, 2015). Histologically, mast cell tumours are classified using the Patnaik grading system: grade I tumours are well differentiated and usually benign, with a metastasis rate below 10%; grade II tumours have moderate differentiation and a metastasis risk around 15%; and grade III tumours are poorly differentiated, aggressive, and often metastasise in more than 80% of cases. has a metastasis rate of more than 80%. The latter two grades are fast-growing and may be associated with erythema and pruritus (Kiupel et al., 2011; Blackwood et al., 2012).

1.2.2 Eyelid tumours in cats

Unlike dogs, the incidence of malignant eyelid masses is very high in cats (Willis & Wilkie, 2001; Turner & Nind, 2010), with the most common tumours being:

- **Squamous cell carcinomas:** it is the most common eyelid neoplasm in cats, particularly older individuals between 10 and 12 years of age (Willis & Wilkie, 2001; Bastos et al., 2016). It most commonly appears in white cats with non-pigmented areas that are continuously exposed to ultraviolet radiation (Turner & Nind, 2010; Zapata & Sande, 2020). Clinically, this neoplasm often presents as a pink or whitish lesion with crusts that progressively ulcerate (Willis & Wilkie, 2001). It's a malignant tumour with invasive potential, capable of producing haemorrhages, necrosis and metastasis, especially to regional lymph nodes and the lungs. There also documented cases of local extension to the orbit or even the contralateral eye (Labelle & Labelle 2013; Zapata & Sande, 2020).

- **Apocrine cystadenoma:** is a rare benign tumour that originates from Moll's glands in the eyelid. It tends to appear in middle-aged cats, with an average age of presentation around 8 years. A possible predisposition in Persian cats has been suggested (Segarra, 2018; Foote, 2022). Due to its dark appearance, caused by cyst dilation from the apocrine glands, it is one of the differential diagnoses of melanocytic tumours (Segarra, 2018).

- **Mastocytoma:** in cats, it presents two forms of presentation, a mastocytic form, representing an 80% of the cases, and an atypical (histiocytic) form or variant accounting for the remaining 20%. The mastocytic typically occurs in older cats, with a mean ager around 10 years, while the atypical form is more often seen in cats under 4 years of age. Both forms appear to have a predisposition in the Siamese breed (Blackwood et al., 2012; Rakich & Latimer, 2015).

- **Other less common** eyelid tumours observed in cats where fibromas, fibrosarcomas, basal cell carcinomas, and peripheral nerve sheath tumours, all of which have been described sporadically in the literature (Labelle & Labelle, 2013; Segarra et al., 2018; Foote, 2022).

1.3 Diagnose and Treatment

The diagnostic approach to palpebral masses in small animals begins with a complete physical and ophthalmic examination, which includes assessment of visual acuity, ocular reflexes, and detailed inspection of palpable lesions in terms of size, shape, colour, definition and consistency. Basic diagnostic tools such as the fluorescein staining test and the slit-lamp are used for this purpose (Esteban, 2007).

The most clinical signs associated with these lesions include the visible presence of the mass, blepharospasm, keratitis with or without ulcers, conjunctival irritation, haemorrhages and mucopurulent secretions (Esteban 2007).

A definitive diagnosis is typically obtained via fine needle aspiration cytology or by excisional biopsy, the latter being the method of choice. In most cases, excisional biopsy simultaneously serves a therapeutic purpose, as it allows complete resection of the mass, ensuring surgical margins free of neoplastic cells and prolonging the time to possible recurrence (Zibura et al., 2019).

Other treatment options include cryotherapy and debulking, laser ablation or combinations of these treatments (Nardi, Barsotti and Millanta, 2009; Zibura et al., 2019).

Treatment is indicated primarily to preserve the patient's quality of life, alleviate ocular discomfort, and prevent secondary complications such as vision loss (Turner & Nind, 2010; Zibura et al., 2019). Regarding prognosis, benign eyelid tumours generally carry a favourable outcome, even in large lesions. Nevertheless, complications such as lagophthalmos, exposure keratitis, and trichiasis may arise, potentially affecting eyelid function and surface integrity (Turner & Nind, 2010).

1.4 General objective

The main objective of this study is to conduct a retrospective analysis of cases of palpebral masses in the species *Canis lupus familiaris* and *Felis catus* diagnosed at the Veterinary Clinical Hospital of the University of Las Palmas de Grann Canaria, within the Ophthalmology Service, during the years 2023, 2024 and 2025, the latter until April. The results obtained will subsequently be compared with the current literature.

1.4.1 Specific objectives

- To collect clinical and diagnostic data from cases of palpebral masses observed in dogs and cats at the Veterinary Teaching Hospital of the University of las Palmas de Gran Canaria.
- To perform a descriptive statistical analysis of the recollected data, focusing on qualitative variables such as sex, age breed, affected eye and eyelid, tumour type, prognosis and recurrence.
- Compare the study findings with existing literature particularly in relation to:
  - Species distribution of eyelid mases.
  - Age and breed predispositions.
  - Histopathological classification of neoplasms.
  - Biological behaviour (benign vs. malignant).
  - Prognostic implications.
  - Recurrence rates.
  - Therapeutic approaches and outcomes.

2. Materials and methods

The database used for the retrospective study of the cases was extracted from the "Gestor Vet" software of the Veterinary Clinical Hospital of the University of Las Palmas de Gran Canaria. The data collection process was carried out using the "Recent Visits" section, specifying the dates of interest in the search filter, which normally covered a whole month for each search and applied filters for Dr Inmaculada Morales Fariña as the responsible veterinarian and ophthalmology as the service. The collected data was extracted from ophthalmology

consultations that took place between 2023 and April 2025. During the 28-month study period, a total of 1,257 consultations were recorded at the Veterinary Ophthalmology Service, of these consultations, 1,233 were for species included in this study (dogs and cats), of which 60 involved eyelid masses. These 60 cases were included in the present analysis.

2.1 Surgical techniques

Patients treated underwent the most used treatment, namely complete simple excision. This procedure can be performed using two techniques (Aquino, 2007; Gelatt, 2014):

- **V-shaped or wedge excision:** the mass is stabilised with forceps, and a V-shaped incision is made approximately 2-3mm from the lesion and perpendicular to the eyelid margin. The skin and conjunctiva are sutured separately.

- **Rectangular excision:** this is used when the mass is larger. Two incisions are made parallel to the mass (at the same distance) and then two more incisions are made to join the previous ones so that they converge at a dorsal point. It is closed in the same way as the previous technique.

In both techniques, the suture is performed using a simple interrupted suture pattern form the eyelid to its edge using a 5-0 or 6-0 absorbable suture.

Simple excision of the mass can be up to 1/3 of the eyelid. When the size of the mass covers more than 1/3 of the eyelid, excision with blepharoplasty should be performed (Turner & Nind, 2010; Zibura et al., 2019).

2.3 Data Collection Parameters

Within each medical record with a diagnosis of palpebral mass, the following data were collected:

Animal-related data:

- Number of dogs and cats involved, as well as their medical record number.
- Sex.
- Breed.
- Age.
- Age groups:
  - Number of individuals in age group 1 or young (0-5 years).
  - Number of individuals in age group 2 or adult (5-10 years).

     o   Number of individuals in age group 3 or geriatric (>10 years).

Clinical signs and physical examination findings:
- Presence of pain/discomfort related to the eyelid mass.
- Presence of corneal ulceration related to the eyelid mass.
- Presence of corneal oedema related to the eyelid mass.
- Presence of excessive tearing.
- Laterality of the lesion (right or left eye).
- Location on the eyelid (upper or lower).

Treatment and diagnostic testing:
- Cases treated surgically.
- Cases in which a biopsy was performed.
- Histopathological results, including: Meibomian gland adenoma, Meibomian gland epithelioma, Pigmented Meibomian gland epithelioma, Papilloma, Melanocytoma, Melanoma, Inflammatory infiltrate, Squamous cell carcinoma, and Mastocytoma.

Case outcomes:
- Number of patients with a favourable prognosis.
- Number of patients with a guarded prognosis.
- Number of patients with recurrences of the eyelid mass.

Data were processed and analysed using Microsoft Excel (Microsoft 365). A descriptive statistical analysis was performed. Qualitative variables were mainly represented using pie charts to illustrate proportional distributions; however, bar charts were also employed in some cases to compare categorical frequencies (e.g., clinical signs). Quantitative variables such as age were displayed using bar charts to reflect their distribution across intervals.

3. Results

This retrospective study analysed 60 cases of eyelid masses in dogs and cats over a 28-month period. Of the 25,941 total hospital consultations involving these two species, of which 20,731 (79.9%) were dogs and 5,210 (20.1%) were cats. Out of 1,233 consultations were ophthalmology-related, 993 were canine cases (80.5%) and 240 were feline (19.5%), representing 4.75% of all consultations for these species.

Eyelid masses accounted for 60 of the 1,233 ophthalmic consultations, with 54 diagnosed in dogs (90%) and 6 in cats (10%), representing 4.87% of the ophthalmic caseload and 0.24% of the total hospital consultations, reflecting a relatively low overall incidence.

The results are presented below according to the evaluated variables, which were grouped into four main categories: animal data, clinical signs and physical examination findings, diagnostic procedures ant treatments, and case outcomes.

3.1 Animal data

The variables related to the study population were analysed separately for dogs and cats. Allowing species-specific comparisons. These include sex, age and breed distribution.

3.1.1 Species distribution

The species of each animal diagnosed with an eyelid mass was recorded to assess case distribution between dogs and cats. The data are shown in Table 1 and Figure 1.

Population distribution according to the variable 'Species'		
Species	Frequency (n)	Percentage (%)
Canine	54	90%
Feline	6	10%
Total	60	100%

Table 1. Frequency and percentage of animals diagnosed with eyelid masses by species.

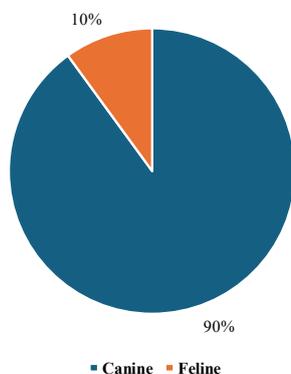Population distribution according to the variable 'Species'

Figure 1. Distribution of eyelid mass cases by species.

3.1.2 Sex distribution

The sex distribution of the affected animals is presented in Table 2 and Figure 2, with separate counts for dogs and cats.

Population distribution according to the variable 'Sex'		
Sex (dog)	Dog (n/%)	Cat (n/%)
Male	31 (57.41%)	2 (33.33%)
Female	23 (42.59%)	4 (66.67%)
Total	54 (100%)	6 (100%)

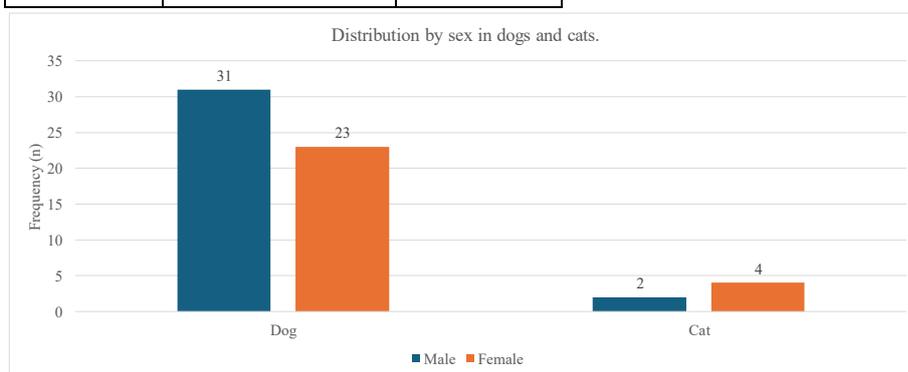*Table 2. Frequency and percentage of sex distribution in dogs and cats.*

Figure 2. Sex distribution of dogs and cats diagnosed with eyelid masses.

3.1.3 Age groups

The age of the animals diagnosed with eyelid masses ranged from 2 to 16 years, with a mean age of 10.35 ± 3.08 years.

A bar chart was used to visualise the frequency distribution of individual ages, while a pie chart grouped animals into three categories: 0-5 years (young), 5-10 years (adult), and over 10 years (geriatric). These are shown in Figures 3 and 4. This dual representation allows for a clearer understanding of both overall age patterns and specific age concentrations, irrespective of species.
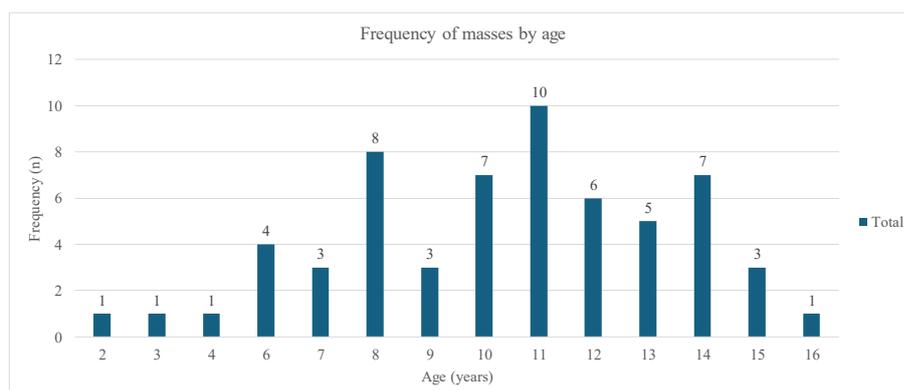
Figure 3: Frequency distribution of individual ages in animals diagnosed with eyelid masses.
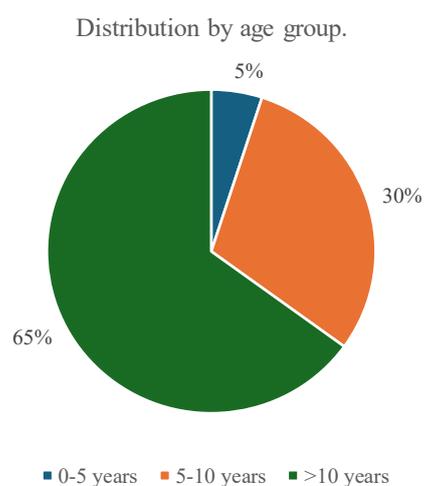

Figure 4: Proportion of animals grouped by age group: young (0-5 years), adult (5-10 years) and geriatric (>10 years).

3.1.4 Breed distribution

Breed information was collected for both species; however, only one feline breed was represented. Therefore, the graphical representation focuses on the distribution of dog breeds. The data are shown in Figure 5.
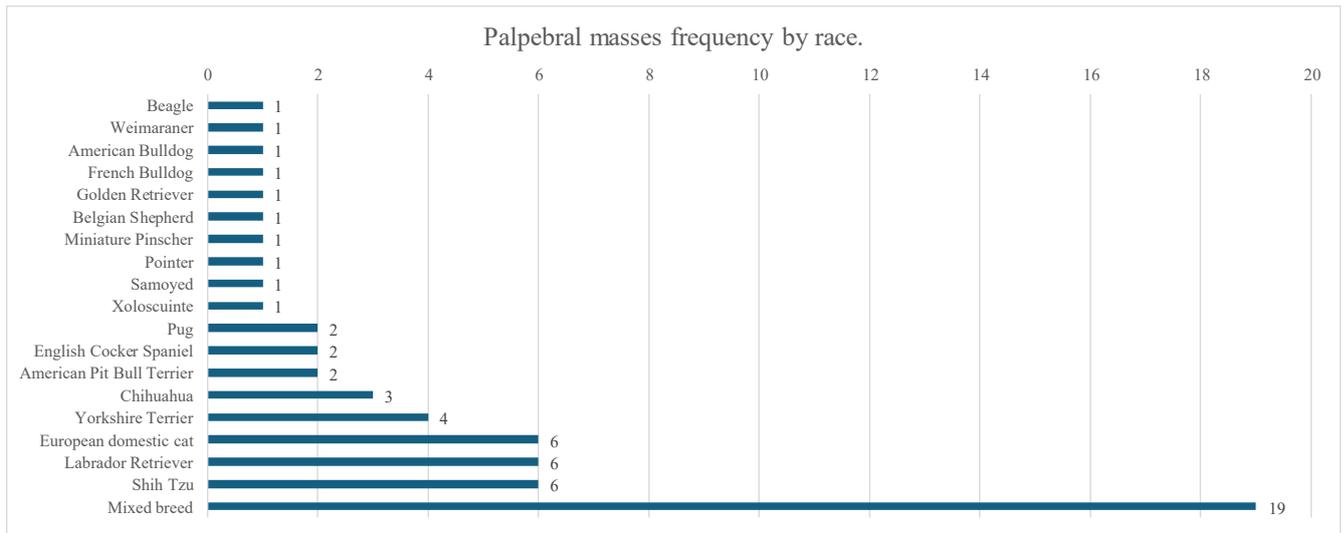
Figure 5. Distribution of dog breeds diagnosed with eyelid masses.

3.2. Clinical signs and physical examination findings

3.2.1 Eye and eyelid affected

The anatomical location of each mass was recorded according to the affected eye (right or left) and eyelid (upper or lower), without species separation. The results are displayed in Table 3 and Figure 6.

Location of the masses.			
		Frequency (n)	Percentage (%)
Eye	Right	27	45%
	Left	33	55%
Eyelid	Upper	31	51.67%
	Lower	29	48.33%
	Total masses	60	100%

Table 3. Frequency and percentage of mass location by eye and eyelid.
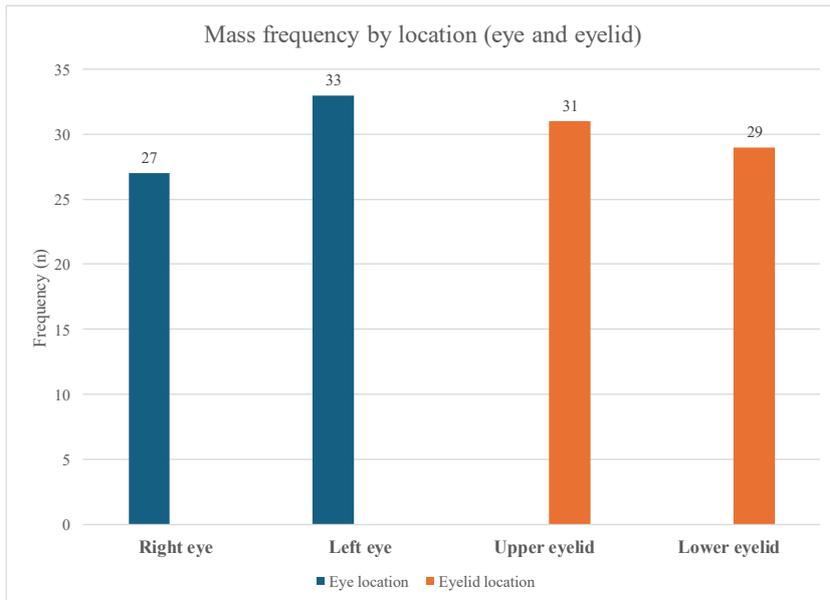
Figure 6. Incidence of eye and eyelid mass location.

3.2.2 Associated clinical signs

Clinical signs associated with eyelid masses were recorded and evaluated separately for dogs and cats. In dogs, the following signs were documented: 42.59% presented pain or discomfort, 33.33% had corneal ulcers, 31.48% showed tearing, and 25.93% had oedema. In cats, 100% presented pain or discomfort, 0% had corneal ulcers, 33.33% showed tearing, and 0% had corneal oedema.

The frequency of this data is presented in Figure 7.

Figure 7. Population distribution of clinical signs associated with eyelid masses in dogs and cats.

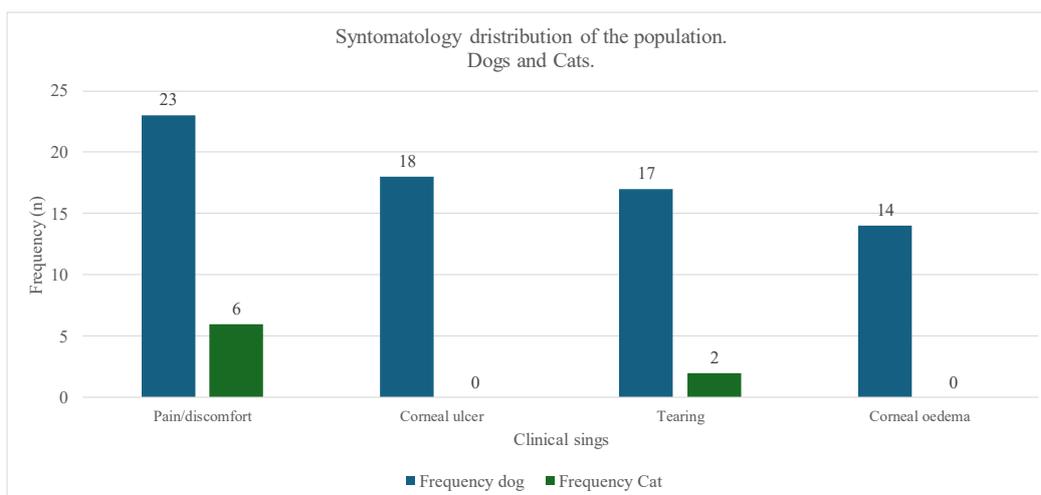## 3.3 Diagnostic procedures and treatments

3.3.1 Surgical excision

Surgical excision was performed in 28 dogs and 4 cats, representing 51.85% and 66.67% of each species group, respectively.

3.3.2 Biopsy and histopathological results

Biopsies were obtained for 27 dogs and 4 cats, corresponding to 50% and 66.67% of the respective populations.

In dogs, the histopathological diagnoses included: 5 meibomian gland adenomas, 17 meibomian gland epitheliomas (9 pigmented and 8 non-pigmented), 2 melanocytomas, 2 mastocytomas, 4 inflammatory infiltrates and 4 other types (papilloma, dermoid cyst, trichoblastoma and lipoma).

In cats, the diagnoses included: 3 squamous cell carcinomas, 1 apocrine cystadenoma and 1 dermoid cyst.

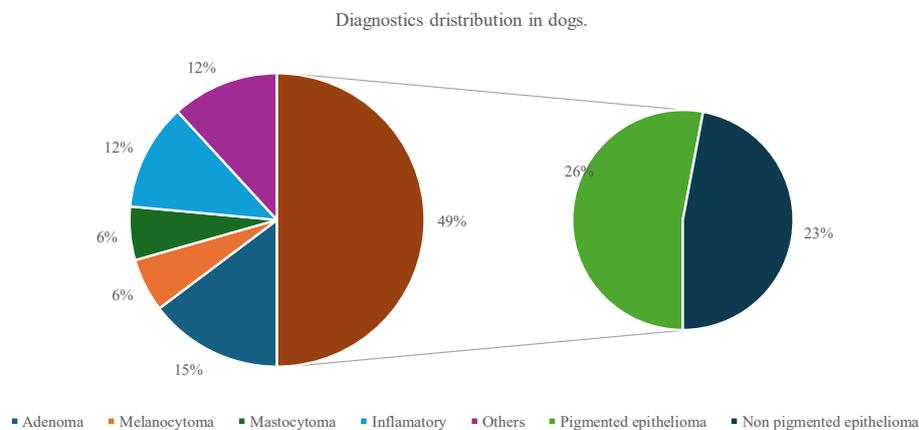The percentages corresponding to each diagnosis are presented in figures 8 and 9.

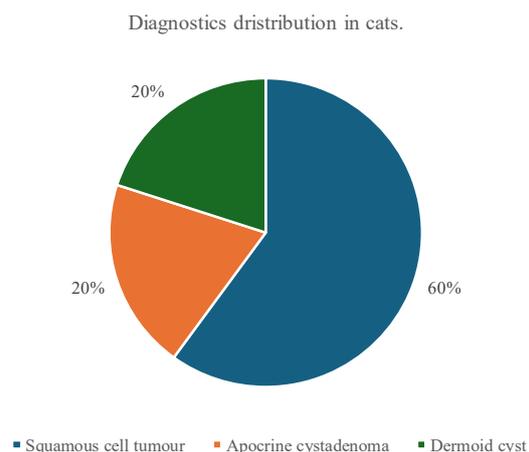*Figure 8. Histopathological diagnoses of eyelid masses in dogs.*

Diagnostics distribution in cats.

20%

20%

60%

■ Squamous cell tumour   ■ Apocrine cystadenoma   ■ Dermoid cyst

Figure 9. Histopathological diagnoses of eyelid masses in cats.

3.4 Case outcomes

3.4.1 Prognosis

The prognosis was classified as favourable or guarded and was recorded separately for each species. In total, 38 dogs and 1 cat had a favourable prognosis, representing 70.37% and 16.67% of their respective groups. A guarded prognosis was recorded in 16 dogs and 5 cats, which corresponds to 29.63% and 83.33%, respectively.

3.4.2 Recurrence

Recurrence of the eyelid mass was documented during follow-up in 8 dogs and 3 cats. These figures represent 14.81% and 50% of the total cases in each species.

4. Discussion

4.1 Species distribution

Dogs represented most cases (90%), whereas only 10% involved feline patients. This species distribution aligns with previously published data by Esteban (2007), Conceição et al. (2010), and Zibura et al. (2019), who noted a higher incidence of palpebral masses in dogs compared to cats.

The discrepancy may be partly explained by differences in tumour behaviour and patterns of owner perception. Canine eyelid tumours are predominantly benign and often appear as visible nodular growths, which are more likely to prompt veterinary consultation. In contrast, feline

eyelid tumours are more frequently malignant and may present as inconspicuous ulcerative or crusted lesions. Zapata & Sande (2020) highlight that early-stage squamous cell carcinomas in cats are commonly mistaken for minor wounds or inflammatory conditions, which can lead to delayed diagnosis and underreporting. This delay may explain why feline cases are less frequently documented despite their higher malignancy rate.

4.2 Sex and age

No significant sex predisposition was observed in this study, independently of the species. This aligns with previous findings by Winer et al. (2019) and Rakich & Latimer (2015), who also reported no consistent sex-based differences in the prevalence of eyelid tumours in dogs and cats. Similarly, Roberts et al. (1986), in their large-scale analysis of 200 canine cases, found no statistically significant association between sex and tumour occurrence, further supporting the lack of sexual predisposition in palpebral neoplasms.

Related to age, this variable showed a clear association with tumour development. The mean age in the study was 10.35 years, with most animals classified as geriatric. These results coincide with the work of Muñoz-Duque et al. (2019) and Blackwood et al. (2012), who identified advanced age as a frequent risk factor in both canine and feline ocular neoplasia. Roberts et al. (1986) reported a nearly identical mean age of 9.6 years in their study population, reinforcing the notion that eyelid tumours are predominantly diseases of older animals.

The increased tumour incidence in geriatric patients may be attributed to cumulative DNA damage, decreased immune surveillance, and prolonged exposure to environmental factors, as noted in broader oncological literature (Blackwood et al., 2012; Muñoz-Duque et al., 2019). These observations underscore the importance of regular ophthalmic revisions in senior animals.

4.3 Breed distribution

In the present study, a variety of dog breeds were represented, including Labrador Retrievers, Cocker Spaniels, and Boxers. These findings coincide with the breed profiles identified in earlier studies by Conceição et al. (2010) and Winer et al. (2019), which noted a higher frequency of eyelid tumours in these same breeds. However, no clear breed predisposition was evident in the study, likely due to the limited sample size and the demographic characteristics of the local hospital population.

Roberts et al. (1986), in a large retrospective study of 200 dogs, found a significantly higher tumour risk in breeds such as Beagles, Siberian Huskies and English Setters, while mixed-breed dogs had a lower incidence. This breed variability has been attributed to potential genetic factors, although it may also reflect regional breed prevalence. In this study, mixed-breed dogs were frequent, which may have diluted observable breed-specific tendencies.

As also noted by Labelle & Labelle (2013), retrospective studies are often limited by sampling bias, and apparent breed associations may not indicate true genetic susceptibility but rather reflect population composition. Among feline cases in this study's sample, breed diversity was null, precluding any meaningful analysis.

4.4 Clinical signs and localisation

The clinical signs observed in this study (pain, corneal ulcers, tearing, and oedema) are consistent with descriptions by Esteban (2007) and Turner & Nind (2010), who reported these manifestations as typical outcomes of mechanical irritation and periocular inflammation caused by eyelid masses. In this study, these signs were more frequent in dogs than cats, which may reflect species-specific tumour behaviour and the more externally visible nature of canine lesions.

A slight predominance of masses was observed in the left eye (55%) and upper eyelid (51.7%). While the left-sided distribution may be incidental, the higher frequency in the upper eyelid is supported by findings from Wang et al. (2019), who attributed this trend to the upper eyelid's greater mobility and increased corneal contact during blinking. This enhanced exposure may facilitate earlier detection and prompt intervention.

4.5 Diagnostic findings

In this study, histopathological analysis was available for 32 of the 60 cases (51.6%), providing accurate tumour classification. Among canine patients, Meibomian gland tumours predominated, with 5 adenomas and 17 epitheliomas diagnosed. These findings are consistent with previously published data indicating that Meibomian gland adenomas and epitheliomas represent the most common eyelid neoplams in dogs, typically exhibiting benign behaviour (Peterson-Jones & Crispin, 2002; Conciencão et al., 2010; Winer et al., 2019). Labelle & Labelle (2013) also reported similar trends, noting that both of these tumours are typically well-

differentiated, slow growing, exhibit low metastatic risk, and are particularly common in geriatric individuals.

Among the Meibomian gland epitheliomas, there were no marked differences in clinical and biological behaviour between pigmented (n=9) and non-pigmented (n=8) variants. This observation aligns with Wang et al. (2019), who similarly found that pigmentation had no clinical significance in terms of malignancy or recurrence.

Melanocytic tumours were identified in three dogs, all of which were benign melanocytomas. This outcome supports the findings of Turner & Nind (2010) and Guerra et al. (2021), who reported that melanocytic tumours in canine eyelids are usually benign , with an excellent prognosis following surgical excision with recurrence. No cases of malignant melanoma were identified in this study, which may be caused either by the overall low incidence of these tumours in periocular tissues or to sample size limitation inherent in single-center studies.

Two canine mast cell tumours (MCTs) were observed. While uncommon in periocular locations, MCTs remain among the most prevalent cutaneous malignancies in dogs, comprising 7-21% of skin tumours and up to 27% of malignant skin tumours (Alexandru et al., 2020). This variability has been documented by Horta et al. (2018), who demonstrated that prognosis is influenced by a combination of clinical, histopathological, imnunohistochemical and molecular parameters. These findings are supported by Blackwood et al. (2012), who proposed a consensus approach for diagnosis and treatment of canine and feline MCTs, and by Kiupel et al. (2011), who introduced a two-tier histological grading system for a better predictal outcomes. Together, these studies emphasise the importance of tumour grade, mitotic index, anatomical location, and c-kit mutation status in therapeutic planning and prognosis assessment. In line with these findings, Alexandru et al. (2020) reported a case of a grade II palpebral MCT in a 13-year-old mixed-breed dog, which recurred despite initial excision. Although systemic therapy with the tyrosine kinase inhibitor torecanib resulted in temporary remission, the treatment was discontinued due to adverse effects, after which the tumour progressed aggressively. This case illustrates the clinical challenges of MCTs in periocular sites, particularly when complete excision is not feasible or when systemic treatment is poorly tolerated.

Four canine masses were diagnosed as non-neoplastic inflammatory infiltrates, and two additional lesions were identified as dermoid cysts. These pseudotumours, although benign, can clinically mimic neoplastic lesions and are a recognised differential diagnosis in periocular pathology (Esteban, 2007; Dubielzig, 2011). Dermoid cysts, in particular, are congenital

malformations typically found in young animals (Grahn & Peiffer, 2007), while inflammatory pseudotumours may result from chronic inmune stimulation (Esteban, 2007; Dubielzig, 2011).

In cats, squemous cell carcinoma (SCC) was the most frequent diagnosis (3/5 cases, 60%), in line with existing literature identifying SCC as the predominant eyelid malignancy in this species (Willis & Wilkie, 2001; Bastos et al., 2016; Zapata & Sande, 2020). SCCs in cats are known for their locally invasive behaviour and metastatic potential, paticularly to regional lymphh nodes and, less frequently, to distant organs.

One feline MCT and one apocrine cystadenoma were also identified. The latter, though rare, has been previously reported in middle-aged cats and may resemble pigmented tumours due to its dark appearance (Segarra, 2018; Foote, 2022).

The feline mast cell tumour observed in this study is noteworthy, as feline MCTs display distinct clinical and histological   characteristics compared to their canine counterparts. According to Fischer et al. (2024), feline MCTs are divide into mastocytic and histiocytic forms, with the mastocytic type being more common and generally associated with a better prognosis. Fischer et al. (2024) further note that feline palpebral MCTs, although rare, tend to recur less frequently and exhibit less aggressive behaviour than those in dogs, even when surgical margins are incompletely excised.

Overall, the findings of this study reinforce well-established species-specific patterns: a predominance of benign lesions in dogs (particularly Meibomian gland tumours) and a higher incidence of malignant neoplasms in cats, with SCC being specially prevalent. However, the limited feline sample size reduces the statistical power of these comparisons and underlines the need for larger, multicentric studies.

4.6 Treatment, recurrence and outcomes

Surgical excision was the primary treatment employed in this study and remains the most widely accepted approach for managing eyelid masses in dogs and cats. The results of this study showed a generally favourable outcome in canine patients, with 70.4% having a good prognosis and a low recurrence rate (14.8%). These findings are consistent with those reported by Aquino (2007), Zibura et al. (2019), and Wang et al. (2019), who emphasise that early surgical excision and the typically benign nature of canine palpebral masses contribute to high treatment success and limited post-operative complications.

In contrast, the prognosis in feline patients was more guarded, with a favourable outcome recorded in only one case (16.7%) and recurrence observed in half of the cases (50%). This

notable difference supports previous literature indicating a more aggressive biological behaviour of feline eyelid tumours, particularly in squamous cell carcinoma, this was reported by Willis & Wilie (2001), Bastos et al. (2016), and Fischer et al. (2024), they also observed that, recurrence in feline periocular neoplasms is closely related to incomplete excision margins and the infiltrative nature of these tumours, often requiring more extensive surgical planning or adjunctive therapies.

These findings highlight the prognostic relevance of early diagnosis, surgical planning, and postoperative monitoring. In canine cases, conservative management is often sufficient. However, in feline patients, more aggressive treatment strategies and thorough long-term follow-up are recommended to address the higher risk of recurrence and disease progression.

4.7 Limitations

This study presents several limitations that must be considered when interpreting the results. Firstly, although some breeds appeared more frequently in the dataset, this does not imply a true predisposition, as the results reflect incidence rather than prevalence. Additionally, breed distribution is likely influenced by the local demographic composition of the hospital's patient population. In regions such as the Canary Islands, where mixed-breed dogs are overrepresented compared to pedigree breeds, the apparent breed frequencies may reflect population bias rather than genetic susceptibility.

Secondly, the study is retrospective in nature, which introduces inherent limitations such as variability in record completeness and the availability of clinical details. For example, the coat colour or pattern (coat phenotype), which may influence owner perception and UV susceptibility, could not be evaluated due to its absence in most clinical records. Similarly, histopathological confirmation was not available in all cases, particularly in patients that did not undergo surgery or biopsy, thereby limiting the definitive classification of some masses.

Moreover, although the study was designed to cover a period as close as possible to three years, logistical constraints made it unfeasible to collect a full 36 months of data. Since the Final Degree Project was to be submitted within the 2025 academic year. The study period was limited to 28 months to allow sufficient time for data analysis and writing, without compromising scientific accuracy.

Finally, the relatively small number of feline cases reduces the statistical power for interspecies comparisons and limits the generalisability of conclusions regarding malignant tumours in cats.

5. Conclusion

In accordance with the specific objectives of this study, key points to conclude are:

1. A total of 60 cases of eyelid masses in dogs and cats were successfully collected over a 28-month period at the Veterinary Clinical Hospital of the University of Las Palmas de Gran Canaria, providing a representative dataset for retrospective analysis in a clinical setting.

2. Descriptive statistical analysis marked predominance of canine cases (90%), with most patients classified as geriatric and no clear sex or breed predisposition. Most of the canine tumours were benign, mainly Meibomian gland adenomas and epitheliomas. While feline tumours, though less frequent, were more often malignant, particularly squamous cell carcinomas. Recurrence and guarded prognosis were common in cats.

3. The study findings are broadly consistent with previously published data in terms of species distribution, tumour types, and clinical characteristics. However, regional factors such as the high proportion of mixed-breed dogs and the retrospective nature of the data collection may influence the comparability with larger or multicentric studies. These considerations should be considered when interpreting the results in relation to broader literature.

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