ORIGINAL ARTICLE

A HISTOPATHOLOGICAL STUDY OF OPHTHALMIC LESIONS AT A TEACHING HOSPITAL

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ABSTRACT

Background: Objectives of the study was to study the morphological and clinico-pathological correlation of ophthalmic lesions, to know the pattern of prevalence of ophthalmic lesions in hospital and to compare the data and other investigations with similar studies from India as well as abroad.
Materials and methods: The study was carried out in the pathology department of NHL municipal medical college, Ahmedabad during 2009. Total 100 biopsies & whole specimen of tumours were obtained from patients admitted in various wards of an Ophthalmology department.
Results: Ophthalmic lesions were highest (18%) in 31-40 year age group. Eyelid (57%) was the most commonly involved site. Clinical diagnosis was consistent with histopathological diagnosis in approximately half (49%) cases. Among eyelid lesions, dermoid cyst (21%) was highest. Among conjunctival lesions, granuloma pyogenicum (22.5%) was highest.
Conclusion: All ophthalmic lesions removed surgically should always (without exception) be subjected to histopathological examination to establish correct diagnosis for further management.

Keywords: ophthalmic lesions, histopathological study, eyelid, conjunctiva, orbital lesion

INTRODUCTION

Ophthalmic histology techniques differ from those of normal tissue in fixation, processing and sectioning. Most anatomical pathology laboratories do not have necessary set up to provide these special techniques. Again it is required to train the personnel to identify disease processes unique to eye diseases or demonstrate them on a microscopic slide along with the pupil and optic nerve.[1]

Ophthalmic Pathology is the subspecialty of Pathology and Ophthalmology that focuses on diseases of the eye and its neighbouring 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, immunehistochemistry, as well as molecular biological and other methods are also sometimes employed. The diagnosis of the disease plays an important part in patient care.[2]

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.[3]

Objectives of this study were to study the morphological and clinico-pathological correlation of ophthalmic lesions, to know the pattern of prevalence of ophthalmic lesions in hospital and to compare the data and other investigations with similar studies from India as well as abroad.

MATERIALS AND METHODS

The study was carried out in the pathology department of NHL municipal medical college, Ahmedabad during 2009. Total 100 biopsies & whole specimen of tumours were obtained from patients admitted in various wards of an Ophthalmology Institute affiliated to the medical

college. 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. Thorough gross examination of each mass for its size, shape, and consistency was done. Several representative areas of tissue were taken from received surgical specimen & subjected to routine paraffin embedding. Four to five sections 2-3 mm thick were taken from different areas of specimen & processed in automatic tissue processor. Blocks were prepared with the help of leuckhart's piece. After trimming of blocks, sections 5-7 um thick were cut with help of rotatory microtome. Sections were floated on water at temperature of 45 degree & were taken on albuminized slides. The sections were stained by haematoxylin & eosin stain in all cases. Special stain such as PAS stain was used whenever required.

RESULTS

Total 100 cases of ophthalmic lesions were observed.

It was found that ophthalmic lesions were highest (18%) in 31-40 year age group and lowest (1%) in the age group 81-90. After 10 years of age, proportion of lesions increases up to 40 years of age and then declined in each decade afterwards. Sex wise there was not much difference as lesions were found in 49% females and 51% males. But in the age group of 31-40 & 41-50 years proportions were found higher in females (10%) compared to males (6-8%). While male preponderance (11%) was found in 21-30 years of age group (Table 1). From malignancy point of view, lesions were benign in 70% cases and malignant in 30% cases.

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

Age Group (Yr)	Male (%)	Female (%)	Total (%)
1-10	09 (18.4)	06 (11.8)	15 (15.0)
11-20	04 (8.2)	06 (11.8)	10 (10.0)
21-30	11 (22.4)	02 (3.9)	13 (13.0)
31-40	08 (16.3)	10 (19.6)	18(18.0)
41-50	06 (12.2)	10 (19.6)	16 (16.0)
51-60	04 (8.2)	09 (17.6)	13 (13.0)
61-70	04 (8.2)	06 (11.8)	10 (10.0)
71-80	02 (4.1)	02 (3.9)	4 (4.0)
81-90	01 (2.0)	00 (0.0)	1 (1.0)
Total	**49 (100)**	**51 (100)**	**100 (100)**

Table 2: Location wise distribution of ophthalmic lesions (N=100)

Location	Cases (%)
Eyelid	57 (57)
Conjunctiva	22 (22)
Orbit	8 (8)
Lacrimal Gland	6 (6)
Retina	5 (5)
Lacrimal Sac	2 (2)

Location wise, Eyelid (57%) was the most commonly involved site followed by conjunctiva (22%) and orbit (8%), while lacrimal sac (2%) was the least commonly involved site (Table 2). Clinical diagnosis was consistent with histopathological diagnosis in approximately half (49%) cases.

Table 3: Prevelance of different Eyelid lesions (N=57)

Eyelid Lesions	Cases (%)
Dermoid cyst	12 (21.0)
Epidermal inclusion cyst	8 (14.0)
Intradermal Nevus	7 (12.2)
Sebaceous (meibomian) carcinoma	5 (8.7)
Capillary haemangioma	4 (7.0)
Cavernous haemangioma	3 (5.2)
Fibroepithelial Polyp	2 (3.5)
Eccrine hydrocystoma	2 (3.5)
Seborrheic keratosis	2 (3.5)
Malignant melanoma	2 (3.5)
Adenoid basal cell carcinoma	2 (3.5)
Pigmented basal cell carcinoma	2 (3.5)
Schwannoma	1 (1.7)
Chalazion	1 (1.7)
Lipoma	1 (1.7)
Keratinous cyst	1 (1.7)
Neurofibroma	1 (1.7)
Moderately differentiated Squamous cell carcinoma	1 (1.7)

Among eyelid lesions, dermoid cyst (21%) was highest followed by epidermal inclusion cyst (14%), intradermal nevus (12.2%) and sebaceous (meibomian) carcinoma (8.7%) (Table 3).

Among conjunctival lesions, granuloma pyogenicum (22.5%) was highest followed by capillary haemangioma (13.5%) (Table 4).

Table 4: Prevalence of different conjunctival lesions (N=22)

Conjunctival Lesions	Cases (%)
Granuloma Pyogenicum	5 (22.5)
Capillary haemangioma	3 (13.5)
Conjunctival papilloma	2 (9.0)
Epidermal inclusion cyst	2 (9.0)
Squamous cell carcinoma in situ	2 (9.0)
Well differentiated Squamous cell carcinoma	2 (9.0)
Choristoma	1 (4.5)
Cavernous haemangioma	1 (4.5)
Compound nevus	1 (4.5)
Orbital fat prolapse	1 (4.5)
Conjunctival cyst	1 (4.5)
Moderately differentiated Squamous cell carcinoma	1 (4.5)

Table 5 shows distribution of different orbital lesions, among which Non Hodgkin's Lymphoma (37.5%) was highest. Lacrimal sac lesions (2) included only chronic dacryocystitis and retinoblastoma was the only pathology amongst all five intraocular lesions. Out of 6 lacrimal gland lesions half were pleomorphic adenoma (50%) and rest (50%) were sebaceous carcinoma.

Table 5: Prevalence of different orbital lesions (N=8)

Orbital Lesions	Cases (%)
Non Hodgkin's Lymphoma	3 (37.5)
Cavernous Haemangioma	1 (12.5)
Mucocele	1 (12.5)
Schwannoma	1 (12.5)
Alveolar Rhabdomyosarcoma	1 (12.5)
Embryonal Rhabdomyosarcoma	1 (12.5)

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 70% while malignant lesions were 30%, 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]. Like Ud-Din N et al[4] study, most common malignancy in children in present study was also retinoblastoma.

Regarding sex wise distribution in malignant ophthalmic tumour, in present study 53.3% were males and 46.7% were females. Thakur SK et al[5] reported 51.2% males and 48.8% females. While Sunderraj P[6] observed 56% males and 44% females. Frequency among children was 18 % in present study while Tikur Anbessa et al[7] found it 20% which was almost similar. Frequency of retinoblastoma in our study was 27.5 which were less compared to other study[7] (39%). Clinical accuracy was decided on the basis where clinical diagnosis matches with histo-pathological diagnosis. In our study clinical accuracy was in almost half (49%) cases, while other studies[8-10] found it on higher side as it was 84%, 91.5% and 96%.These comparisons are clearly emphasizing need for biopsy of all surgically removed specimens.

Prevalence of benign and malignant lesions of conjunctival tumors in present study was 79% and 21% respectively. The same was observed in other study[11] as they were 78.5% and 21.5% respectively. In the study of Obata H et al[11] most common benign lesion was intradermal nevus(13%).While in our study most common benign lesion were granuloma pyogenicum(22.5%) followed by intradermal nevus (4.5%). In the study of Obata H et al[11] most common malignant lesion was malignant lymphoma (9%).While in our study most common malignant lesion was squamous cell carcinoma (22.5 %). Among eyelid malignancy, present study found 41.7% sebaceous (meibomian) carcinoma and 33.3% basal cell carcinoma. While study carried out by Jahagirdar SS et al[12] observed 37% sebaceous (meibomian) carcinoma and 44% basal cell carcinoma.

Table 6: Comparison of Incidence of benign and malignant lesions of eyelid tumors with study carried out by Obata H et al[11], Abdi U et al study[13], Tesluk GC et al[14]

Name of Study	Eyelid lesions	
	Benign	Malignant
Obata H et al[11] study-2005	73%	27%
Abdi U et al[13] study-1996	58.90%	41.10%
Tesluk GC et al[14]-1985	82.60%	17.40%
Present study-2009	79%	21%

Table 6 shows that results of present study are comparable with the study carried out by Obata H et al[11] study, Abdi U et al[13] study, Tesluk GC et al[14] study. In the study of Obata H et al[11] most common benign lesion was intradermal nevus (21.3%).While in our study most common benign lesion was dermoid cyst (21%), while intradermal nevus (12.2%).In the study of Obata H et al[11] most common malignant lesion was sebaceous (meibomian) carcinoma (15%).In our study also the most common malignant lesion was sebaceous (meibomian) carcinoma (8.7%). In the study of Abdi U et al[13] most common benign lesion was vascular tumour(21.3%).While in our study most common benign lesion were dermoid cyst(21%) followed by intradermal nevus (12.2%). In the study of Abdi U et al[13] most common malignant lesion was basal cell carcinoma (38.8) while in our study most common malignant lesion was sebaceous (meibomian) carcinoma (8.7%). In the study of Tesluk GC et al[14] 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 sebaceous (meibomian) carcinoma (8.7%).

In summary, we can conclude that all ophthalmic lesions removed surgically should always (without exception) be subjected to histopathological examination to establish correct diagnosis for further management.

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