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Epidemiological and Pathological Analysis of Eyelid Tumour Treated in Tertiary Care Eye Hospital in Central India

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Abstract

Aim: To analyze demography, clinical profile & histopathology of eyelid tumours treated in tertiary care Eye hospital in Central India. *Study Design:* Observational Study. *Methodology:* Retrospective analysis of 82 cases of lid tumour presented at tertiary Eye hospital from *April 11* to *14*. Cases analyzed for demography, location, marginal involvement, delay in presentation and histopathology. *Results:* There were 82 cases of lid tumour, 57 were benign and 25 malignant. Mean age of all cases *48.17 years*; for benign *43.98 years* & for malignant *57.72 years* ($p = 0.0023$). Male: Female ratio for benign 3.4:1 & for malignant 2.1:1. Commonest location of benign tumour upper lid lateral half (31.58%). Mean delay in presentation for benign tumour *44.32 months* (1–240 months) & malignancy *9.96 months* (*5–18 months*) ($p = 0.0125$). Lid Margin involvement was in 18 (31.58%) in benign & in 24 (96%) in malignancy ($p < 0.0001$). 48% of malignant tumours were sebaceous gland carcinoma (SGC). *Conclusion:* Long standing (> *1 year*) mass on upper lid laterally, probably is benign. Surgeon treating malignant tumour (Central India) should have high index of suspicion for SGC.

Keywords: Epidemiological; Pathological; Eyelid & Tumour**.**

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Introduction

The incidence of eyelid swellings appears to be increasing.[1-3] Complex reconstructive problems associated with the loss of an eyelid that a huge number of such cases are referred to plastic surgery facilities. Though, inadequate data are available, and hence the eyelid malignancies stay on largely un-characterized. Data of ocular adnexal malignancies within a particular geographical area have been revealed to give out as a reference for that particular area for future research & assist in guiding physicians & policy makers in planning resources for screening, treatment & prevention of malignancy of the eye & ocular adnexa.[4] Eyelid malignancies have a diverse pathology as well as Basal Cell Carcinoma (BCC), Squamous Cell Carcinoma (SCC), Malignant Melanoma (MM), Sebaceous Gland Carcinoma (SGC) & other rare tumours like hemangiopericytoma (HMP). The western & Asian data have substantial variations in case distribution & presentation. This study is an attempt to characterise these tumours in the Indian population.

Materials and Methods

The current study is a retrospective analysis of 82 cases of lid tumour presented at tertiary care eye hospital in central India. We integrated cases that

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reported to the study centre from *April 2011* to *April 2014*. The cases which are probable clinical diagnosis of eyelid mass were made & treated with wide local excision with a *05-10 mm* margin of normal tissue & an suitable combination of Split Skin Grafts (SSG), Tarso-conjunctival Flaps (TCF), Mustarde's Flaps (MF), Hughe's flap and Cutler-Beared procedure. The cases were analyzed for their age of presentation, sex distribution, tumour location, delay in seeking treatment, & variations with respect to the histopathological subtype.

Results

Comparision of Benign and Malignant Mass

Age

The mean age of presentation in our study was *48.17 years* (range *14–80 years*). In the present study, mean age of benign cases was *43.98 years* & of malignant *57.72 years* ($p = 0.0023$), (**Table 1**).

Sex

There was slight male preponderance as Male:Female ratio for benign 3.4:1 & for malignant 2.1:1 (**Table 1)**.

Tumour location

Commonest location of benign tumour upper lid lateral half (31.58%). Lid Margin involvement was in 18 (31.58%) in benign & in 24 (96%) in malignancy ($p < 0.0001$). (**Table 1**).

Delay in presentation

Mean delay in presentation for benign tumour *44.32 months* (*1–240 months*) & malignancy *9.96 months* (*5–18 months*) ($p = 0.0125$), (**Table 1**).

Distribution of Eyelid Benign and Malignant Mass

Pathology

SGC was the most common malignancy (48%) (**Table 2**). Sebaceous cyst is the commonest benign mass (19%), (**Table 3**).

Table 1: Comparision of Benign and Malignant Mass

Sr. No.	Charateristics	Benign	Malignant
1	No of Cases	57	25
2	Mean Age of presentation	43.98 Years	57.72 Years
3	Male	44	17
4	Female	13	8
5	Mean Delay in presentation	44.32 Months	9.96 Months
6	Location of Mass		
	Upper Lid medial half	12	2
	Upper Lid lateral half	18	4
	Whole Upper Lid	1	9
	Lower Lid medial half	13	1
	Lower Lid lateral half	10	2
	Whole Lower Lid	3	7
7	Marginal Involvement	18	24

Table 2: Distribution of Eyelid Malignancies

Sr. No.	Histopathological Type	No of Patients
1	Sebaceous gland carcinoma	12
2	Squamous cell carcinoma	5
3	Basal cell carcinoma	4
4	Non-hodgekins lymphoma	1
5	Plasmacytoma	1
6	Malignant melanoma	1

Table 3: Distribution of Eyelid Benign Mass

Sr. No	Histopathological Type	No of Patients
1	Angiomatous lesion	1
2	Benign eccrine acrospiroma	1

Sr. No	Histopathological Type	No of Patients
3	Cavernous hemangioma	1
4	Conjunctival papilloma	2
5	Dermal nevus	4
6	Dermoid cyst	6
7	Hemangioma orbit	1
8	Inclusion cyst	1
9	Junctional nevus	3
10	Keratin cyst	4
11	Lobular capillary hemangioma	3
12	Lymphatic reactive hyperplasia	1
13	Non-neoplastic canalicular cyst	1
14	Papiloma	2
15	Pigmented nevus	2
16	Pyogenic granuloma	3
17	Retention cyst	1
18	Schwanoma	1
19	Sebaceous cyst	11
20	Sebaceous gland adenoma	2
21	Sebaceous horn with sec inflammation	2
22	Seborrhic keratosis	2
23	Tarsal cyst	1
24	Trichilemmal cyst	1

Discussion

The most vital function of eyelids is considered to protect the eyeball. Even though their small surface area, they are along with the most sunlight-exposed area of skins. The thin skin of the eyelids is mainly sensitive to various irritants and UV & is thus prone to develop eyelid tumors. Approx 05 to 10 percent of all skin cancers occur on the eyelids. Eyelid tumours are usually in oculoplastic surgery practice, malignancies requiring resection by means of a wide margin often pose challenging reconstructive problems to the treating surgeon. Eyelid malignancies can be of diverse histological types. These malignancies, be likely to behave another way in terms of presentation, progression & reply to surgical resection. Treating eyelid malignancies as a single entity without accurate clinical & histological diagnosis is burdened with the danger of over simplification. The current study aims to characterise these eyelid tumours by encompassing *3 years* of data in an attempt to provide guidelines for evaluation of the tumours. Basal Cell Carcinoma is mainly recognised as the most widespread eyelid malignancy worldwide. Nevertheless, the relative incidence of BCC shows large regional variation. Data reported from the USA show that nearly 90% of eyelid malignancies are BCC.[5] Studies advocate that in Caucasians, BCC constitutes in relation to 80-90% of the malignant eyelid tumours. BCC was the most regular malignant tumour (86%), followed by SCC (07%) & sebaceous carcinoma (03%) in Switzerland.[6] BCC was the most common eyelid malignancy, excluding it accounted for only 65.1% of the cases in Taiwan.[7] Correspondingly, an incidence of 62.2% in another study done in Taiwan. In Thailand, BCC constitutes 64% of all eyelid tumours. The only exception to this trend of lower incidence of BCC in Asian countries. in Singapore, who have reported 84% incidence of BCC. BCC constituted 16% of all malignancies. This is lower than the frequency reported by other Asian countries & is significantly less than the data reported by the western studies,

Squamous Cell Carcinoma is uncommon among whites, accounting for 01-5.5% of all eyelid malignancies, which is far behind BCC & SCC.[8] In Asian countries, there is a improved occurrence of SGC. Chinese studies have reported an incidence of 7-24%. An incidence of 10-40% has been reported from Singapore, Thailand & Japan. In the current study, SGC constituted 48% of all malignancies. It remains to be seen whether this increased rate of SGC is due to increase in incidence of SGC per se or due to a relative decrease in the incidence of BCC. Large population based studies are required to establish the trend, although racial, genetic & geographical factors all seem to play a role.

In our study, the mean age of was *48.17 years* (range *14–80 years*) which correlates well with that reported in other studies from Asia. The median age at diagnosis in Singapore was reported to be *63 years* in males & *66 years* in females.[9] The mean age at diagnosis of eyelid cancers was *62.6 ± 14.1 years* in Taiwan. A rather earlier mean age of was [*52.4 years* (SD 21.8)] in Thailand. In the current study, the median age of presentation was *57.5 years* (range 35-75) for BCC, *58.1 years* (range 32–75) for sebaceous gland carcinoma, *64 years* (range 50–75) for squamous cell carcinoma. In Taiwan, the mean age was *61.8 years* (range 10-86) for BCC and *68.1 years* (range 48-91) for SGC. In the present study, there was male preponderance as 74.39% of the patients were males. Male:Female ratio for benign was 3.4:1 & for malignant 2.1:1. There seems to be large variations in the sex ratio as depicted by other studies. Women greatly outnumbered men in SGC (21 females, 09 males). Patients with eyelid tumours in their study were males. The sex distribution was equal for both sebaceous cell carcinoma and BCC, but males were relatively more often affected with SCC (60 %). It is possible that the variable sex incidence is due to the variations in the cohort of patients understudy.[10]

Commonest location of benign tumour upper lid lateral half (31.58%). Lid Margin involvement was in 18 (31.58%) in benign & in 24 (96%) in malignancy ($p < 0.0001$). The lower lid was also the most common site for tumour location for all histological subtypes except SGC. This result was the same as that of previous studies. The predominance of BCC in the lower eyelid has been shown in various studies. However, more SGC occurs in the upper eyelid due to greater number of meibomian glands in the upper lid. Mean duration of symptoms for all histological subtypes was 9.87 months (range *1–48 months*). Average duration of symptoms for BCC was *12.5 months*, while the duration was *11 months* for SGC and *6.2 months* for squamous cell carcinoma. This is probably due to a more rapid rate of growth of squamous cell carcinoma as opposed to SGC and BCC. It stems from the above discussion that the clinical symptoms of eyelid malignancies closely resemble each other. Higher rate of tumour growth points to a more aggressive malignancy like squamous cell carcinoma. SGC, however, presents a more confusing picture as its rate of growth and progression is intermediate between that of BCC and squamous cell carcinoma. BCC and SGC also behave differently in their response to treatment and post-operative course. Mortality from eyelid and medial canthal BCC ranges from 2 to 11%. On the other hand, SGC is conventionally considered between the most dangerous of all tumours of the ocular adnexa. Mortality from SGC has been estimated to be from 6 to 30% in a previous study. According to the literature, distant metastasis affects 14-25% of the cases & involves lymph node or hematogenous spread into liver, lungs, brain & bones. Thus, it is very important that exact diagnosis must be made as early as possible.[11]

Our preferred mode of lid reconstruction is a tarso-conjunctival flaps. It is evident that a greater free margin requires more complex reconstructive procedure. We recommend that SGC should be excised with a free margin of *10 mm*. Reconstructive procedure can be a matter of surgeon's choice, but in our experience, tarso-conjunctival flaps can be used for a satisfactory reconstruction. The present study shows, a greater incidence of squamous cell carcinoma & a relatively lower incidence of BCC in the Indian population though BCC is the most common histological type. We admit the fact that the study has the constraint of low long-term follow-up, which makes the computation of survival statistics difficult. However, a high occurrence rate of SGC is exclusively evident in India, requiring a high index of suspicion & aggressive treatment. Clinical features alone cannot be used effectively for diagnosis however, a higher rate of growth suggests a more aggressive variant. We recommend that all eyelid malignancies must be subjected to pre-operative histological diagnosis. BCC can be excised securely with a *5 mm* margin, although a *10 mm* margin for squamous cell carcinoma & *08-10 mm* margin for squamous cell carcinoma are recommended. Eyelid reconstruction can be done by an array of methods, nevertheless, we advise the use of tarso-conjunctival flaps.[12]

Conclusion

We advised that the surgeons treating eyelid malignancies in India should have a high index of suspicion for SGC. It is recommended that large population-based studies should be conducted to exactly quantify the incidence & prevalence of eyelid malignancies. Pre-operative histological confirmation of diagnosis & frozen section biopsy for healthy free margin in excision of malignancy is recommended.

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