

Histopathological Spectrum of Ophthalmic Lesions: A 5 Year Study

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ABSTRACT

Background: Ophthalmic pathology is unique in many respects as it encompasses wide range of tissues - epithelia, connective tissue and specialized tissue. Pathologies ranging from trauma, degenerative, inflammatory and neoplastic conditions can affect any of the various components of orbito-ocular system. This study is designed to review the histopathologic patterns of orbito-ocular specimens sent to the histopathologist.

Methods: It is a retrospective review of slides and paraffin-embedded blocks of all ophthalmic specimens received over a period 05 year at the histopathology department. Clinical data including age, sex, site of the lesion and clinical summary were extracted from the histopathology requisition forms.

Result: Total 116 cases were studied over a period of 05 year from January 2012 to December 2016. M:F ratio was 1.1:1. Majority of cases (40%) presented during 4th to 5th decade of life. Lid was the commonest site of lesion affecting to 61 (52.6%) cases followed by conjunctiva in 27 (23.3%), lacrimal gland in 15 (12.9%) and eye ball in 09 (7.7%) cases. Benign lesions were most common constituting the 43% cases followed by inflammatory lesions (31%) and Malignant (26%).

Among the Benign lesions, Naevi was the predominant lesion accounting for 15.5% cases followed by cystic lesions (13%). Among the malignant lesions, Squamous cell carcinoma was the predominant lesions seen in 15 cases, followed by Basal cell carcinoma 04 cases. Sebaceous gland carcinoma (04), Retinoblastoma (03), Hidradenocarcinoma (01), Mucinous carcinoma of eye lid (01), Malignant Melanoma (01) and Verrucous carcinoma (01) were the other malignant lesions.

Conclusion: Eye is the vital organ for vision. In our study, Naevi was the most common benign and Squamous cell carcinoma was the most common malignant lesion. Literature data showed that, different geographic areas had predilection for different ophthalmic lesions. Thus, it is emphasized that more studies are needed to know the geographical pattern of ophthalmic lesions.

Keywords: Ophthalmic, Histopathology, Orbito-ocular, Conjunctiva

Introduction

Ophthalmic pathology is unique in many respects as it encompasses wide range of tissues - epithelia, connective tissue and specialized tissue. It shows wide range of infections and Neoplasia - some are variants of similar tumours that present elsewhere and other are unique to eye. Many Neoplastic condition masquerade as or mimic other less aggressive Neoplastic or non-Neoplastic inflammatory conditions and needs differentiation before definitive therapy is planned. The diagnosis of the disease plays an important part in patient care.^[1]

Pathologies ranging from trauma, degenerative, inflammatory and neoplastic conditions can affect any of the various components of orbito-ocular system.^[2]

Adequate management of patients depends upon histopathological diagnosis, without which only clinical diagnosis sometime misguide in the treatment. This study

is designed to review the histopathologic patterns of orbito-ocular specimens sent to the histopathologist.

Materials and Methods

This is a retrospective study. We carried out the retrospective review of slides and paraffin-embedded blocks of all ophthalmic specimens received over a period 05 year during January 2012 to December 2016 at the histopathology department of Dr. S.C. Government Medical College Nanded, Maharashtra (INDIA). The biopsies from the eye lid, conjunctiva and any site related with eye were included in the study. Cases with recurrence were excluded from study. Hematoxylin and eosin (H & E) stained slides of the specimens were retrieved from the archives and where necessary, new slides were made from the stored paraffin blocks. Clinical data including age, sex of the patients and site of the lesions and clinical summary were extracted from the histopathology requisition forms and respective case records from medical record section. Total 116 cases were reviewed.

Result

Total 116 cases were studied over a period of 05 year from January 2012 to December 2016. The youngest case was 02 years old and oldest was of 75 years with a mean age was 43 years. M:F ratio was 1.1:1. Majority of the cases was found in the 4th decade followed by 5th decade of life. The distribution of cases according to age and sex is demonstrated in Table no.1. Lid was the commonest site of lesion affecting to 61 (52.6%) cases followed by conjunctiva in 27 (23.3%), lacrimal gland in 15 (12.9%) and eye ball in 09 (7.7%) cases. Distribution of cases according to site of lesion is shown in Table no. 2. Considering the laterality, right sided lesions (62) were quite more common than left sided (54). The ophthalmic lesions were categorized according to the histopathological diagnosis in to three sub-categories as Inflammatory, Benign and Malignant. Age wise incidence of cases according to histological nature is shown in Table no. 3. Benign lesions were most common constituting the 43% cases followed by inflammatory lesions (31%) and Malignant (26%). Inflammatory lesions were found from 1st decade of life to 8th decade of life, most commonly found in the 6th decade (6.9%) followed by 5th decade (6%).

Benign lesions were most commonly found in the 4th decade (9.5%) followed by 5th and 6th decade (6.9% each). While prevalence of malignant lesions were seen similarly in the 4th, 5th and 7th decade of life, contributing

the 6% cases in each decade.

Classification of ophthalmic lesions according to the histopathological diagnosis is shown in Table no. 4. Among the Benign lesions, Naevi was the predominant lesion accounting for 15.5% cases followed by cystic lesions (13%). Among the naevi, Junctional and Intradermal naevi accounts for 06 cases each followed by Compound and Dysplastic naevi (03 cases each).

Of the benign cystic lesions, Epidermal cyst was 06, Dermoid cyst 04, Sebaceous cyst 03 and 02 cases were of Meibomian cyst. A rare case of Lymphocytoma cutis was found at right lower lid in 58 year male patient. Malignant lesions were accounting for 26% cases. Among the malignant lesions, Squamous cell carcinoma was the predominant lesions seen in 15 cases, followed by Basal cell carcinoma 04 cases. Of the 04 cases of BCC, 02 were of pigmented variety. Well differentiated squamous cell carcinoma was the predominant histological sub-type among SCC. Also, we reported the rare cases of Sebaceous gland carcinoma (04), Hidradenocarcinoma (01), and Mucinous carcinoma of eye lid (01).

Among the malignant cases, one case was of well differentiated SCC infiltrating to whole globe, seen in 10 year girl with Xeroderma Pigmentosa. Retinoblastoma accounts for 03 cases, of which 01 case showed optic nerve invasion in a 2 year female child.

Table 1: Age & Sex wise distribution of Ophthalmic lesion.

| Age group (Years) | Number of cases | | | | Total (M+F) |
|-------------------|-----------------|--------------|-----------|--------------|--------------------|
| | Male | Percentage | Female | Percentage | |
| 0 - 10 | 03 | 05 % | 04 | 7.4 % | 07 (6 %) |
| 11 - 20 | 06 | 9.6 % | 05 | 9.3 % | 11 (9.5 %) |
| 21 - 30 | 07 | 11.3 % | 05 | 9.3 % | 12 (10.3 %) |
| 31 - 40 | 12 | 19.3 % | 11 | 20.4 % | 23 (20 %) |
| 41 - 50 | 10 | 16.1 % | 12 | 22.2 % | 22 (19 %) |
| 51 - 60 | 09 | 14.5 % | 11 | 20.4 % | 20 (17.2 %) |
| 61 - 70 | 13 | 21 % | 06 | 11 % | 19 (16.3 %) |
| 71 - 80 | 02 | 3.2 % | 00 | 00 | 02 (1.7 %) |
| Total | 62 | 100 % | 54 | 100 % | 116 (100 %) |

Table 2: Site specific distribution of ophthalmic lesion (n = 116).

| No. of Cases | Site of Lesion and Laterality | | | | | | | | | | | | | | | |
|--------------|-------------------------------|------|-------|-----|-------------|------|--------------|-----|----------|-----|----------------|----|-----------------|-----|--------|----|
| | Lid | | | | Conjunctiva | | Lacrimal Sac | | Eye ball | | Medial Canthus | | Lateral Canthus | | Limbus | |
| | Upper | | Lower | | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt |
| | Rt | Lt | Rt | Lt | | | | | | | | | | | | |
| 116 | 11 | 21 | 19 | 10 | 13 | 14 | 11 | 04 | 05 | 04 | 02 | 00 | 00 | 01 | 01 | 00 |
| 100% | 9.5 | 18.1 | 16.4 | 8.6 | 11.2 | 12.1 | 9.5 | 3.4 | 4.3 | 3.4 | 1.7 | 00 | 00 | 0.9 | 0.9 | 00 |

Table 3: Age wise incidence of Ophthalmic lesions.

| Age (year) | Inflammatory | % | Benign | % | Malignant | % | Total |
|--------------|--------------|------------|-----------|------------|-----------|------------|-------------------|
| 00-10 | 01 | 0.9% | 04 | 3.4% | 02 | 1.7% | 07 (06%) |
| 11-20 | 04 | 3.4% | 05 | 4.3% | 02 | 1.7% | 11 (9.5%) |
| 21-30 | 05 | 4.3% | 07 | 06% | 00 | 00% | 12 (10.3%) |
| 31-40 | 05 | 4.3% | 11 | 9.5% | 07 | 06% | 23 (20%) |
| 41-50 | 07 | 06% | 08 | 6.9% | 07 | 06% | 22 (19%) |
| 51-60 | 08 | 6.9% | 08 | 6.9% | 04 | 3.4% | 20 (17.2%) |
| 61-70 | 05 | 4.3% | 07 | 06% | 07 | 06% | 19 (16.3%) |
| 71-80 | 01 | 0.9% | 00 | 00 | 01 | 0.9% | 02 (1.7%) |
| Total | 36 | 31% | 50 | 43% | 30 | 26% | 116 (100%) |

Table 4: Histopathological diagnosis of Ophthalmic lesions.

| Nature of lesion | HP Diagnosis | No. of Cases | Percentage |
|-------------------|--------------------------------|--------------|-------------|
| Inflammatory (36) | Chronic Dacryocystitis | 14 | 12.1% |
| | Chronic Conjunctivitis | 06 | 5.1% |
| | Chalazion | 05 | 4.3% |
| | Chronic NSIL (Eye ball lesion) | 05 | 4.3% |
| | Chronic Blepharitis | 04 | 3.4% |
| | Fungal Granuloma | 01 | 0.9% |
| | Molluscum Contagiosum | 01 | 0.9% |
| Benign (50) | Naevus | 18 | 15.5% |
| | Cystic Lesion | 15 | 13% |
| | Squamous Papilloma | 07 | 06% |
| | Haemangioma | 05 | 4.3% |
| | Caruncle | 03 | 2.5% |
| | Schwannoma | 01 | 0.9% |
| | Lymphocytoma Cutis | 01 | 0.9% |
| Malignant (30) | Squamous cell carcinoma | 15 | 13% |
| | Basal cell carcinoma | 04 | 3.4% |
| | Sebaceous gland carcinoma | 04 | 3.4% |
| | Retinoblastoma | 03 | 2.5% |
| | Hidradenocarcinoma | 01 | 0.9% |
| | Mucinous carcinoma of eye lid | 01 | 0.9% |
| | Malignant Melanoma | 01 | 0.9% |
| | Verrucous carcinoma | 01 | 0.9% |
| Total | | 116 | 100% |

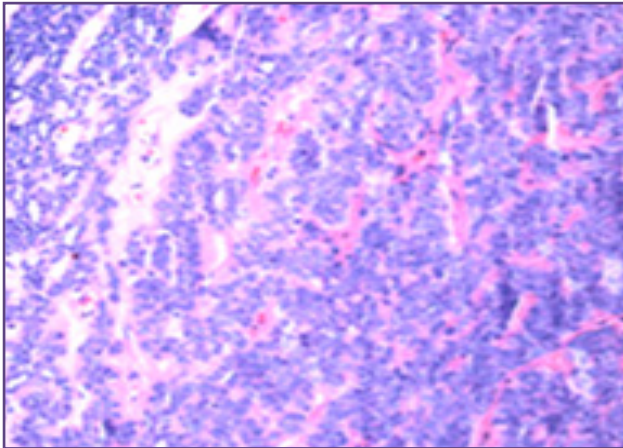


Fig. 1: Hidradenocarcinoma. Tumor cells are oval to epithelioid with clear cell change. Diffuse infiltration in the dermis. [H&E,10X].

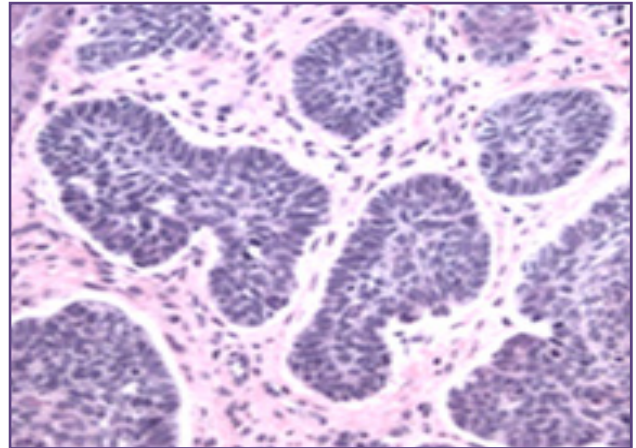


Fig. 2: Basal cell carcinoma. Nests of Basaloid tumor cells with peripheral palisading. [H&E,10X].

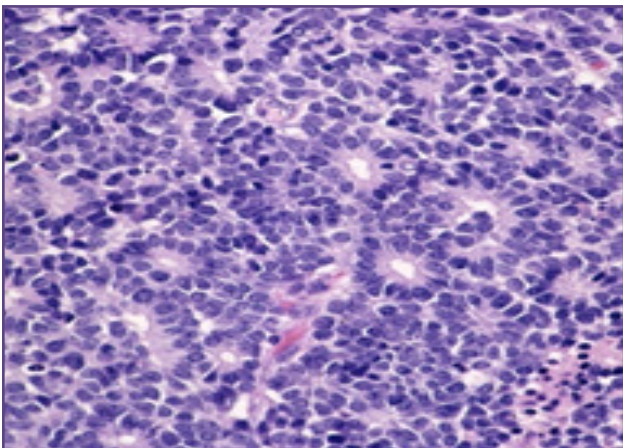


Fig. 3: Retinoblastoma. Sheets and Nests of small blue round tumor cells with nuclear hyperchromasia. Flexner-Wintersteinerrosettes seen. [H&E,10X].

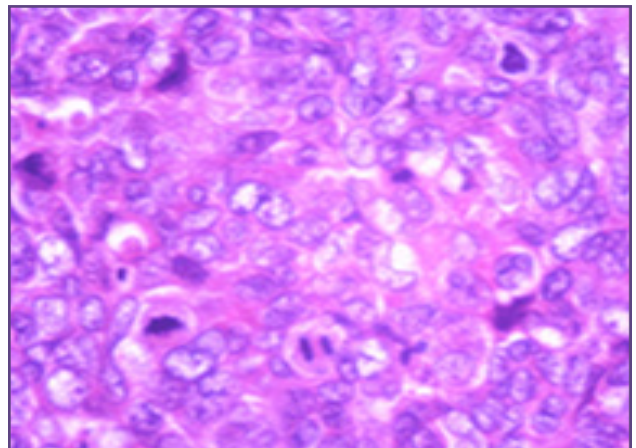


Fig. 4: Sebaceous Carcinoma. Large round to oval tumor cells with clear change with high mitotic index. [H&E,40X].

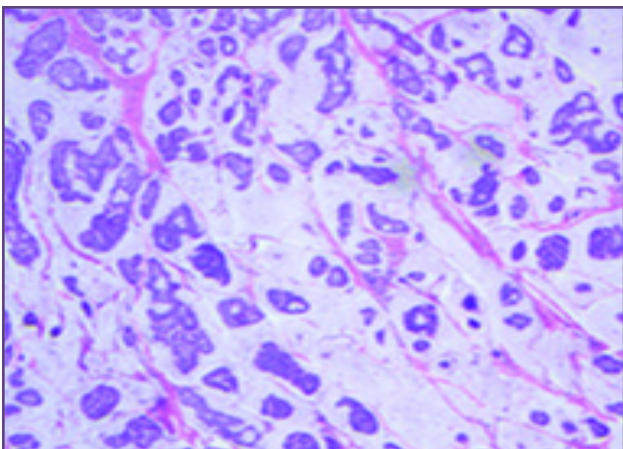


Fig. 5: Mucinous Ca of Eye lid. Small, irregular clusters of tumor cells around a ductal lumen in mucinous stroma. [H&E,10X].

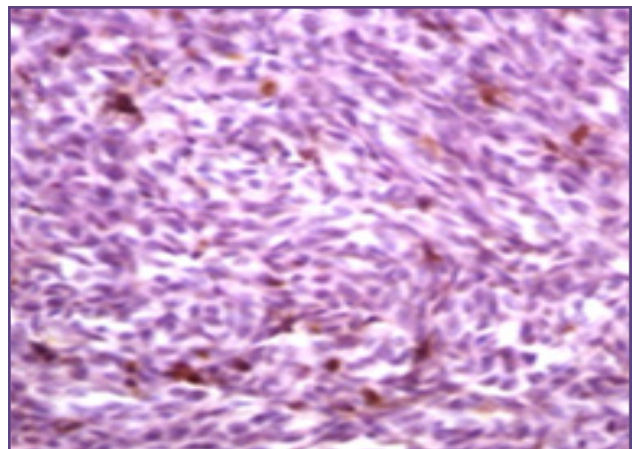


Fig. 6: Malignant Melanoma. Pleomorphic round to Spindle cells tumor cell with intracytoplasmic melanin. [H&E,10X].

Discussion

Ophthalmic pathology is a subspecialty of cellular pathology which deals with the diagnosis and characterization of eye diseases.^[3] In the present study, total 116 cases were studied. M:F ratio was 1.1:1. Similar sex ratio (1:1) was observed in study by Yashita Gupta et al.^[4] and Kujur P. et al.^[5] In the present study, Eye lid was the most common site of lesion accounting for 52.6% cases followed by conjunctiva in 23.3% cases. Chauhan SC et al.^[6] found that lid was the most commonly affected site in 57% cases followed by conjunctiva in 22% cases. Similarly, Imran Y. Shaikh et al.^[7] found that lid was the predominant site of lesion affecting to 38% cases followed by conjunctiva in 20% cases. Yashita et al.^[4] also found lid as the commonest site of lesion accounting for 33% cases. But second most common site of lesion was lacrimal sac (25%) in the study by Yashita et al.^[4] Thus, findings of the present study are well correlated with findings of the study by Chauhan SC et al.^[6] and Imran Y. Shaikh et al.^[7]

In the present study, 4th decade was the most common age group of ophthalmic lesions accounting for 20% cases followed by 5th decade (19% cases). Prevalence of ophthalmic lesions was most common in the 4th decade of life (18%) followed by 5th decade (16%) in the study by Chauhan SC et al.^[6] While Srikanth S.^[8] found that ophthalmic lesions were most commonly found in the 5th decade (34%) followed by 4th decade (17%). Thus, our findings are fairly compared with the findings of Chauhan SC et al.^[6] The number of patients were more in the 4th to 5th decade of life was probably due to that most of neoplastic lesions were more commonly presented in this age group which might hamper visual acuity as well as they caused cosmetic disfigurement; that's why due to awareness of patients, they were presented to the the ophthalmologist.

In the present study, Benign lesions were predominant followed by Inflammatory (non-neoplastic) and Malignant. Comparison of incidence of benign and malignant ophthalmic lesions with other studies is shown in Table no. 5.

| Sr. No. | Study | Benign (%) | Malignant (%) |
|---------|--|------------|---------------|
| 1 | Shaikh IY et al. ^[7] (India) | 52.3 | 47.7 |
| 2 | Bastola P et al. ^[9] (Nepal) | 70 | 30 |
| 3 | Ud Din N et al. ^[10] (Pakistan) | 38.5 | 61.5 |
| 4 | Charles NC et al. ^[11] Nigeria) | 29.5 | 31.4 |
| 5 | Chauhan SC et al. ^[6] (India) | 70 | 30 |
| 6 | Kapurdov A et al. ^[12] | 27.1 | 17.6 |
| 7 | Present Study | 43 | 26 |

In a study by Chauhan SC et al.,^[6] Shaikh IY et al.,^[7] Bastola P et al.^[9] and Kapurdov A et al.^[12] benign lesions were more common than malignant lesions. Thus, findings of our study are consistent with findings of above mentioned studies.

Among the benign lesions, Intradermal naevi (12%) and junctional naevi (12%) was the most common lesion followed by cystic lesions. Obata H et al.^[13] found that Intradermal naevus (21.3%) was the predominant lesion. In a study by Kapurdov A et al.,^[12] papilloma (70.66%) followed by naevus (14%) was the commonest among benign lesions. Chauhan SC et al.^[6] found that dermoid cyst (21%) was the commonest benign lesion followed by epidermal cyst (14%) and Intradermal naevi (12%).

Considering the malignant lesions in the present study, SCC (13%) was the commonest lesion followed by BCC (3.4%), Sebaceous carcinoma (3.4%) and Retinoblastoma (2.5%).

In the study by Srikanth S.,^[8] BCC (12.15%) followed by Malignant Melanoma (5%) was commonest. SCC (22.5%) was the commonest malignant lesion in the study by Chauhan SC et al.^[6] SCC (28%) followed by Sebaceous carcinoma (20%) was the commonest malignant lesions in a study by Shaikh IY et al.^[7] Yashita et al.^[4] found that Retinoblastoma (40%) followed by Sebaceous carcinoma (19%) and SCC (10%). Thus, findings of our study are well correlated with findings of Chauhan SC et al.^[6] and Shaikh IY et al.^[7] Also, the trend of malignant lesions in present study is more or less similar with the trends of previous studies.

Conclusion

Eye is the vital organ for vision. It is related with other vital organ like brain. In our study, Naevi was the most common benign and Squamous cell carcinoma was the most common malignant lesion. Literature data showed that, different geographic areas had predilection for different ophthalmic lesions. Thus, it is emphasized that more studies are needed to know the geographical pattern of ophthalmic lesions.

To conclude, all the ophthalmic biopsies and specimens should be subjected for histopathological examinations for accurate diagnosis and further management of patient.

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