

A Prospective Study of Clinical and Histopathological Features of Eyelid Tumors

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Abstract

Introduction-The incidence of eyelid tumors is increasing[1-5] . Eyelid tumors thus form an important part of ophthalmology practice, and are by far the most common neoplasms encountered in ophthalmic practice. Tumors of eyelids are common in people of both sexes and all age groups representing more than 90% of ophthalmic tumors[6] . Most of the tumors are diagnosed clinically. The treatment depends on the site, extent of spread and invasiveness of the tumor. Fortunately majority of these cases are either inflammatory or non-malignant tumors

Aim:to study the clinical and histopathological features of eyelid tumors in Bundelkhand region

Material and Methods: A prospective interventional study was carried out on 80 patients in the Department of Ophthalmology, MLB Medical College, Jhansi between November 2019 to October 2020 (12 months). All patients who fulfilled the inclusion criteria underwent surgical excision and histopathological examination. The patient's protocols were recorded in data collection form. Quantitative data were expressed as mean and qualitative variables were expressed using percentages.

Results:

The eyelid tumors are slightly more common in females (male female ratio-1:1.27)

The majority of cases in our study presented from low socio-economic status (57.33%).

Even though eyelid tumors can present in all age group, benign tumors present more commonly in the third and fourth decade and malignant tumors in the fifth and sixth decade

The vision in the involved eye is usually not affected except in cases of large malignant tumors.. Benign tumors(85.33%) are more common than malignant tumors(14.67%) (almost six times more common). Among the benign tumors, most common was epidermal inclusion cyst and among malignant tumors most common was Sebaceous gland carcinoma

Conclusion: Benign tumors were more common as compared to malignant ones. The most common benign tumor was epidermal inclusion cyst and the most common malignant tumor was Sebaceous gland carcinoma..

Keywords : tumors, histopathological

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I. Introduction

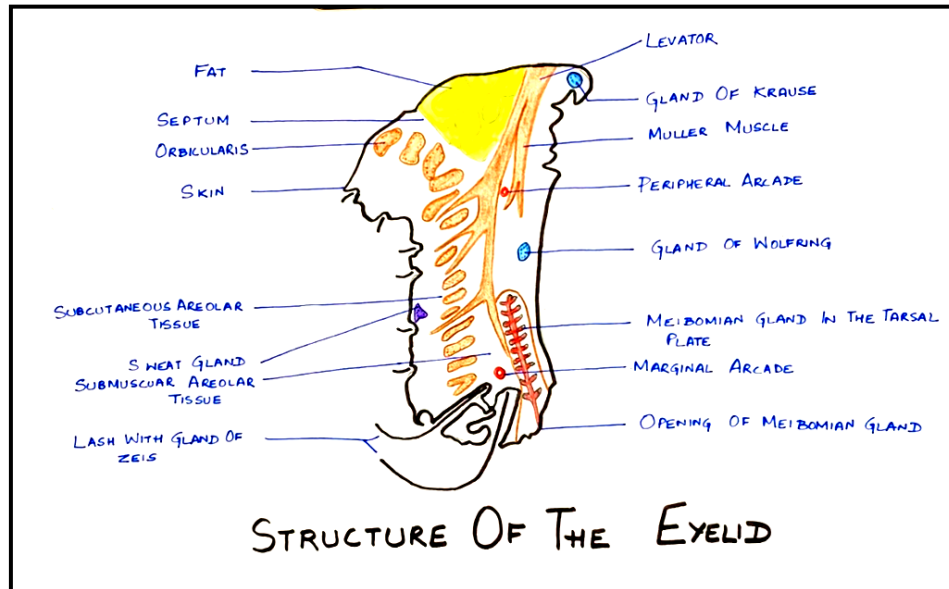
The incidence of eyelid tumors is increasing[1-5] . Eyelid tumors thus form an important part of ophthalmology practice, and are by far the most common neoplasms encountered in ophthalmic practice. Tumors of eyelids are common in people of both sexes and all age groups representing more than 90% of ophthalmic tumors[6] . Most of the tumors are diagnosed clinically. The treatment depends on the site, extent of spread and invasiveness of the tumor. Fortunately majority of these cases are either inflammatory or non-malignant tumors; however many malignancies can mimic a host of benign neoplasms and need differentiation before definitive therapy is started.

THE EYELID:

The lesions are numerous in the eyelid due to the unique anatomical features of the eyelid as all the skin structures and its appendages, muscle ,modified glands and conjunctival mucous membrane are represented in the eyelid.

Structure – each eyelid from anterior to posterior consists of the following structures[figure1]:

1. Skin
2. Subcutaneous areolar tissue
3. Layer of striated muscle
4. Submuscular areolar tissue
5. Fibrous layer
6. Layer of non-striated muscle fibres
7. Palpabral conjunctiva



Table/Figure1-showing structures of the eyelid (made by Dr Samya Singh, junior resident, Department of Ophthalmology)

CLASSIFICATION OF EYELID TUMORS:

As tumors in other organs, tumors of the eyelid can be classified according to their tissue or cell of origin and as benign or malignant.[7,8]

Adnexal tumors:

Lesions of adnexal origin arise from the epidermal appendages which include the sebaceous glands of Zeis, Meibomian glands, pilosebaceous units, eccrine sweat glands and apocrine sweat glands of moll.

Vascular tumors:

Includes capillary hemangioma, lymphangioma and pyogenic granuloma (most common acquired vascular lesion to involve the eyelids).

Tumors of neural origin:

neurofibroma

Pigmented lesions of melanocytic origin:

These include freckles, lentigo simplex, solar lentigo, melanocytic nevi, congenital melanocytic nevus, etc

MALIGNANT EYELID TUMORS:

Malignant lesions are common around the eyes partly because many are induced by sun exposure or develop from sun-related benign lesions. They are mostly slow growing. Although most malignancies rarely metastasize but they can all be very destructive locally. Any periocular lesion that shows some growth especially when associated with chronic irritation or bleeding should undergo a diagnostic biopsy. Common malignant tumors include:

Basal Cell Carcinoma:

Squamous Cell Carcinoma:

Sebaceous Gland Carcinoma:

Malignant Melanoma:

Kaposi sarcoma:

MANAGEMENT OF TUMORS

Biopsy- can be

1. Incisional in which only part of lesion is removed

2. Excisional in which entire lesion is removed

Surgical excision followed by reconstruction:

Aims to remove entire tumor with preservation of as much normal tissue as possible.

Radiotherapy

Cryotherapy:

For small superficial BCCs useful as an adjunct to surgery

II. Material And Method

We included any patients who were admitted in the IPD of department of Ophthalmology, M.L.B. Medical college, Jhansi between November 2019 to October 2020 (12 months) who satisfied the eligibility criteria. A prospective interventional study was carried on the 80 patients included in the study. Patients were included in the study under the following inclusion and exclusion criteria:

INCLUSION CRITERIA:

We included the following patients:

All patients who presented with primary tumors over eyelid (benign and malignant) and satisfied the following criteria:

- Age between 3 years- 70 years
- Those who were fit for surgery
- Those who were willing to undergo surgery
- Patients who were willing to give a written consent for the study
- Surgeries performed by a trained ophthalmologist
- Those who were willing to come for follow up

EXCLUSION CRITERIA:

1. Patients who refused treatment or biopsy
2. Patients having lid swelling secondary to infectious lesion like stye, angioneurotic edema, molluscum contagiosum, pyogenic granuloma and chalazion were excluded from our study.
3. Patients with previously resected lid tumours
4. Patients with primary intraocular tumours that spread to the eyelids
5. Patients with history of trauma
6. Physically or mentally unfit patients
7. Patients who did not come for follow up after 1 or **the area.2** visits

PATIENTS SATISFYING THE INCLUSION CRITERIA SIGNED AN INFORMED AND WRITTEN CONSENT BEFORE PARTICIPATING IN THE STUDY.

The sample size was calculated based on the prevalence of the disease in the area.

A detailed history of all the patients was taken and the parameters that were noted included demographics of patients, history of trauma and history of tumours in other parts of the body. A thorough clinical examination of the lesion regarding its location, shape, size, border, margin, skin overlying lesion, eyelashes, ulceration, induration and mobility over the underlying surface was done. The anterior and posterior segment examination of both eyes was thoroughly done by slit lamp and direct and indirect ophthalmoscope. The acronym LUM (loss of eyelashes, ulceration, margin obliteration) was created to assist in memory recall and analyzed to provide physicians with an evidence-based, easy-to-remember system for assisting in the triaging of these lesions[9].



Table/Figure 2:A) Clinical picture of a 60 year old patient suspected of having BCC in the left lower lid

B) Clinical picture of same pt as seen on slit lamp(20x)

After obtaining routine investigations like complete blood cell counts, fasting blood sugar, bleeding time, clotting time and urine sugar and albumin, the patients were posted for surgery as per protocol. Radiological investigations for assessment of extent of lesion were obtained where ever indicated. Patients were briefed about the surgery and written consent was taken for surgical procedure. Clinically diagnosed malignant tumour was excised with 3mm clear margins followed by reconstructive lid surgery under local anesthesia using xylocaine 2% with adrenaline (1:200000) which was infiltrated around the lesion. The specimen was preserved in a bottle containing 10% formalin and sent to the Department of Pathology for histopathological examination. The specimen was fixed with formalin and stained with hematoxylin and eosin[H and E]. Histopathological examination of the specimen was done under a microscope (10x, 40x and 100x) to obtain a definitive diagnosis. After that photos were taken using a NIDEK DSLR camera.



Figure 6: Clinical picture of an excisional biopsy being done on the left eye of 65 year old patient with mass over left upper lid in the eye operation theatre at MLB Medical College, Jhansi



Figure 7- Clinical picture showing histopathological evaluation of specimens under the microscope in the Department of Pathology, MLB Medical College, Jhansi

The procedures followed were in accordance with the ethical standards committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2000. The necessary permission from the Ethical and Research Committee was obtained for the study.

Statistical Analysis

The patient's protocols were recorded in data collection form. Quantitative data were expressed as mean and qualitative variables were expressed using percentages

III. Results

A total of 80 patients who fulfilled the inclusion criteria were selected for this study out of which 5 patients were excluded(drop outs) at initial stage of study due to various reasons mentioned below. Finally 75 patients were included in this study. In total 75eyes of 75 patients were included in the study.

Table 1: age wise distribution of various tumours (both benign and malignant)

Age (in years)	Number of patients	Percentage (%)
0-10	7	9.33%
11-20	10	13.33%
21-30	15	20%
31-40	11	14.67%
41-50	13	17.33%

51-60	13	17.33%
61-70	6	8%
Total	75	100

Table 2: Gender distribution

Sex	Number of patients	percentage
Male	33	44%
Female	42	56%
Total	75	100

Table 3: - Socio-economic status of total patients (according to the modified Kuppuswami scale)

Socioeconomic Status	Number of patients	Percentage
High	6	8 %
Medium	26	34.67%
Low	43	57.33%
Total	75	100%

TABLE 4: BCVA IN OPERATIVE EYE OF THE PATIENTS AT THE TIME OF PERSENTATION

Baseline BCVA/log MAR(in operative eye)	No. of cases	Percentage (%)
6/6(0)	27	36%
6/9(0.176)	16	21.33%
6/12(0.301)	9	12%
6/18(0.4771)	7	9.33%
6/24(0.602)	5	6.67%
6/36(0.78)	1	1.33%
6/60(1)	3	4%
FC 3mt(1.301)	1	1.33%
FC 2mt(1.477)	1	1.33%
FC 1mt(1.778)	0	0%
HM+	1	1.33%
PL+	2	2.67%
PL-	0	0
Response to light-follows light	2	2.67%
Total	75	100%

BCVA (best corrected visual acuity), FC (finger counting), HM (hand movement), PL (perception of light), + (positive), - (negative)

Table 5: Distribution of cases according to the type of lesion

Type	Number	%	Female	Male
Malignant	11	14.67	7	4
Benign	64	85.33	35	29
Total	75	100	42	33

Table 6: total number and percentage of cases of malignant tumor

Type	Number	%	Male	Female
Basal Cell Carcinoma	4	36.36	1	3
Sebaceous cell carcinoma	5	45.45	1	4
Squamous cell carcinoma	2	18.18	2	0
Total	11	100	4	7

Table 7: total number of cases and percentage of benign tumors

Type	Number	%	Male	Female
Epidermal inclusion cyst	25	39.06	7	18
Dermoid cyst	17	26.56	10	7
Squamous papilloma	9	14.06	5	4

Sebaceous cyst	3	4.69	1	2
Xanthogranuloma	3	4.69	2	1
Granulomatous lesion(pyogenic granuloma)	2	3.13	1	1
Sebaceous keratosis	2	3.13	2	0
Eccrine hidrocytoma	1	1.56	1	0
Capillary hemangioma	1	1.56	0	1
Reverse follicular keratosis	1	1.56	0	1
Total	64	100	29	35

Table 8: Age wise distribution of various malignant tumors

Type	Age group (range) in years	Mean age of presentation (In years)
Basal cell carcinoma	60-70	64.50
Sebaceous gland carcinoma	45-62	56.40
Squamous cell carcinoma	50-60	55

Table 9: Clinical features of various malignant tumours

Type	Male: Female	Mean age (in years)	Eye involved (right: left)	Location (UL:LL)
Basal cell carcinoma	1:3	64.50	3:1	1:3
Sebaceous gland carcinoma	3:2	56.40	3:2	5:0
Squamous cell carcinoma	0:2	55	1:1	2:0

Table 10: Age wise distribution of various benign tumors

Type	Age-group (range) In years)	Mean age (in years)
Epidermal inclusion cyst	3-65	30.52
Dermoid cyst	3-67	26.53
Squamous papilloma	17-70	46
Sebaceous cyst	28-32	30
Xanthogranuloma	42-54	47
Granulomatous lesion(pyogenic granuloma)	35-55	45
Seborrhoeic keratosis	49-52	50.50
Eccrine hidrocytoma	28	28
Capillary hemangioma	4	4
Reverse follicular keratosis	54	54

Table 11: clinical features of various benign tumours

Type	Male: female	Mean age (in years)	Eye involved (right:left)	Location (UL:LL)
Epidermal inclusion cyst	7:18	30.52	13:12	18:7
Dermoid cyst	10:7	26.53	10:7	15:2
Squamous papilloma	5:4	46	5:4	5:4
Sebaceous cyst	1:2	30	1:2	3:0
Xanthogranuloma	2:1	47	2:1	2:1
Granulomatous lesion(pyogenic granuloma)	1:1	45	2:0	2:0
Seborrhoeic keratosis	2:0	50.50	0:2	2:0
Eccrine hidrocytoma	1:0	28	0:1	1:0
Capillary hemangioma	0:1	4	0:1	0:1
Reverse follicular keratosis	0:1	54	1:0	1:0

Table 12: distribution of cases according to duration of lesion at presentation

Duration (in years)	Malignant tumors	Benign tumors
0-1	0	0
1-2	2	12
2-3	5	20
3-4	2	23
4-5	1	4
>5	1	5

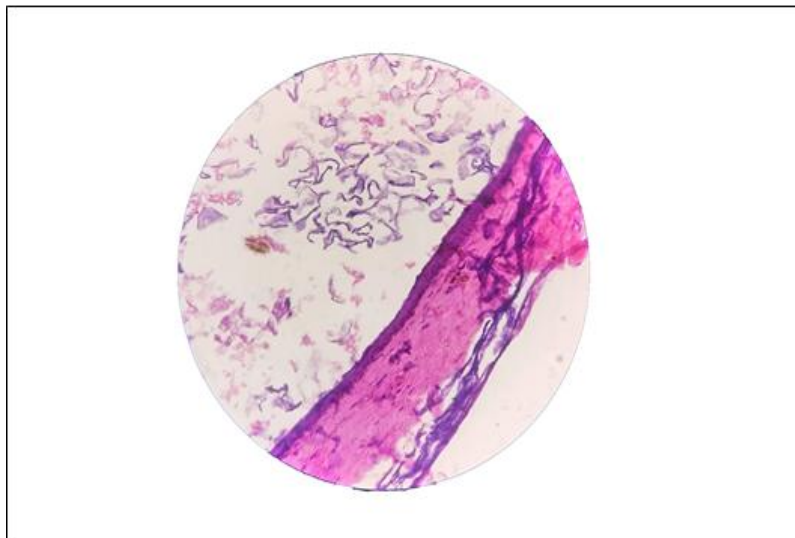


Figure 8: Histopathological picture of epidermal inclusion cyst(H&E 40x)
[courtesy: Department of Pathology, MLB Medical College, Jhansi]

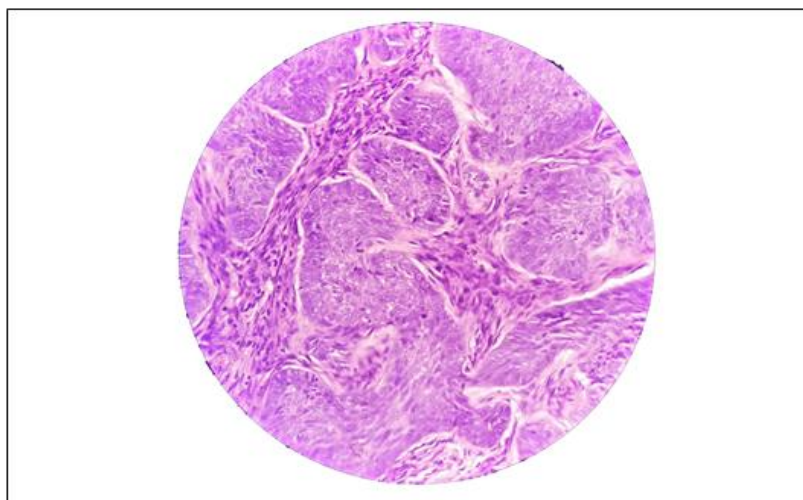


Figure 9: Histopathological picture of BCC(H&E 40x)
[courtesy: Department of Pathology, MLB Medical College, Jhansi]



Figure 2: Clinical picture of a 37 years old male, with right upper lid epidermal inclusion cyst.



Figure 3 – Clinical picture of a 17 years old patient, with left upper lid dermoid cyst

IV. Discussion

Eyelid lesion is a common condition in clinical practice encountered by ophthalmologists[10]. Approximately 5%-10% of all skin cancers and 15% of all face tumors occur on the eyelid[11]. Several studies have been done time and again which prove beyond doubt that incidence of eyelid tumors is increasing. Histopathological examination of eyelid tumours becomes very important as often there is discrepancy in the clinical diagnosis and biopsy result. 75 cases who fulfilled the inclusion criteria were studied over a period of 12 months from November 2019 to October 2020 in the Department of ophthalmology, Maharani Laxmi Bai Medical College, Jhansi.

DEMOGRAPHY:

In our study the overall male female ratio was found to be 1:1.27(33:42). The number of cases were found slightly more in females than males. In the malignant tumour cases male female ration was found to be 1:1.75(4:7) therefore slightly more in females while in benign cases male female ration was found to be 1:1.20(29:35) therefore slightly more in females. In a study done by Gosai et al from June 2007 to July 2009, 120 patients of eyelid tumors were studied where male to female ratio was 1.4:1 for benign tumors whereas amongst the malignant cases females outnumbered males with ratio of 1.16:1[12]. In a retrospective study done by Sharma et al on 135 cases, female to male ratio was 1.3:1 in malignant cases and thus showed preponderance of female patients in malignant tumors[13]. Studies by Krishnamurthy et al[14] (male to female ratio 1:1.5) and Bagheri et al[15] (male to female ratio 1:1.5) also showed similar results. **The most probable reason for the slightly higher number of female cases could be that females are more conscious cosmetically and therefore present more frequently to the hospital for excision.**

The majority of cases in our study presented from low socio-economic status (57.33%). Lim et al found that a high incidence of BCC and a larger BCC size were associated with a low socioeconomic status, which corresponds to studies in the UK, Ireland and the Netherlands showing that patients living in areas of socioeconomic deprivation are more likely to have BCC. Since early and small BCCs are usually easily managed with a good prognosis, prevention is preferable to treatment. People living in economically deprived areas should be informed that simple measures like avoiding extensive sun exposure or the long-term use of hats with brims can reduce the incidence of periocular skin cancers[16].

The vision in the involved eye is usually not affected except in cases of large malignant tumors. In this study we found that majority of patients had a vision of 6/6 or 6/9 in the involved eye(30.67% and 24.33% respectively) though there were patients with vision as low as PL positive. The patients with lower vision were mostly either of the older age-group or had large malignant tumors.

The most common type of tumours seen were benign tumors(85.33%) while the malignant tumors accounted for about 14.67% , which is nearly similar to that reported by Krishnamurthy et al (2014)[14] from Karnataka in which they found that 91.9% cases were benign eyelid tumours. Xu et al[17] from Beijing found 86.2% benign tumours involving 2638 patients, Deprez et al[11] found 84% benign lesions from a study on 5504 cases, Paul S et al[18] found that 75.9% were benign and Obata H et al[19] found 73% benign cases. In a similar study conducted in Siriraj Hospital from 2000 to 2004, the majority of tumors were benign,

while malignant tumors contributed only 10.8% of the total eyelid lesions[10]. In a study by Rathod et al, there were 61 benign and 39 malignant cases out of a total of 100 cases of eyelid tumors[6]. In a similar study by Aurora and Bloodi in 1970 comprising of 892 cases, non-malignant lesions accounted for 76% of all the cases, while malignant cases accounted for 24%. Hence, they found that non-malignant cases were 3 times more common than malignant[20]. However, studies by Abdi et al[1] (India) & Bagheri A et al[15] from Tehran have reported 58.9% (n=207 cases) and 45.5% (n=182 cases) benign cases respectively, showing comparatively lesser prevalence of benign lesions. These differences could be attributed to the differential referral pattern to a center equipped with oculoplasty services[9]. Most studies therefore show that benign lesions largely constitute the most frequent type of eyelid tumours outnumbering the malignant category in the general population.

Amongst the malignant tumors, the most common type was the Sebaceous gland carcinoma(45.45%) followed by basal cell carcinoma(36.36%) and lastly the Squamous cell carcinoma(18.18%). In the study by Gosai et al in M & J Western Institute of Ophthalmology from June 2007 to July 2009, amongst the malignant tumors mebiomian gland carcinoma was maximum (46.34%) followed by basal cell carcinoma (29.26%) and then by squamous cell carcinoma (21.93%)[12]. In a study done in Central India by Jahagirdar et al where a series of 27 cases of eyelid malignancies were analyzed, sebaceous cell carcinoma (37%) was almost as prevalent as basal cell carcinoma[21]. In another study by Sharma et al, sebaceous cell carcinoma constituted 44.4% of all malignancies which was almost similar to our study[13]. In a study done by Ramya et al sebaceous gland carcinoma was commonest malignant tumor (47.7%) followed by basal cell carcinoma (26.8%) and squamous cell carcinoma (21.9%)[22]. Sihota R et al (1996) performed a retrospective study of 313 tumors of the eyelids in the Indian population. There was almost equal incidence of sebaceous gland carcinoma (32.56%), basal cell carcinomas (29.77%) and squamous cell carcinoma (28.08%) among malignant tumors[23].

The reported incidence of SGC varies from 0.5 to 5% of all lid carcinomas in USA and approximately 25–30% in China and India[23,24,25]. The study by Deprez and Uffer[37] reported that basal cell carcinoma accounted for 86% of all malignant tumors.

Among whites, light pigmentation is a risk factor for BCC; conversely, the disease is rare among blacks. These evidences suggest that BCC is related to chronic and cumulative solar damage and it is more common in fair, skinned and elderly adults. The relation between BCC and sun exposure had been proposed by various researchers[9]. Up to 30% of Caucasians develop basal-cell carcinomas in their lifetime.

SGC is more common in Asian population (South Asian and Indians) accounting for 27–40% of all eyelid malignancies.[5,26,27]. In the white population SGC is rare, accounting for 1–5.5% of all eyelid malignancies.[5,27,28,29]. Racial and genetic predisposition may probably play an important etiological role.[30]. SGC is known to masquerade as chalazion in eyelid, hence the possibility of SGC should be considered in Asians presenting with persistent or recurrent chalazion.[27]. In studies by Ni et al (U S) observed that SGC accounted for 32.7% of malignant eyelid tumors in Shanghai; whereas, at the Massachusetts Eye and Ear Institute in United states, SGC accounted for only 1.5% of malignant eyelid tumors.[30,31]. The reported incidence of SGC in USA varies from 0.5 to 5% of all lid carcinomas.[32]. In the San Francisco population, despite having a significantly higher no of Asians, SGC was reported in only 7.3% of all eyelid malignancies than other parts of the United States. This result has confirmed that established Asian/Pacific Islander ancestry is not a risk factor for developing sebaceous carcinoma as concluded by a recent study by Dasgupta et al [31,33]. In Asians, SGC accounts for a higher proportion of eyelid malignancies, similar to our study, but this is not due to a higher incidence of SGC but to a relative lack of other malignant eyelid tumors [31]. Higher incidence of sebaceous gland carcinoma can be attributed to oily nature of skin among Indians. Decline in basal cell and squamous cell carcinoma can be due to more melanin in Indian population which provides protection from sunlight.

The age of presentation for malignant tumors ranged from 45-70 years for malignant tumors. The mean age of presentation for malignant tumors was found to be -64.50 years for basal cell carcinoma , 56.40 years for sebaceous gland carcinoma and 55 years for squamous cell carcinoma. These results are similar to a study by Kale (2012) et al from India who observed that mean age was 59 years[16]. Hussain et al (2013) from Pakistan found that the mean age of the patients with eyelid malignancy was 59.3±14.2 years[21]. Wang et al reported 127 cases of malignant eyelid tumor with a mean age of presentation of 62.6 year[5]. Rathod et al reported 100 cases of eyelid tumors with mean age of malignant eyelid tumors presentation was 58.59±11.271 and benign tumors was 37.02±16.847[6]. The median age of presentation was 63 years for SGC, 60 years for BCC, 57.5 years for SCC, 55 years for melanoma. Lymphoma presented at 75 years and MCC at 52 years in a study by Krishnamurthy et al[40]. Thus, we see that malignant tumors are more common after the fifth decade.

Right eye was more frequently involved in cases of BCC(3 out of 4 cases) and SGC(3 out of 5 cases) while in SCC both eyes were equally involved. BCC was located more frequently on the lower lid(3 out of 4 cases) while SGC was located more frequently on the upper eyelid(all five cases). SCC was found only in upper eyelid in the two cases that we studied. Most sebaceous gland carcinomas were found on the

upper eyelid which possibly reflected the greater number of meibomian glands in the upper eyelid[36]. Basal cell carcinomas commonly affected the lower eyelid that is consistent with other studies[5,37]. In a study by Karan S et al there was marked predilection for right eye in both benign and malignant lesions[38] while in most studies no specific laterality was found.

Amongst the benign tumors we found that epidermal inclusion cyst presented most frequently(39.06%) followed by dermoid cyst(26.56%). Squamous papilloma was the third most frequent(14.06%). These results are similar to the study by Krishnamurthy et al (2014) from Karnataka in which the most common benign lesions were epidermal cysts (30.5%), naevi (17.5%), dermoid cysts (13.8%) and papilloma (6.5%)[14]. Hsu and Lin[39] series reported epidermal cysts (23.1%) to be the most common lesion and Kersten et al reported it as the second most common lesion in their cases series (22.2%). However, Abdi et al[1] from India reported vascular tumours (21.3%), neural tumours (18.0%), dermoid cysts (16.4%), squamous cell papilloma (13.1%) and naevi (12.3%) as the common benign lesions. Xu XL et al (2008) from China found that the most common benign lesions were inflammatory lesions, melanocytic nevi, papillomas, dermoid and epidermoid cysts, and epithelial cysts[17]. In Bastola et al study (2013), the conclusion was made that the most common benign lesion was dermoid cyst (21%) which was followed by epidermal inclusion cyst (14%) and then dermal nevus (12.2%)[40]. Thus, we see that in different studies there is a difference in the most commonly presenting benign tumour.

The age of presentation of benign tumors ranged from 3 years to 67 years. The mean of presentation of the most common benign tumor i.e. the epidermal inclusion cyst was found to be 30.52 years, 26.53 years for dermoid cyst, 46 years for squamous papilloma, 30 years for sebaceous cyst, 47 years for xanthogranuloma, 45 years for granulomatous lesion, 50.50 years for seborrheic keratitis, 28 years for eccrine hidrocystoma, 4 years for capillary hemangioma and 54 years for reverse follicular keratosis. Similarly, Karan S et al reported that benign tumor ranged 0-70 years and most common age group was 31-40[38].

No significant laterality was noticed in our cases of benign tumor. Upper eyelid was more frequently involved in most benign tumors (73.44%)[table 13]. These results are consistent with the study by Krishnamurthy et al[40] who showed that the upper eyelid (n=131, 60.6%) was more commonly involved than the lower lid (n=85, 39.4%).

Malignant tumors being more rapidly growing and aggressive, had a shorter duration at presentation which was between 1 and 5 years (maximum cases seen at 2-3 years)[table 14 and graph 11]. This is also found in a study by Karan et al[38]. Benign tumors are slow growing in nature therefore majority were seen at 3-4 years duration[table 14 and graph 11].

Malignant cases had a maximum incidence of complications at presentation. 7 out of 11 malignant tumors, presented with one or more complications and few upper lid tumors presented with mild to severe ptosis. **There was no case of recurrence seen in our study probably because the duration of study was short(12 months). Also no case of metastasis from elsewhere was reported. The method for surgical removal employed was wide excision with tumor free margins.**

V. Conclusion

At the end of the duration of the study we can conclude that-

1. **The eyelid tumors are slightly more common in females** (male female ratio-1:1.27). The most probable reason for the same could be that females are present to the hospital more often as they are cosmetically more aware.
2. **The majority of cases in our study presented from low socio-economic status (57.33%).** Hence we have to spread more awareness amongst them
3. Even though eyelid tumors can present in all age group, **benign tumors present more commonly in the third and fourth decade and malignant tumors in the fifth and sixth decade.** This point is important for the clinician to keep in mind while making a diagnosis especially in these age groups.
4. The vision in the involved eye is usually not affected except in cases of large malignant tumors. In this study we found that majority of patients had a vision of 6/6 or 6/9 in the involved eye (36% and 21.33% respectively) though there were patients with vision as low as PL positive. The patients with lower vision were mostly either of the older age-group (therefore could have other age related causes for diminution of vision) or had large malignant tumors.
5. **Benign tumors are more common than malignant tumors** (almost six times more common). There could be differences in the number of cases of each type which could be attributed to the differential referral pattern to a center equipped with oculoplasty services and avoidance of the disease and/or late presentation/incautious to seek timely medical advice in developing nations.
6. **Among benign tumors the most common one is epidermal inclusion cyst and among malignant tumors the most common one is SGC.** This result can vary from region to region. These differences can be due to multiple factors such as genetic predisposition, environmental trigger and ocular infections. Another

factor affecting this could be the referral bias to tertiary care centers and lack of appropriate medical facilities in rural areas.

7. Wide excision with tumor free margin can be employed for surgical management with low complication rates. Recurrence and metastasis is rare among eyelid tumors.

The limitations of this study could be emphasized as having lesser number of study subjects and short duration of follow up. So a long term, multi-centeric study with more follow-up visits and duration is the need in coming future. In developing countries, people have to be aware of eyelid tumors (their risk factors, prevention, presentation and cure). Also, proper medical facilities oriented to timely screening, diagnosis, management and referral need to be set up with efficient staff and ophthalmologists and/or oculoplasty surgeons

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