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"STUDY OF HISTOPATHOLOGICAL SPECTRUM AND CLINICOPATHOLOGIC CORRELATION OF OCULAR AND ITS ADNEXAL LESIONS AT RUHS-CMS ATTACHED RDBP JAIPURIYA HOSPITAL-JAIPUR"

Pathology

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KEYWORDS

INTRODUCTION

The orbit is a bony recess in the skull containing the eyeball, associated muscles, nerves, and blood vessels, together with most of the lacrimal apparatus[1].

A wide range of diseases affect the eyes and ocular adnexa that varies from inflammation to different types of neoplastic conditions. Histopathology is the key to diagnosis for most non-neoplastic and neoplastic lesions[1].

Ocular tumors are categorised into bulbar (those affecting the eyeball) and epibulbar neoplasms (those affecting the conjunctiva). Epibulbar neoplasms can either be benign usually located at the limbus or malignant which are usually rare and are divided into non-pigmented neoplasms such as squamous cell carcinoma, lymphoma, Bowen's disease and pigmented neoplasms such as melanoma.[1]

Histopathology is gold standard for diagnosis of this condition. Other methods are:
a) Ocular surface cytological examination with in vivo confocal microscopy
b) Topical application of methylene blue.

There are very few studies on lesions of eye and ocular adnexa in India. In view of the fact that lesions of eye and ocular adnexa account for significant morbidity and mortality, the proposed project therefore aims to undertake a comprehensive review of the frequency and histological patterns of these lesions as seen in here, in order to compare them with similar lesions previously reported from other parts of country, and the rest of the world.

AIM

1. To establish diagnosis of different ocular and its adnexal lesions in histopathology department of pathology with their clinico-pathologic correlation.

MATERIALS AND METHODS

A total 100 ophthalmic biopsy specimens from both paediatric and adult patients referred to Histopathology laboratory, Department of Pathology RUHS Medical College and Jaipuriya Hospital, Jaipur, Rajasthan, India, over a period of 1 year after approval from RUHS –CMS ethics committee. Informed written consent was collected from the patients or their relatives. A detailed clinical history taking including systemic illnesses too was done. Occupational history especially outdoor activity was obtained. A provisional clinical diagnosis was made in all the cases. To further support the clinical diagnosis various investigations like computed tomography (CT) scan, magnetic resonance imaging (MRI), X-Ray, blood investigations, thyroid hormone levels tests etc were done. After doing needed investigations a final clinical diagnosis was entered in the proforma made for the study. All specimens were subjected to the fixation, grossing, processing and staining with Harris haematoxylin and Eosin stain. Examination of each tissue sections under Binocular microscope was done along with the clinical data on hand. Where necessary, new sections were cut from available archival paraffin blocks and stained with haematoxylin and eosin.

All the informations were collected in a pre- designed proforma.

Data thus collected entered in MS Excel 2010 in the form of master chart. The data was classified and analysed as per the aims and objectives of the study. Inferences were drawn with the use of appropriate tests of significance.

The study was done to report the spectrum and frequency of different ocular and adnexal lesions in a tertiary care hospital in Jaipur, India.

OBSERVATIONS AND RESULTS

Among the 100 biopsies evaluated, we received an unequal representation of male and female patients (59 vs 41) with male: female ratio of 1.4:1 and maximum cases (32%) were found between the age group of 21-40 years, mean age being 42.1 years. Most common lesions were from 21-40 years age group (32%) while malignancy were more frequent > 40years of age. Among ophthalmic lesions, neoplastic lesions were outnumbered the nonneoplastic lesions. Among those, benign lesions were more common than malignant lesions.

Among 100 ophthalmic biopsies; 45% lesions were nodular in nature. Out of those, 36 were neoplastic lesions and rest 9 were nonneoplastic lesions. Among malignant lesions 16 were nodular and 7 were noduloulcerative in nature. Benign lesion can be cystic, nodular, noduloulcerative, dome shaped, fleshy, pedunculated and plaque form in nature.

Table: Percentage Distribution Of Various Eye And Its Adnexal Lesions Based On Their Site

	Conjunctiva (%)	Eyelid (%)	Limbus (%)	Medial Canthus (%)	Near the limbus (%)	Eyebrow (%)	Total (n=100)
Benign Cystic Lesions	4	9	0	2	0	4	19
Pterygium	12	0	0	0	0	0	12
Inflammatory Pathology	7	3	0	0	0	0	10
CIN	3	0	0	0	4	0	7
Squamous Papilloma	0	2	1	1	0	0	4
Dermolipoma	3	0	0	0	1	0	4
Limbal Dermoid	1	0	2	0	0	0	3
Sebaceous Neoplasm	0	2	0	0	0	0	2
Trichoepithelioma	0	2	0	0	0	0	2
Pyogenic Granuloma	1	1	0	0	0	0	2
Actinic Keratosis	0	0	2	0	0	0	2
Lipoma	1	0	0	0	0	0	1
Lymphoproliferative Lesion	1	0	0	0	0	0	1
Compound Nevus	0	1	0	0	0	0	1
Dermal Nevus	0	1	0	0	0	0	1
Intradermal Nevus	0	1	0	0	0	0	1
Epibulbar Dermoid	0	0	1	0	0	0	1
Neurilemmoma	0	1	0	0	0	0	1
Capillary Haemangioma	0	1	0	0	0	0	1
Fibroma	0	1	0	0	0	0	1
Seborrheic keratosis	0	0	0	0	0	1	1
SCC	7	0	2	0	0	0	9
Sebaceous Cell Carcinoma	0	8	0	0	0	0	8
Basal Cell Carcinoma	0	4	0	2	0	0	6
Total	40	37	8	5	5	5	100

The most common lesions were benign cystic lesions (19%) followed by pterygium (12%) among all ophthalmic lesions.

Eye lids (9%) were most commonly involved site by Benign cystic lesions.

Among neoplastic lesions, conjunctival intraepithelial neoplasia (11.9%) was the commonest benign tumor followed by squamous papilloma and dermolipoma.

Most common malignancy was squamous cell carcinoma (9%) followed by sebaceous carcinoma and basal cell carcinoma.

Conjunctiva (40%) was the most commonly involved site followed by eye lid (37%) lesions.

Pterygium is degenerative condition of the subconjunctival tissue, which was found to be most common ophthalmic lesion over conjunctiva.

Although inflammatory reaction may occur any part of eye and its adnexa but inflammation of conjunctiva was commonest in our study.

Dermolipomas comprised 4% of all excised ophthalmic lesions in which conjunctiva was the predominantly involved by it.

Limbal dermoid has been most commonly reported on the limbus followed by conjunctiva.

Among the ophthalmic lesions, 7% were conjunctival intraepithelial neoplasia with variable degrees of atypia which predominantly found near the limbus followed by conjunctiva.

On eyebrow, Benign cystic lesions were most common lesion followed by Seborrheic keratosis.

Lymphoproliferative lesion was commonly present on conjunctiva.

Nevus, Neurilemmoma, Capillary Haemangioma and Fibroma have beenreported on eyelid.

Eyelid was found to be most common site for malignancy. Among those, sebaceous carcinoma has been most commonly reported on eyelid followed by BCC while SCC was commonest on conjunctiva.

Table: Distribution Of Various Malignant Eye And Its Adnexal Lesions Based On Their Site

Site	Squamous Cell Carcinoma (9)	Sebaceous Carcinoma (8)	Basal Cell Carcinoma (6)	Total (23)
Conjunctiva (7)	7 (30.43%)	-	-	30.43%
Upper Eyelid (7)	-	7 (30.43%)	-	30.43%
Lower Eyelid (5)	-	1 (4.35%)	4 (17.39%)	21.74%
Limbus (2)	2 (8.70%)	-	-	8.70%
Medial Canthus (2)	-	-	2 (8.70%)	8.70%
Total (23)	39.13%	34.78%	26.09%	100%

χ^2=40.633 Df=8 p-value<0.001

Among the malignant neoplasm, SCC (39.13%) was the most common neoplasms followed by sebaceous cell carcinoma 8 (34.78%) and basal cell carcinoma 6 (26.09%).

Among malignant lesions, eye lids were most commonly involved site for malignancy.

Most common site involved by SCC was conjunctiva.

Out of clinically inflammatory appearing six cases, four were consistent with clinical diagnosis and two were found to be benign neoplastic lesion on histopathological examination. These two cases presented with signs of inflammation include heat, pain, redness, and swelling. An inflammatory reaction around the tumor may lead to an erroneous diagnosis.

Cystic swellings were clinically suspected in twenty one cases, sixteen confirmed histopathologically, one was inflammatory and four were found to be benign neoplastic. Benign neoplastic lesions can cause cyst. So, it may be suspected as cystic lesion clinically. Cystic lesion may present with inflammatory reactions but it was predominantly appearing cystic. A dominant cyst can hide inflammatory reaction clinically.

Benign neoplastic lesions were clinically diagnosed correctly in 29 out of 46 cases, misdiagnosed included inflammatory (5 of 46), cystic (3 of 46), degenerated (2 of 46) and malignant neoplastic lesions (7 of 46). Cystic lesions had solid components clinically which was suspected as benign neoplasm.

Histopathologically diagnosed malignant neoplastic lesions seemed firm elevated nonulcerated nodule clinically. So, misdiagnosed as benign neoplastic lesions.

Out of clinically diagnosed 17 malignant cases 16 were diagnosed correctly and only 1 was found to be benign (squamous papilloma) on histopathological examination. This benign lesion (squamous papilloma) was noduloulcerative, fungating, painless, rapidly progressive and hard in consistency clinically. So, it was suspected as malignant lesion on clinical examination. Papilloma may appear as noduloulcerative, fungating and painless lesion.

DIAGNOSTIC ACCURACY OF CLINICAL DIAGNOSIS

Clinical accuracy was decided on the basis where clinical diagnosis consistent with histopathological diagnosis. In our study clinical accuracy was almost 75% for all eye and its adnexal lesions.

DISCUSSION

The cases were compared with other studies for age and sex distribution, site of lesion, histological patterns, statistical values including diagnostic accuracy.

Table: Comparison Of Age And Gender With Other Studies

	Our study	Yashita et al	Sheikh et al	Chauhan SC et al
0-20 years	16%	44.87%	18%	21%
21-40 years	32%	15.77%	30%	37%
41-60 years	30%	14.13%	28%	23%
>60 years	22%	25.20%	24%	19%
M: F	1.5 :1	1:1	1.4 :1	1.5 :1

We found that most of the cases in our study were falling in the 21-40 years age group with male preponderance. The commonest age group of Sheikh et al[3] and Chauhan SC[2] et al were comparable to our study.

A similar study was conducted by Yashita et al[5] in Central India. In this study they received maximum number of cases in the age group of 0-20 years, accounting to 44.87% of the total number of cases.

Table: Comparison Of Ophthalmic Lesions With Other Studies According To Involved Site

Study	Conjunctiva (%)	Eyelid (%)
Kafle et al	37.41	35.97
Chauhan SC et al	22	57
Our study	40	37

In our study, Location wise conjunctiva (40%) was the most commonly involved site followed by on eyelid (37%) among all ophthalmic lesions.

In study of Kafle et al[7] (37.41%) lesions were more prominent on conjunctiva. While in Chauhan SC et al[2] study, eyelid lesions were more common than conjunctival lesions.

COMPARISION OF INCIDENCE OF NEOPLASTIC LESIONS WITH OTHER STUDIES

In our study, among all neoplastic ophthalmic lesions, benign lesions were commonly encountered (61.02%). This was similar to that observed by Sheikh et al[3] and Chauhan SC et al[2]. However, the reverse was true in study done by Yashita et al[5].

In our study, among the malignant lesions, SCC (39.13%) was the commonest followed by Sebaceous carcinoma (34.78%) and Basal Cell Carcinoma (26.08%). Kafle et al[4] and Malik MOA et al[7] studies supported our study which showed SCC as the commonest tumor.

Clinical diagnosis was consistent with histopathological diagnosis in

75% eye and its adnexal lesions. Other studies have reported it 76%, 65% and 49%[5,6,2].

These comparisons are clearly emphasizing on need for biopsy of all surgically removed specimens so that a definitive diagnosis can be made and hence treatment thereafter in needy case.

CONCLUSION

The present study was carried out in Department of pathology, RDBP Jaipuriya Hospital attached with RUHS CMS, Jaipur (Rajasthan). The study was aimed to evaluate histopathological spectrum of different ocular and its adnexal lesions & correlating them with clinical diagnosis. We correlated all 100 ophthalmic biopsy specimens with their clinical diagnosis. In the study, it was found that ophthalmic lesions were highest (32%) in 21- 40 years age group. Conjunctiva (40%) was the most commonly involved site. Benign Cystic lesions (19%) were the commonest lesion among all ophthalmic lesions and that comprised 48.78% of all nonneoplastic lesions. Conjunctival intraepithelial neoplasia (11.9%) was the commonest benign neoplasm and Squamous cell carcinoma (15.25%) was found to be commonest malignant neoplasm among all neoplasm.

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