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CLINICOPATHOLOGICAL SPECTRUM OF OCULAR LESIONS

Pathology

Dr. Priyanka Patil Assistant Professor , Department of Pathology, Mahadevappa Rampure Medical College, Kalaburagi, Karnataka State.

Dr. Rohit Patil Associate Professor, Department of Ophthalmology, Mahadevappa Rampure Medical College, Kalaburagi, Karnataka State.

Dr. Anita A M Professor, Department of Pathology, Mahadevappa Rampure Medical College, Kalaburagi, Karnataka state.

Dr. Tuba Noorin* Post Graduate trainee, Department of Pathology, Mahadevappa Rampure Medical College, Kalaburagi, Karnataka State. *Corresponding Author

ABSTRACT

Introduction: Ocular lesions show varied distribution on the basis of geographical location. Eye being a unique sensory organ needs to be studied both clinically and pathologically. This study was aimed to evaluate the histomorphological and clinico-pathlological spectrum of ocular lesions. **Aims and Objectives:** To study the histomorphological spectrum of various ocular lesions, determine their frequency, age and sex distribution in our study population and compare them with the other studies. **Materials and Methods:** We reviewed all the excised ocular lesions performed in the Department of Pathology at Basaveshwar teaching and general hospital and also from a private hospital between January 2022 and January 2024. Clinical data was collected from records and histopathological examination of the excised specimens was conducted using standard processing technique . **Results:** Total of 93 lesions of the ocular region were obtained from patients attending the ophthalmology department. The patients ranged in age group of 20 to 82 years with a male to female ratio of 1:1.4. Ocular lesions were highest in 50-59 years age group. Most common site involved was cornea. Among neoplastic lesions the most common ocular malignancy was squamous cell carcinoma. Among non-neoplastic lesions, maximum cases were of pterygium accounting for 25.8% in our study. **Conclusion:** The present study showed the pattern of ocular lesions in our population. Different geographic areas had predilection for different ocular lesions. Hence, all the ocular specimens should be subjected for histopathological examinations for accurate diagnosis and further management of patient.

KEYWORDS

Ocular lesions, histopathological study, cornea, conjunctiva, lacrimal sac.

INTRODUCTION

The eye is a unique special sensory organ which exhibits diverse histologic structures. The knowledge of normal ocular anatomy and spectrum of pathologic changes that involve these structures is necessary. The rarity at which these lesions occur complicates the recognition of their fine and sometimes subtle presentation. Furthermore, clinical signs and symptoms of ocular malignancies simulate more commonly occurring benign conditions which pose great difficulties both for treating clinicians and even experienced pathologists. Also, there exists a variation in pattern and frequency on the basis of geographical locations[1].

Ocular tissues contribute to lesions from inflammation to different types of neoplastic conditions.[2]

The present study was therefore undertaken with the objective to determine the clinico-pathological spectrum of various ocular lesions.

The knowledge of spectrum of ocular lesions would be helpful to the ophthalmologists in shaping the strategy for diagnosis and management of ocular lesions.

MATERIALS AND METHODS

The present study was carried out on all excised ocular tissues received in the department of Pathology at Mahadevappa Rampure Medical College and Basaveshwar Teaching and General Hospital. A total of 93 excised specimens were received in the histopathology section during a period of 2 years from January 2022 to January 2024. A detailed history of each patient regarding age, chief complaints, & other relevant findings were taken. The surgically resected specimens fixed in the 10% formalin were received. Gross findings were noted. Routine tissue processing and paraffin embedding was done and 5 micrometre thickness sections obtained and stained by haematoxylin and eosin stain in all cases. Special stain such as Gomori Methanamine Silver stain and Verhoeff-Van Geison stain was used whenever required. The histopathological diagnoses of the ocular lesions was done.

RESULTS

Table 1: Age And Sex Wise Distribution

Age (Years)	Male	Female	Total	Percentage (%)
20-29	03	04	07	7.5%
30-39	05	02	07	7.5%
40-49	09	08	17	18.3%
50-59	12	15	27	29%
60-69	08	18	26	27.9%
Above 69 years	02	07	09	9.6%
TOTAL	39 (42%)	54 (58%)	93	100%

A total 93 cases of the different ocular lesions were analysed. Age of patients ranged from 20-82 years. The highest prevalence of these lesions were seen in the age group of 50-59 years seen in 27 cases (29%) followed by 60-69 years (27.9%) and 40-49yrs (18.3%) respectively. Females were found more affected than males with a Male: Female ratio of 1:1.4 (Table 1). Left eye was affected more than right eye.

Table 2: Site Wise Distribution Of Cases

Sl. No	Site	Number	Percentage
1	Cornea	31	33.3%
2	Conjunctiva	28	30.1%
3	Lacrimal sac	23	24.7%
4	Uvea	11	11.8%
	Total	93	100%

Most common site involved was cornea, accounting for 31(33.3%) cases followed by 28 (30.1%) cases of conjunctiva , 23 cases (24.7%) of lacrimal sac and 11(11.8%) cases of uvea. (Table 2)

Table 3: Spectrum Of Lesions Of Cornea

Sl . No	Histopathological findings	Total	Percentage
	Fungal:		
	Candida	02	2.1%
	Aspergillus keratitis	02	2.1%
	Mucormycosis	02	2.1%
2	Chronic keratitis	21	22.6%
3	Climatic droplet keratopathy	04	4.3%
	Total	31	33.3%

Majority of the corneal lesions were of chronic keratitis 22.6% (21 cases) followed by Climatic droplet keratopathy accounting for 4.3% (4 cases) (Fig. 2A,2B).Also noted were 2 cases each of candida, aspergillus (Fig. 1A, 1B) and mucormycosis.(Table 3)

Table 4: Spectrum Of Lesions Of Conjunctiva

Sl . No	Histopathological findings	Total	Percentage
1	Pterygium	24	25.8%
2	Squamous Cell carcinoma	03	3.2%
3	Conjunctival nevus	01	1.1%
	Total	28	30.1%

Among the conjunctival lesions majority of lesions were of pterygium 25.8% (24 cases) followed by Squamous Cell Carcinoma accounting for 3.2%(3 cases) (Fig. 3 A, 3B) and 1 case of conjunctival nevus (Fig. 4 A, 4B and table 4)

Table 5: Spectrum Of Lesions Of Lacrimal SAC and UVEA

Sl.No	Site	Histopathological findings	Total	Percentage
1	Lacrimal sac	Chronic dacryocystitis	23	24.7%
		Total	23	24.7%
2	Uvea	Uveitis	11	11.8%
		Total	11	11.8%

In the lacrimal sac, chronic dacryocystitis constituted 24.7% cases and in uvea, uveitis accounted for 11.8% cases. (Table 5)

DISCUSSION

Ocular lesions show varied distribution on the basis of geographical location. Eye being a unique sensory organ needs to be studied both clinically and pathologically.[1]

In present study, maximum number of patients 29% who underwent excision biopsy belonged to the age group of 50-59 years (Table-1), which was consistent with the study done by Srikanth S. in which ocular lesions were most commonly found in the 5th decade (34%) followed by 4th decade (17%)[2].

Number of excision performed were more in females (58%) as compared to males (42%) with male to female ratio 1:1.4 (Table-1), while findings by Chauhan SC et al, who studied 100 cases retrospectively, showed 54% males and 45% were females.[3]

Cornea was the most common site involved in the present study (33.3%) as shown in Table 2, followed by conjunctiva (30.1%), lacrimal sac (24.7%) and uvea (11.8%) while study by Lin et al showed that eyelid was the most frequently occurring site (53.6%), followed by the conjunctiva (34.4%), orbit (6.3%)[4].

In the present study we divided the ocular lesions into benign and malignant lesions.

In present study, clinically suspected benign lesions were histologically correlated in 96.78% cases which was concordant with Lin et al.[4] (91.5%) while it was 70% in the study by Chauhan SC et al.,[3] and Bastola P et al.[5] as shown in Table 6.

Table 6: Comparative Analysis Of Histopathology Spectrum

Sl No	Study	Benign	Malignant
1.	Lin et al. 4 (China)	91.5%	8.5%
2.	Bastola P et al.5 (Nepal)	70 %	30%
3.	Chauhan SC et al 3 (India)	70%	30%
	Present study	96.78%	3.22%

In present study, commonest benign lesion encountered was pterygium. Pterygium (also known as surfer's eye) is an ocular surface disease characterized mainly by a wing-shaped growth of limbal and conjunctival tissue over the adjacent cornea. As a result of alterations in local ocular surface homeostasis, the main components of pterygium include proliferative clusters of limbal stem cells (LSCs), epithelial metaplasia, active fibrovascular tissue, inflammation, and disruption of Bowman's layer along the invading apex of the pterygium. [6]

Among benign lesions, pterygium was the most common histopathological lesion, seen in 25.8 % (Table-4) of patients, consistent with the findings by Patel, et al. in which the most common benign lesion was pterygium (32.35%) [7]

Dacrycystitis or inflammation of lacrimal sac has two modes of presentation namely acute and chronic. Chronic dacryocystitis is more common than the acute form and it is usually associated with obstruction of the nasolacrimal duct. The cause of Nasolacrimal Duct Obstruction (NLDO) may be idiopathic or secondary to various infections, inflammations, traumatic injuries or neoplasms.[9] In the present study, chronic dacryocystitis was seen in 24.7% (Table 5), concordant with the study by Yashita Gupta et al., (24.8%)[1]

Squamous cell carcinoma of the conjunctiva is the end-stage of a spectrum of disease referred to as ocular surface squamous neoplasia (OSSN). OSSN is a malignant disease of the eyes that can lead to loss of vision and, in severe cases, death. The main risk factors for both are exposure to solar ultraviolet radiation outdoors, HIV/AIDS, human papilloma virus and allergic conjunctivitis.[10]

In present study, commonest malignant lesion encountered was Squamous cell carcinoma of conjunctiva (3.2%) (Table 4), which was similar to the study conducted by Hanmante et al[8] which reported 13% cases of SCC.

CONCLUSION

We studied the histopathological spectrum of ocular lesions and their clinical correlation in our population. Neoplastic lesions of ocular region and adnexa have high morbidity and mortality. Varied presentation and vast spectrum of neoplastic and nonneoplastic lesions as encountered in our study emphasize the need for clinicopathological correlation for early diagnosis and management of ocular lesions. To conclude, all the ocular specimens should be subjected for histopathological examinations for accurate diagnosis and further management of patient.

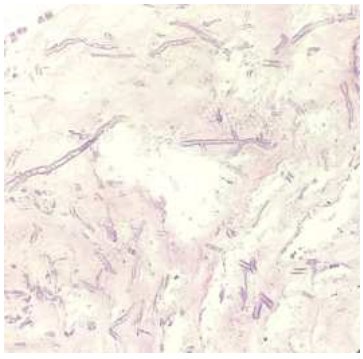

Figure 1A: Aspergillus Keratitis: H & E (40X) Section studied shows corneal tissue with septate hyphae with acute branching consistent with aspergillus species.

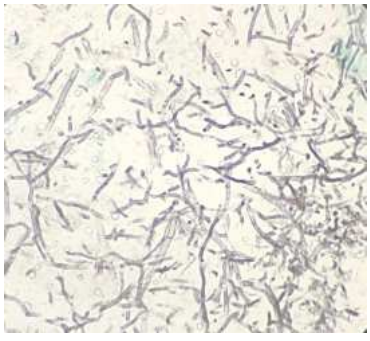

Figure 1B: Aspergillus Keratitis: Grocott-Gomori methenamine–silver nitrate stain demonstrating branching hyphae throughout the corneal stroma.

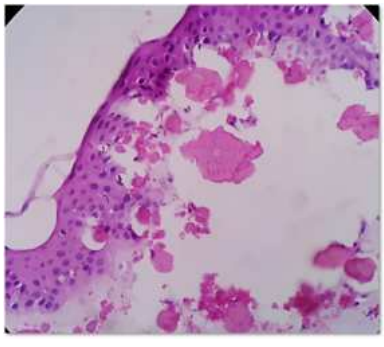

Figure 2A: Climatic Droplet Keratopathy: H & E (40X) Section studied shows many globular drop-like deposits of amorphous hyaline

material of variable sizes extending from the epithelium into the superficial stroma.

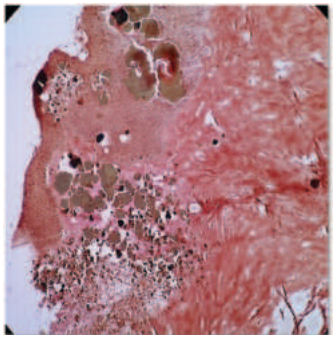

Figure 2B: Climatic Droplet Keratopathy: Verhoeff-van Geison Stain demonstrating dark olive green stained deposits.

Figure 3A: Squamous Cell Carcinoma Of Conjunctiva: Clinical photograph: shows a raised papilliform lesion on the conjunctiva that extended onto the cornea.

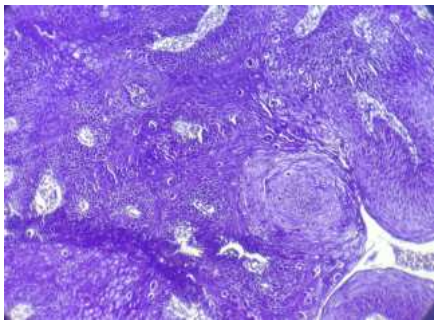

Figure 3B: Squamous Cell Carcinoma Of Conjunctiva: H & E (10X) Section studied shows dysplastic squamous epithelial cells arranged in solid sheets, and lamellated keratin pearl. These dysplastic squamous epithelial cells have breached the basement membrane and are infiltrating into the stroma.

Figure 4A: Conjunctival Nevus: Clinical photograph: Mole present over the conjunctiva .

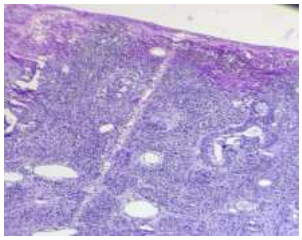

Figure 4B: Conjunctival Nevus: H & E (10X) Section studied shows nests of melanocytes / nevus cells on epidermal side of dermoepidermal junction extending into the dermis .Nests are separated by collagenous stroma as well as the presence of melanocytes.

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