

## Histopathological Study of Ocular Lesions at a Tertiary Care Hospital

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### Abstract

*Background:* Ophthalmic pathology is a distinct branch of pathology that deals with various ocular lesions excised by ophthalmologists. They fall into various categories such as inflammatory, benign, premalignant and malignant and show varied clinical presentations. The definitive diagnosis depends on histopathological study of these lesions. *Material and Methods:* The present study was conducted as a cross sectional study in the department of pathology, of our tertiary care institute. Total 124 cases included in the study during a period of 2 and half years, i.e. January 2015 to August 2017. *Results:* Out of total 6301 cases in 2 and half years, ocular lesions were 124 cases (1.96%), maximum cases were in the age group of 31-40 years. Among ocular lesions, maximum cases received were eyelid lesions followed by the lesions of conjunctiva. Among total ocular lesions, Non-neoplastic lesions comprised of 32.26%, benign lesions were 54.84%, premalignant lesions were 4.03 % and malignant lesions were 8.87%. *Conclusions:* Most common ocular malignancy was squamous cell carcinoma and most common non-neoplastic condition found was chronic dacryocystitis. Every lesion presents in a variety of clinical forms in different patients. Hence each lesion must be excised and proper histopathological diagnosis must be made to exclude malignancy.

**Keywords:** Dacryocystitis; Eyelid; Ocular Lesions.

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### Introduction

The goal of the ophthalmic pathology service is to enhance communication between the ophthalmic surgeon and the pathology laboratories and to provide detailed histopathological information that can be correlated with patient history and other clinical data. In this way, histopathological studies have the greatest benefit to ongoing patient care [1].

The eye is a unique special sensory organ which exhibits diverse histological 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 [2].

Ophthalmic Pathology is the subspecialty of Pathology and Ophthalmology that focuses on diseases of the eye and its neighboring tissues. Ophthalmic Pathologists study tissues excised by Ophthalmologists to provide a precise diagnosis of the disease. The diseased tissue is examined macroscopically (gross examination) and by light microscopy.

Other techniques, such as transmission and scanning electron microscopy, immunohistochemistry as well as molecular biological and other methods are also sometimes employed. The diagnosis of the disease plays an important part in patient care [3].

The present study is aimed to correlate clinical and histopathological features of ocular lesions and to know their pattern of prevalence in a tertiary care centre.

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## Materials and Methods

The study was carried out in the department of pathology of our tertiary care institute during the two and half years from January 2015 to July 2017. Out of 6301 total cases, 124 ocular lesion biopsies and whole specimens were received from different ophthalmology wards of this institute. A detailed history of each patient regarding age, chief complaints and relevant clinical findings were taken.

The surgical specimens were sent in 10% formalin solution. After fixation, gross findings of the specimens were taken down and representative areas of the tissue were taken for paraffin embedding and further tissue processing. The sections prepared were stained by haematoxylin and eosin stains in all cases. Special stains like PAS were used whenever needed.

## Results

Out of 6301 cases in histopathology section within 2 and half years duration, total 124 cases of ocular lesions were studied. Various lesions were categorized under lesions of eyelid, conjunctiva, lacrimal sac, lacrimal gland, orbit and retina (Table 2). A total number of 40 (32.26%) non-neoplastic, 68(54.84%) benign, 5(4.03%) premalignant and 11(8.87%) malignant cases were studied (Table 1). Maximum cases were in the age group of 31-40 years (Table 3). Females presented with the majority of ophthalmic lesions (Table 4). The most common lesions found were of the eyelid followed by the conjunctiva and lacrimal sac. The most common eyelid lesion was dermoid cyst and squamous cell carcinoma was the most common malignancy of the eyelid followed by sebaceous cell carcinoma. Most common conjunctival lesion was conjunctival cyst.

**Table 1:** Distribution of various ocular lesions

| Sr. No. | Ocular lesions       | Cases | Percentage (%) |
|---------|----------------------|-------|----------------|
| 1       | Non-neoplastic       | 40    | 32.26          |
| 2       | Benign Neoplastic    | 68    | 54.84          |
| 3       | Premalignant         | 05    | 04.03          |
| 4       | Malignant Neoplastic | 11    | 08.87          |
|         | Total                | 124   | 100            |

**Table 2:** Location wise distribution of ocular lesions

| Sr. No. | Location       | No of Cases | Percentage (%) |
|---------|----------------|-------------|----------------|
| 1       | Eyelid         | 60          | 48.39          |
| 2       | Conjunctiva    | 25          | 20.16          |
| 3       | Lacrimal sac   | 20          | 16.13          |
| 4       | Lacrimal gland | 14          | 11.30          |
| 5       | Orbit          | 04          | 3.23           |
| 6       | Retina         | 01          | 0.81           |
|         | Total          | 124         | 100            |

**Table 3:** Age-wise distribution of ocular lesions

| Age group (Years) | Number of Cases | Percentage (%) |
|-------------------|-----------------|----------------|
| 1-10              | 12              | 9.68           |
| 11-20             | 12              | 9.68           |
| 21-30             | 17              | 13.7           |
| 31-40             | 23              | 18.55          |
| 41-50             | 21              | 16.94          |
| 51-60             | 19              | 15.32          |
| 61-70             | 15              | 12.10          |
| 71-80             | 04              | 0.10           |
| 81-90             | 01              | 0.81           |
| Total             | 124             | 100            |

**Table 4:** Sex wise distribution of ocular lesions

| Age group (Years) | Male (Cases) | Female (Cases) |
|-------------------|--------------|----------------|
| 1-10              | 06           | 06             |
| 11-20             | 06           | 06             |
| 21-30             | 07           | 10             |
| 31-40             | 13           | 10             |

|        |    |    |
|--------|----|----|
| 41-50  | 07 | 14 |
| 51-60  | 09 | 10 |
| 61-70  | 08 | 07 |
| 71-80  | 01 | 03 |
| 81-90  | 00 | 01 |
| 91-100 | 00 | 00 |
| Total  | 57 | 67 |

**Table 5:** Various eyelid lesions

| Sr. No.  | Eyelid lesion                 | Number    | Percentage (%) |
|----------|-------------------------------|-----------|----------------|
| <b>A</b> | <b>Non-neoplastic lesions</b> |           |                |
| 1        | Chalazion                     | 03        | 5.00           |
| 2        | Seborrheic keratoses          | 01        | 1.67           |
| <b>B</b> | <b>Benign lesions</b>         |           |                |
| 1        | Dermoid cyst                  | 12        | 20.00          |
| 2        | Epidermal cyst                | 11        | 18.33          |
| 3        | Intradermal nevus             | 07        | 11.67          |
| 4        | Junctional nevus              | 03        | 5.00           |
| 5        | Pyogenic Granuloma            | 03        | 5.00           |
| 6        | Benign cystic lesion          | 03        | 5.00           |
| 7        | Sebaceous hyperplasia         | 02        | 3.34           |
| 8        | Compound nevus                | 01        | 1.67           |
| 9        | Dysplastic nevus              | 01        | 1.67           |
| 10       | Ecrrine hydrocystoma          | 01        | 1.67           |
| 11       | Palisaded neuroma             | 01        | 1.67           |
| 12       | Squamous papilloma            | 01        | 1.67           |
| 13       | Pilomatricoma                 | 01        | 1.67           |
| <b>C</b> | <b>Malignant lesions</b>      |           |                |
| 1        | Squamous cell carcinoma       | 05        | 8.34           |
| 2        | Sebaceous carcinoma           | 02        | 3.34           |
| 3        | Mucinous ca of eyelid         | 01        | 1.67           |
| 4        | Verrucous carcinoma           | 01        | 1.67           |
|          | <b>Total</b>                  | <b>60</b> | <b>100</b>     |

**Table 6:** Various conjunctival lesions

| Sr. No. | Conjunctival Lesions        | Number of Cases | Percentage (%) |
|---------|-----------------------------|-----------------|----------------|
| 1       | Epidermal inclusion cyst    | 10              | 40             |
| 2       | Dysplastic lesion           | 04              | 16             |
| 3       | Squamous cell carcinoma     | 04              | 16             |
| 4       | Acute conjunctivitis        | 03              | 12             |
| 5       | Chronic inflammatory lesion | 03              | 12             |
| 6       | Intradermal nevus           | 01              | 04             |
|         | Total                       | 25              | 100            |

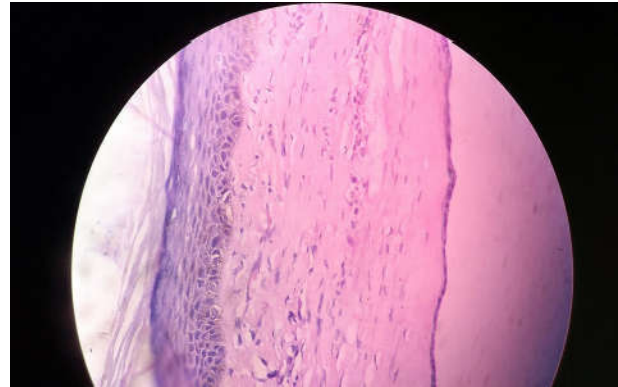
**Table 7:** Comparison with other studies

| Name of study             | Eyelid Lesions |           |
|---------------------------|----------------|-----------|
|                           | Benign         | Malignant |
| Tesluk GC et al -1985     | 82.60%         | 17.40%    |
| Abdi U et al study-1996   | 58.90%         | 41.10%    |
| Obata H et al study- 2005 | 73%            | 27%       |
| Present study- 2017       | 85%            | 15%       |

**Fig. 1:** Clinical photograph showing lower eyelid mass of sebaceous carcinoma



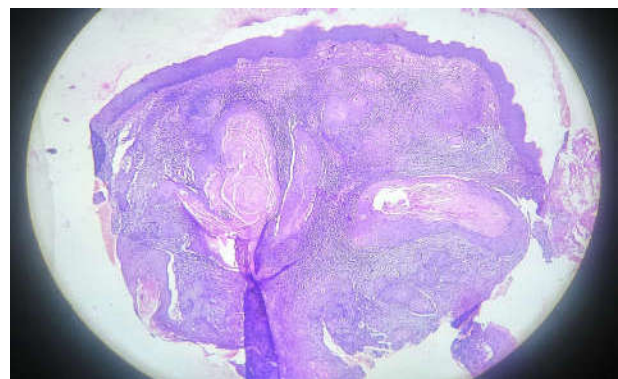
**Fig. 2:** Clinical photograph showing squamous cell carcinoma fungating growth in a known case of Xeroderma Pigmentosum



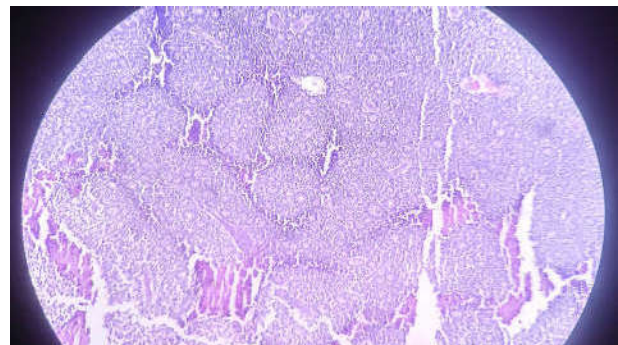
**Fig. 5:** Microscopic photograph showing Eccrine Hydrocystoma of conjunctiva H & E (400X)



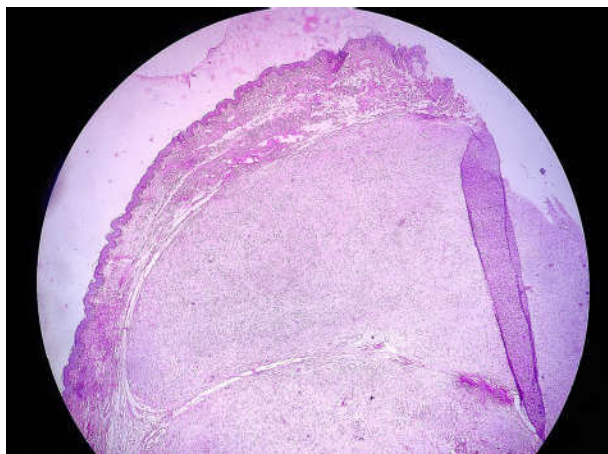
**Fig. 3:** Gross photograph showing cut surface of eye ball in Retinoblastoma



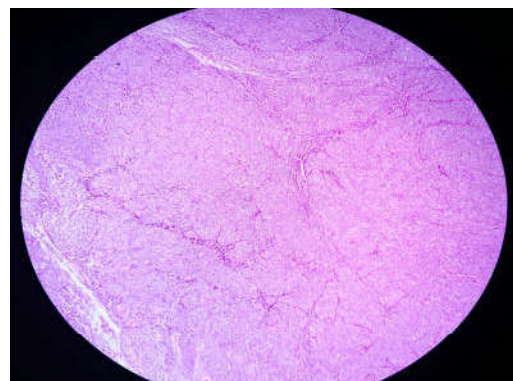
**Fig. 6:** Microscopic photograph showing squamous cell carcinoma of conjunctiva H & E (40X)



**Fig. 7:** Microscopic photograph showing Flexor-Wintersteiner rosettes of Retinoblastoma H & E (100X)



**Fig. 4:** Microscopic photograph showing well demarcated palisaded neuroma of eyelid. H & E (40X)



**Fig. 8:** Microscopic photograph showing sebaceous carcinoma of eyelid H & E (100X)

## Discussion

Results of the present study were compared with various other similar studies. The results of present study are comparable with the study carried out by Ud-Din N et al [4]. In our study, benign lesions were 54.84 % while malignant lesions were 8.87%, while other study [4] found it 61.5% and 38.5% respectively. The most important is bimodal peak seen in our study is same as the study carried out by Ud-Din N et al [4]. Clinical accuracy was decided on the basis where clinical diagnosis matches with histopathological diagnosis. In our study clinical accuracy was in almost 85% of cases while other studies [5-7] showed similar results as 84%, 91.5% and 96%. Table No 7 shows that results of present study are comparable with the study carried out by Obata H et al [8], Abdi U et al [9], Tesluk GC et al [10]. In the study of Obata H et al [8], most common benign lesion was intradermal nevus (21.3%). While in our study, most common benign lesion was dermoid cyst (20%). In the study of Obata H et al [8], most common malignant lesion was sebaceous (meibomian gland) carcinoma (15%). In our study the most common malignant lesion was squamous cell carcinoma (8.34%). In the study of Abdi U et al [9] most common benign lesion was vascular tumour (21.3%). While in our study most common benign lesion was dermoid cyst (20%). In the study of Abdi U et al [9], most common malignant lesion was basal cell carcinoma (38.8) while in our study, most common malignant lesion was squamous cell carcinoma (8.34%). In the study of Tesluk GC et al [10], the most common lesion of the eyelid was basal cell carcinoma, which represented 14.3% of the total and 82.4% of the malignant lesions, while in our study, most common malignant lesion is squamous cell carcinoma which represented 8.34% of all eyelid lesions.

The presenting complaint of the case diagnosed as retinoblastoma was leucocoria, most of the studies reported the clinical presentation, also the patient complained of loss of vision and proptosis similar to other studies [11-14].

Lacrimal sac lesions mainly comprised of chronic dacryocystitis, while retinoblastoma was the only found intraocular pathology. In contrast, malignant melanoma which is the most prevalent intraocular tumour in Caucasians, was not found in our series [15,16]. Similar rarity has also been reported in African series and in series from Nepal (5.1%) [15,16,17]. Malignant melanoma was reported 4.6% and 4.5% respectively in the studies [18,19]. The study conducted in Eastern Nepal and Nigeria reported 9.5% and 7.7% respectively of all ocular malignancies [20,21].

## Conclusion

Chronic dacryocystitis was the most common non-neoplastic lesion found in the study. Diagnosing sebaceous cell carcinoma is difficult because it resembles chalazion clinically which is a benign lesion. Hence all ophthalmic lesions removed surgically should be subjected to histopathological examination for definitive diagnosis and to plan further patient management.

### Conflict of Interest

None

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