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Original Research Article

A Clinico-Pathological Study of Ophthalmic Lesions in a Tertiary Care Center in the Northern Region of West Bengal

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Conflict of interest: Nil

Abstract:

Background: Ophthalmic pathology is unique in many aspects as it encompasses wide range of tissue – epithelial, connective tissue and specialized tissue. Knowledge of spectrum of ophthalmic lesions would contribute to the better management. Complete diagnosis is based on clinical as well as histopathological features. Clinico Pathological correlation is essential for early diagnosis and setting up proper management.

Material and Methods: It was a retrospective study carried out at the department of pathology, North Bengal Medical College, and Hospital for a period of 3 years. Total 68 specimens were reviewed that were surgically operated at the department of ophthalmology.

Results: In this study period total 68 histologic cases of ophthalmic lesions were observed. A wide spectrum of conditions ranging from non-neoplastic to benign, pre-cancerous and malignant lesions were detected. Eyelid was the most common site of lesion (64.70%). Neoplastic lesions were more in number in surgical specimen (79.5%). Epidermal cyst was most common lesion and basal cell carcinoma was the most frequently detected neoplastic lesion. Age range was from 4yrears to 81years, and highest numbers of cases were among 31-40 yeas age group.

Conclusion: This study revealed the occurrence of wide range of non-neoplastic and neoplastic lesions in this region. Every surgically removed ocular specimen must undergo histopathological examination for definite diagnosis.

Keywords: Ocular lesions, Histopathology.

Introduction

Eye is a heterogeneous structure and comprises a variety of histologic tissues. Ophthalmic lesions include a wide spectrum of diseases ranging from degenerative, infective, inflammatory, and neoplastic lesions. The pattern of eye diseases differs in different geographical areas and the pattern of ocular morbidities is also changing rapidly in last few decades. [1] Conjunctival lesions comprise a large variety of conditions ranging from benign lesions such as dermoid cyst, nevus to malignant lesions such as melanoma or squamous cell carcinoma which ultimately may lead to visual loss. [2] Eyelids are complex structure that protects anterior surface of the globe. Commonly encountered eyelid lesions vary from nevus, pyogenic granuloma, dermoid cyst, to basal cell carcinoma, sebaceous carcinoma etc. [3] lacrimal gland lesions are relatively rare. The spectrum of lesions ranges from self-limiting inflammatory to benign or malignant ones. Incisional biopsy is indicated as early as possible in suspected neoplastic lesions and in cases of inflammatory lesions not responding to conservative treatment. [4] Orbital lesions are rare. Orbital tumors can be primary or secondary. In case of adult, common tumors are lymphoid neoplasm, cavernous hemangioma, and meningiomas. [5] The diagnosis of ophthalmic lesions is based on clinical as well as histopathological features. Hence a correct histopathological diagnosis is very important for both treatment and prognosis purpose.

Aims and Objectives: to determine the clinical and histopathological spectrum of ophthalmic lesions in this region.

Materials and Methods

Study Design: descriptive retrospective study

Study Setting:

Place – department of pathology, North Bengal Medical College and Hospital.

Period–July 2019-June 2020.

Data collection instrument: retrospective record review.

Data was reviewed over 3 years. All the ocular lesions received in the department of pathology, NBMCH in the above-mentioned period were retrospectively studied. The demographics (age, sex), and clinical diagnosis were noted from histopathology requisition form, final histopathological diagnosis was noted from records. The original slides were retrieved from the archives and reviewed. Fresh sections were cut from tissue paraffin blocks and stained routinely with hematoxylin and eosin stain whenever necessary, special stains were done as required.

Inclusion Criteria: Ophthalmic surgical samples with complete clinical diagnosis

Exclusion Criteria: cases without proper clinical diagnosis

Sample Size: all ophthalmic surgical cases with complete clinical history reported in that period (68)

Results

Total 68 cases of ophthalmic lesions were observed. It was found that ophthalmic lesions were highest among 30-39 years of age group (18.47%), and lowest in the age group of 80 years and more (1.54%). There was always male preponderance except the age group of 60-69 years. From the pediatric and adolescence group 13 cases were studied. Eyelid lesions were most frequent in this study (64.70%) and next came conjunctival lesions (24.62%). Orbital lesions shared equally with lacrimal gland in frequency (3 cases) and least number of cases were intraocular in location (2). Among the histopathological lesions non-neoplastic lesions were 20.5% of the total cases. Rhino sporidiosis and granulomatous lesions of eyelid were the commonly detected cases in the non-neoplastic category. Among the neoplastic lesions 53.70% cases were benign and 46.30% were malignant. Epidermal cyst was the most frequently observed benign lesion, followed by dermoid cyst and capillary hemangioma. Single case of calcinosis cutis and a case of sebaceous hyperplasia were also detected from eyelid. Basal cell carcinoma was found to be the most common malignant lesion (24%) followed by squamous cell carcinoma and sebaceous carcinoma. One case of malignant melanoma from eye lid was also observed.

Corneal lesions were considered along with the conjunctival lesions. Among the 15 cases of cornea-conjunctival lesions hemangioma was the most common entity (4 cases). Other lesions were single case of pyocele and conjunctival cyst, 2 cases of intradermal naevus, 3 cases of conjunctival intraepithelial neoplasia and 4 cases of squamous cell carcinoma. Pleomorphic adenoma was the only observed lesion of lacrimal gland origin. Retinoblastoma was the only malignant intraocular tumor (8%). There were 2 cases of Non-Hodgkin lymphoma from orbital origin and also 2 cases of retinoblastoma (8%).

In the pediatric and adolescence age group epidermal cyst followed by hemangioma was the most common benign tumor and retinoblastoma a was the only malignant tumor.

Table 1: Distribution of ophthalmic lesions according to age and sex

Age(year)	Male	Female	Total (%)
0-9	3	0	3(4.62%)
10-19	7	3	10(15.39%)
20-29	4	6	10(15.39%)
30-39	8	5	13(18.47%)
40-49	6	3	09(13.85%)
50-59	5	4	09(13.85%)
60-69	3	4	07(10.77%)
70-79	2	2	04(6.15%)
80onwards	1	0	01(1.54%)

Table 2: Frequency, demography, and topographic distribution of various non-neoplastic ocular lesions:

Type of non-neoplastic lesions	Location	No of cases	(%)
Inflammatory lesions			
1. Inflammatory granulation tissue	Eyelid	2	2.94%
2. Granulomatous lesion	Eyelid	4	5.88%
3. Pyocele	Conjunctiva	1	1.47%
4. Inflammatory pseudotumor	Orbit	1	1.47%
Infection			
1. Rhinosporidiosis	Eyelid	4	5.88%
Cutaneous deposit			
1. CalcinosisCutis	Eyelid	1	1.47%
Others			
Sebaceous Hyperplasia	Eyelid	1	1.47%

Table 3: Frequency, demography, and topographic distribution of various neoplastic diseases

Type of neoplastic lesion	Location	No	(%)
Benign			
1. Epidermal Cyst	Eyelid	6	7.35%
2. Dermoid Cyst	Eyelid	4	5.88%
3. Conjunctival Cyst	Conjunctiva	1	1.47%
4. Squamous Papilloma	Eyelid	2	2.94%
5. Haemangioma	Eyelid	2	2.94%
	Conjunctiva	4	5.88%
6. Lipoma	Eyelid	2	2.94%
7. Intradermal naevus	Eyelid	3	4.4%
	Conjunctiva	2	2.94%
8. PSA	Lacrimal gland	3	4.4%
Precursor lesions			
1. Highgrade dysplasia	Conjunctiva	1	1.47%
Malignant			
1. Basal cell carcinoma	Eyelid	6	8.82%
2. Malignant Melanoma	Eyelid	1	1.47%
3. SCC insitu	Eyelid	3	4.4%
	Conjunctiva	2	2.94%
4. Squamous cell carcinoma	Eyelid	2	2.94%
	Conjunctiva	4	4.4%
5. Sebeceous carcinoma	Eyelid	2	2.94%
6. Non-Hodgkin Lymphoma	Orbit	2	2.94%
7. Relitoblastoma	Intraocular	2	2.94%

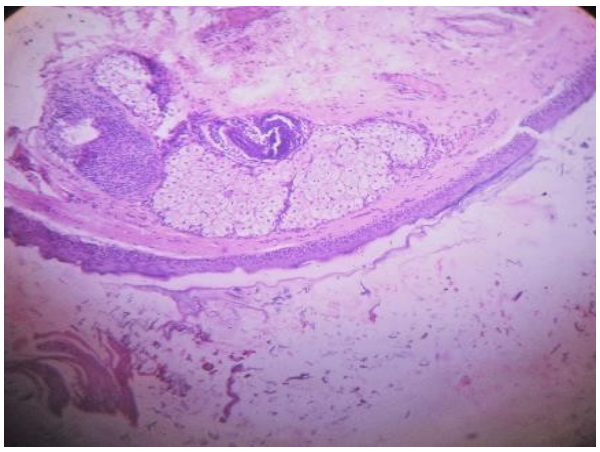

Figure 1: Dermoid cyst (H&E10x)

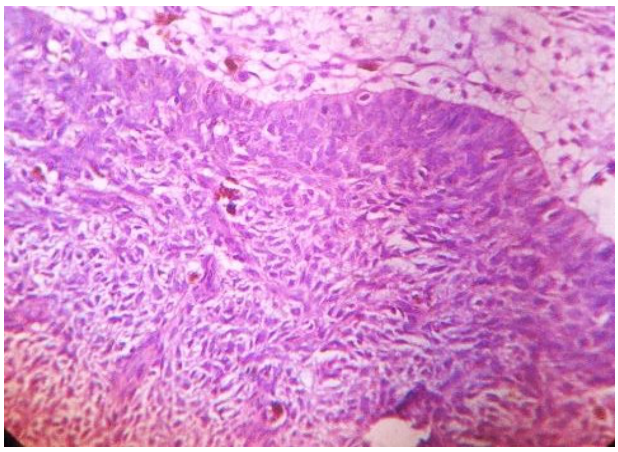

Figure 2: Melanoma (H&E40x)

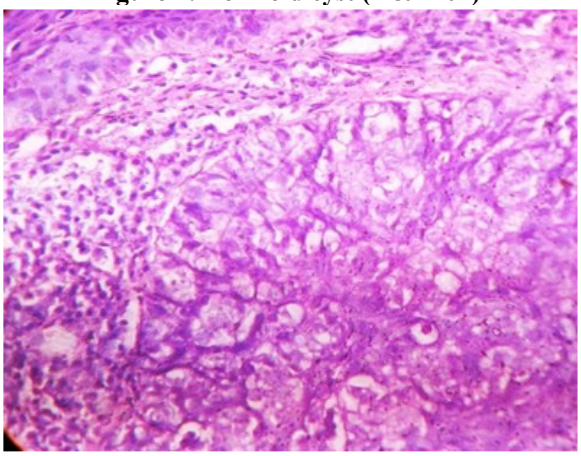

Figure 3: sebaceous carcinoma (H&E40x)

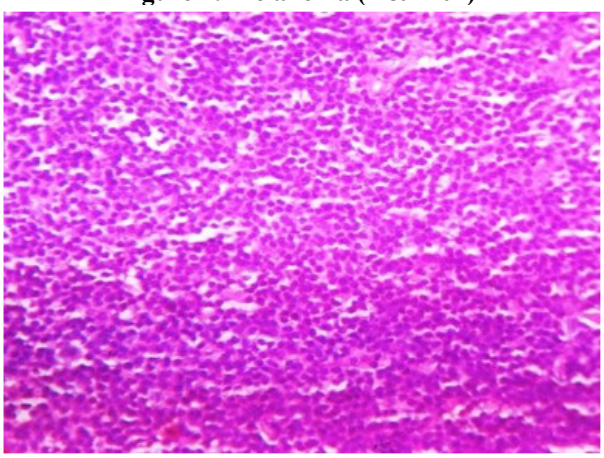

Figure 4: Retinoblastoma (H&E40x)

Discussion

A total number of 68 cases were studied over a period of 3 years. In the present study it was found that ophthalmic lesions were highest among 30-39 years age group which was 18.7% of all cases and this showed similarity with the study by Chauhan et al. [7,8] and Patel et al. where majority of the cases were reported in 31-40 years age group. Difference in sex distribution were not much significant in those studies but here we got male preponderance. [7] Clinical diagnosis was consistent with histopathological diagnosis in 60% cases. Accuracy was high in this study (60%) in comparison to the study by Chauhan et al. (49%) [7] but low to the study by Gupta et al. (76%) [1].

Non neoplastic lesions were only 20.5% among total histopathological types which did not show concordance with the study by Patel et al., and Gupta et al. where incidence of non-neoplastic lesions was 52% and 61.1% respectively. [8,1] Most frequent ocular specimens were from eyelid lesions which showed similarity with the study by Chauhanet al [7].

Intra ocular tumors were least common in this study but in the study by Chauhan et al. least number of cases were from lacrimal gland origin. [7] Epidermal cyst of eyelid was the frequently detected case in this study. In a study by Gupta et al. rhino sporidiosis was the commonest followed by sebaceous carcinoma, [1] but in another study by Patel et al. dermoid cyst and chalazion were most common. [8] Among the neoplastic lesions benign lesions slightly outnumbered the malignant entities. Epidermal cyst was most common benign lesion. Basal cell carcinoma was the most common malignant lesion in this study which showed discordance with the study by Gupta et al. where angiomatous lesion followed by intradermal naevi were most common benign lesion whereas sebaceous carcinoma was the commonest malignant tumor. [1]

In a study by Shrestha et al. squamous papilloma was the commonest benign tumor and basal cell carcinoma was most frequently detected malignant eye lid tumor. [3] Among the pediatric and adolescence age group retinoblastoma was the only malignant tumors while epidermal cyst followed by hemangioma was the most common benign tumor and this showed similarity with the study by Dai et al. where epidermoid cyst was most common ocular benign tumor retinoblastoma was commonest malignant tumor followed by rhabdomyosarcoma. [9] Among the benign corneal conjunctival lesions hemangioma (capillary) was the commonest in this study as opposed to the study by Mondal et al. where most common entity was degenerative lesions [6], while in the study by Chauhan et al, the most common benign lesion was granuloma pyogenicum. [7] Squamous cell carcinoma was the commonest malignant corneal conjunctival lesions (4.62%) which was similar like to the study by Gupta et al. but showed discordance with the study by Patel et al. where pterygium and sebaceous carcinoma were the commonest benign and malignant tumor respectively. [8] In a study by Hind M Alkatan et al. most frequent category of lesion was fibro degenerative type with the majority being pterygium or pinguecula and the most frequent malignant lesions were ocular surface squamous neoplasia. [2]

Among the orbital lesions Non Hodgkin Lymphoma was the commonest and this was similar to the study by Gupta et al. [1] but the study by Patel et al. found mucormycosis as the commonest. [8] In a study by M Tulasi Priya and Naval Kishore Non Hodgkin Lymphoma was the most frequently detected case from the orbit followed by cavernous hemangioma and meningioma. [5] Pleomorphic adenoma was the only neoplastic lacrimal gland lesion in this study as opposed to the study by M Tulasi Priya and Naval Kishore [5] where they got pleomorphic adenoma (most common), along with lacrimal duct cyst, adenoid cystic carcinoma and Non Hodgkin Lymphoma.

Limitations: It was a retrospective study, and follow up of the patients was not possible.

Conclusion

Eye is a vital organ. Different geographical areas have different pattern of ophthalmiclesions. A wide range of non-neoplastic and neoplastic ophthalmic lesions may be encountered with varied presentation. All tumors and tumor like lesions require surgical treatment mostly, hence a correct histopathological diagnosis is very important for early implementation of accurate management.

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