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RESEARCH ARTICLE

HISTOPATHOLOGICAL STUDY OF OPHTHALMIC LESIONS.

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Abstract

Ophthalmic pathology is the subspecialty of pathology. It is unique in many respects as it encompasses wide range of tissues, epithelial elements, connective tissue and specialized tissues. The present study focused on most common ophthalmic lesions and to establish their accurate pathological diagnosis. The study was conducted in department of Pathology in collaboration with department of Ophthalmology, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Kolhapur, on 132 cases of ophthalmic lesions received in the Histopathology laboratory during period from May 2014 to April 2016. Ophthalmic specimens were routinely processed and H& E stain was performed. The study concluded that, ophthalmic lesions reported were mostly non-neoplastic. Eyelid was the commonest site followed by cornea and conjunctiva. A wide range of lesions including some rare conditions like retinoblastoma, were studied on various parameters and histopathological features were highlighted. Many neoplastic conditions clinically mimic other less aggressive neoplastic or inflammatory conditions and needs differentiation before definitive therapy is planned. So, to establish their accurate diagnosis, histopathological correlation is important and mandatory.

Introduction:-

Eye is a heterogenous tissue; hence we tend to see a variety of lesions, both non-neoplastic and neoplastic with tumoral types and subtypes. It is unique in many respects as it encompasses wide range of tissues, epithelial elements, connective tissue and specialized tissue.[1] The goal of the Ophthalmic pathology service is to enhance communication between the ophthalmic surgeon and the pathology laboratories.[2] Eye and ocular adnexa is composed of eyelids, lacrimal passages and glands, orbit, conjunctiva, cornea, sclera and intraocular tissue, mainly retina, choroid plexus, iris, etc. Ophthalmic lesions are divided into non neoplastic and neoplastic. Non neoplastic lesions include the developmental anomalies, inflammatory diseases and degenerative diseases. Neoplastic lesions are benign and malignant.[3]

Ophthalmic specimens submitted for histopathologic evaluation are obtained mostly from eyelids.[4] Among eyelid lesions, dermoid cyst is commonest, followed by epidermal inclusion cyst, intradermal nevus, sebaceous (meibomian) carcinoma, skin carcinomas (basal cell carcinoma, squamous carcinoma, accessory glands carcinomas,

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and malignant melanoma). [5] The knowledge of corneal pathology is limited. The most common diseases are endothelial decompensation, fibrosis and vascularization. Conjunctival tumors are one of the most frequent of the eye and adnexa. They comprise a large variety of conditions, from benign lesions such as nevus or papilloma, to malignant lesions such as epidermoid carcinoma or melanoma.[6] Lacrimal gland lesions include inflammatory pseudotumor, malignant lymphoma, and leukemia. Among the epithelial tumors, benign mixed cell tumor (pleomorphic adenoma) is the most common.[7] Melanomas arising from the pigmented or potentially pigment producing cells of the uvea are the most frequent primary intraocular neoplasms in adults.[8] Retinoblastoma is the most common primary malignancy of young children.[9] The histopathological diagnosis of the diseases plays an important part in patient care.

Methodology:-

The present study was conducted in the Department of Pathology at Dr. D. Y. Patil Medical College, Hospital and Research lnstitute, Kolhapur . This is a prospective study conducted for a period of 2 years from May 2014 to April 2016. The patients were selected at random irrespective of age, sex, socioeconomic status and residence. The eligible patients were briefed about the nature of the study and a written informed consent was obtained from the selected patients. Findings were recorded on predesigned proforma. All the biopsies related to the ocular site were included; the tissue samples included enucleated eyes, excision biopsies, corneal buttons, fine needle aspiration biopsies and intact tissue biopsies. The samples were processed according to the standard protocol and stained with routine technique and Haematoxylin & Eosin staining was performed. Histopathological interpretation was made by correlation of provided clinical data, studying of gross morphology and light microscopic examination.

Results:-

In present study of 132 cases, 67 cases (50.75%) were males and 65 cases (49.25%) were females with male to female ratio of 1.03:1 suggesting a slight male preponderance. The most common age group in our study was 41 to 50 years with a total of twenty cases (20.45%) out of the total cases. Ophthalmic lesions we received were mostly non neoplastic (79 cases, 59.86%) and 40.14% (53cases) were neoplastic. Out of the neoplastic lesions 30.30% (40 cases) were benign and 9.34% (13 cases) were malignancies. Site wise distribution showed maximum number of lesions were from eyelids (48 cases,36.35%). Conjunctiva was the second commonest site (38 cases, 28.77%) followed by corneal lesions (34 cases, 25.74%); orbital lesions (5 cases, 3.77%) and lesions from intraocular tissues (4 case, 3.03%). Lesions from lacrimal gland and passages were least common.

Twenty seven cases (56.25%) were non neoplastic eyelid lesions and fourteen cases (29.17%) were benign eyelid lesions out of the 48 eyelid lesions. Majority of the cases were Inclusion cysts (11 cases, 40.74%), Nevocellular nevus (6 cases, 42.85%). Seven cases (14.58%) were malignant eyelid lesions out of the 48 eyelid lesions. Majority of the cases were Squamous cell carcinoma (4 cases, 57.14%), followed by Basal cell carcinoma (2 cases,28.57%).

Thirty eight lesions were received from conjunctiva. Majority were diagnosed as CIN (14 cases, 36.85%), followed by, Pterygium, Squamous cell carcinoma and conjunctival papilloma. Thirty four cases were received from corneal lesions. Majority were diagnosed as Suppurative and inflammatory lesions (26 cases, 76.47%). Five lesions were received from orbit. Of the 5 cases, three cases were diagnosed as Epidermal cyst (3 cases, 60%), one case of Neurofibroma (20%) and one case of Basal cell carcinoma (20%). Only 4 cases were from intraocular tissues, one case each (25%) of Retinoblastoma, Macular amyloidosis, Massive retinal gliosis and Choroid suppurative lesion were reported. Retinoblastoma, a rare paediatric tumor seen in 4years old was also received in this study. Three cases were received from lacrimal gland and passages.

Table 1:- Distribution of lesions as neoplastic and non - neoplastic

Lesions (n=132)		**No. of cases**	**Percentage (%)**
Non-neoplastic		79	59.86%
Neoplastic	**Benign**	40	30.30%
	Malignant	13	9.84%
Total		132	100%

Table 2:- Site wise distribution of ophthalmic lesions

SITE	**NUMBER**	**PERCENTAGE(%)**
Eyelid	48	36.35%
Conjunctiva	38	28.77%
Cornea	34	25.74%
Orbit	5	3.77%
Intraocular Tissues	4	3.03%
Lacrimal Gland And Passages	3	2.72%
TOTAL	**132**	**100%**

Table 3:- Shows distribution of various eyelid lesions.

DISTRIBUTION OF DIFFERENT EYELID LESIONS (n = 48)	
NON NEOPLASTIC (27 cases, 56.25%) & BENIGN (14cases, 29.17%) LESIONS	
INCLUSION CYSTS (EPIDERMOID)	**11 (22.91%)**
NEVOCELLULAR NEVUS	**6 (1.25%)**
DERMOID CYSTS	**3 (6.25%)**
SQUAMOUS PAPILLOMA	**2 (4.16%)**
BENIGN ADNEXAL TUMOR	**2 (4.16%)**
CHALAZION	**2 (4.16%)**
HIDROCYSTOMA	**1 (2.08%)**
OTHER BENIGN AND INFLAMMATORY LESIONS	**14 (29.14%)**
MALIGNANT LESIONS (7cases, 14.58%)	
BASAL CELL CARCINOMA	**2(4.16%)**
SQUAMOUS CELL CARCINOMA	**4 (8.33%)**
MEIBOMIAN GLAND CARCINOMA	**1 (2.08%)**

Table 4:- Distribution of conjunctival lesions

Disease		**Distribution(n=38)**	
		No. of cases	**Percentage**
Pterygium		4	10.53
Hemangioma		3	7.89
Conjunctival cyst		2	5.26
Rhinosporidiosis		1	2.63
Conjunctival Papilloma		4	10.53
Sebacious Hyperplasia		1	2.63
Mild Epithelial Dysplasia		2	5.26
Conjunctival intraepithelial neoplasia (CIN)	CIN I	5	13.16
	CIN II	7	18.43
	CIN III	2	5.26
Squamous Cell Carcinoma		4	10.53
Non Specific Inflammations & Granulation Tissues		3	7.89
Total		38	100

Table 5:- shows distribution of various lesions of other sites.

DISTRIBUTION OF LESIONS OF OTHER SITES	
CORNEAL LESIONS (34, 25.74%)	
CORNEAL ULCER	**2**
STAPHYLOMA	**1**
DYSTROPHIES (FUCH'S&LATTICE)	**3**
KERATOGLOBUS	**1**
PANNUS	**1**
OTHER SUPPURATIVE &INFLAMMATORY LESIONS	**26**
INTRAOCULAR LESIONS (4cases, 3.03%)	
RETINOBLASTOMA	**1**

MACULAR AMYLOIDOSIS	**1**
RETINAL GLIOSIS	**1**
CHOROID SUPPURATIVE LESION	**1**
ORBITAL (5cases , 3.77%) & LACRIMAL (3 cases, 2.72%) LESIONS	
BASAL CELL CARCINOMA	**1**
EPIDERMAL CYST	**4**
NEUROFIBROMA	**1**
OTHER LESIONS	**2**

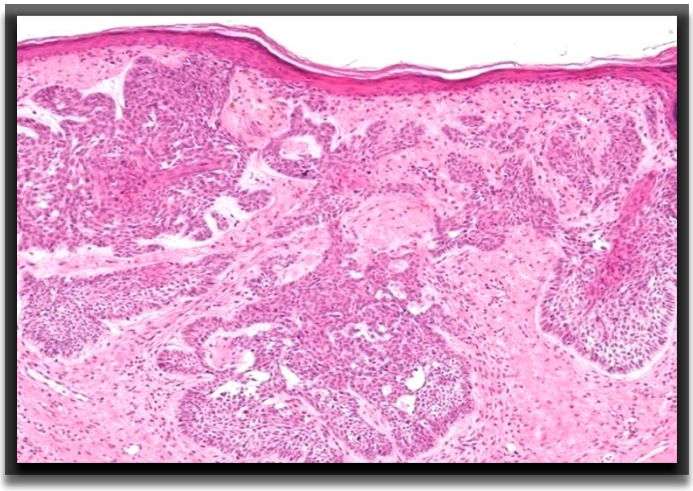

Figure 1:- BASAL CELL CARCINOMA: Section shows (H&E stain; X4) nests of varying sizes formed by atypical basaloid cells surrounded by a sharply demarcated desmoplastic stroma. Peripheral palisading, peritumoral clefting along with few mitotic figures are seen.

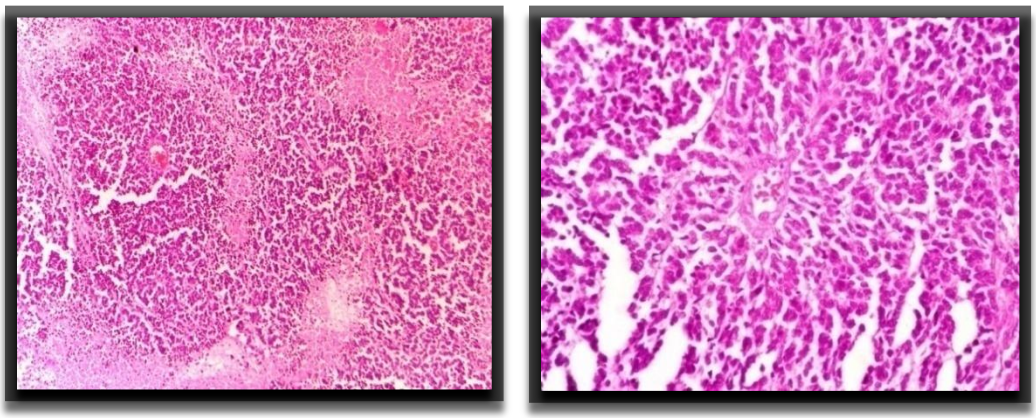

Figure 2:- A AND B. RETINOBLASTOMA: Section shows (H&E stain; X4) dark areas showing sheets and nests of small blue cells surrounded by pink areas of tumor necrosis and calcification (left figure). Section shows (H&E stain; X40) tumor cells clustered around blood vessels forming pseudorosettes and necrotic areas; numerous Flexner-Wintersteiner rosettes are also seen (right figure).

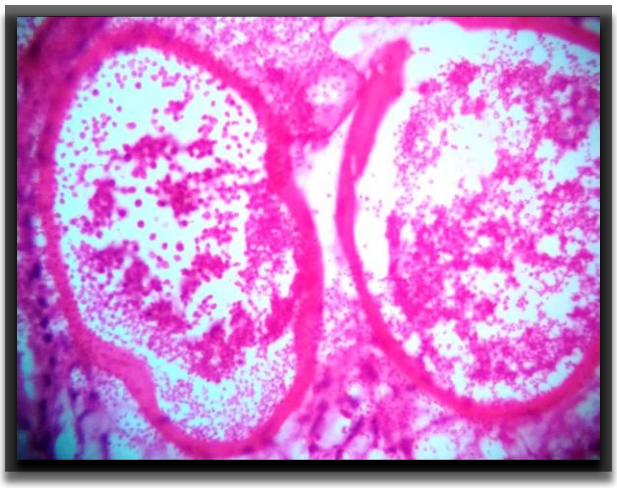

Figure 3:- CONJUNCTIVAL RHINOSPORIDIOSIS: Section shows (H&E stain; X40) multiple thick walled large spherules filled with thousands of endospores.

Discussion:-

In present study of 132 cases, 67 cases (50.75%) were males suggesting a male preponderance with male to female ratio of 1.03:1 and majority (27 cases, 20.45%) of the cases belonged to 41 to 50 years of age group. Various studies done by Shah N & Trivedi N et al[3], Bastola P & Koirala S et al[2], Shaikh I et al[10], Akpe B A & Omoti AE et al[11] and Ud-Din N et al[12]; found similar results comparable to present study. Chauhan SC & Shah S[1] et al reported slight female preponderance. While Pudasini S[13], et al, reported 3th and 4th decade as the commonest age group in their studies. In our study, 79 cases (59.86%) cases were non neoplastic and 53 cases (40.14%) were neoplastic. Various studies found similar results comparable to present study. Ud-Din N, et al[12], reported neoplastic lesions more in their study. Maximum number of lesions were from eyelids (48 cases,36.36%) followed by conjunctiva (38 cases, 28.79%), and least were seen from lacrimal gland and passages. All the studies indicated that eyelids and conjunctiva were the commonest sites. While Akpe B A & Omoti AE[11] et al and Pudasaini S[13] et al reported conjunctival lesions to be commonest.

Among the eyelid lesions, 27 non-neoplastic, 14 benign eyelid lesions and 7 malignant eyelid lesions were reported. Non neoplastic lesions were Inclusion cysts, followed by Non specific inflammation and granulation tissues, Dermoid cyst, Chalazion, Tuberculosis verrucosa cutis and Hidrocystoma. Benign eyelid lesions were Nevocellular nevus, followed by squamous papilloma, benign adnexal tumors, benign fibrous histiocytoma, hemangioma and nneurofibroma. The 7 cases of malignancies were Squamous cell carcinoma (4 cases), Basal cell carcinoma (2 cases), and Meibomian gland carcinoma (1case). Various studies done by Gundogan CF[14], et al, Chauhan S, et al[15], Al-Faky YH[16], et al and Paul S[17], et al found similar lesions. Many other lesions reported in their studies which were not encountered in our study were lipoma, keratoacanthoma, seborrheic keratosis, cutaneous myxoma, embryonal rhabdomyosarcama and malignant melanomas.

In the present study, 38 lesions were from conjunctiva, majority were diagnosed as CIN, followed by Pterygium, Squamous cell carcinoma, papilloma, cysts, Rhinosporidiosis, Hemangioma and Non specific inflammations & granulation tissues. Various studies found similar lesions. Other lesions reported in their studies were granuloma pyogenicum, lymphoma, malignant melanoma and sebaceous carcinoma. Of the 34 cases of corneal lesions, majority were diagnosed as Suppurative and inflammatory lesions , followed by Fuch's dystrophy, Staphyloma, Pannus, Lattice dystrophy and aphakic bullous keratoplasty. Nilesh Shah[3] et al, and Akpe[11] et al, have reported only one case each of Lattice dystrophy and staphyloma respectively. We received only 5 orbital lesions of epidermal cysts, basal cell carcinoma and neurofibroma. While, other studies also reported Non- Hodgkins lymphoma and Rhabdomyosarcoma of orbit. One case each of Retinoblastoma, Macular amyloidosis, Massive retinal gliosis and Choroid suppurative lesion was reported in intraocular lesions. Other studies only reported retinoblastoma from this site. Only 3 cases were reported from lacrimal system. Study by Nilesh SC[3], et al reported similar findings with 2 cases of lacrimal sac cysts. However, some studies also reported pleomorphic adenomas and sebaceous adenocarcinomas.

Conclusion:-

Many Neoplastic conditions masquerade as or mimic other less aggressive Neoplastic or non-Neoplastic. However some of the histological features are specific and characteristic for each entity. Hence, combination of proper clinical observation and histopathological study gives a conclusive diagnosis. So, we can conclude that all ophthalmic lesions removed surgically should always be subjected to histopathological examination to establish correct diagnosis for further management.

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