

## PROFILE OF EYELID TUMORS AT TERTIARY CARE INSTITUTE IN KARNATAKA: A 5-YEARS SURVEY

Hemalatha Krishnamurthy<sup>1</sup>, Tanushree V<sup>2</sup>, Venkategowda H. T<sup>3</sup>, Archana S<sup>4</sup>, Mobin G<sup>5</sup>, Aylette D'Silva<sup>6</sup>, Bharathi M<sup>7</sup>, Savita Patil<sup>8</sup>

### HOW TO CITE THIS ARTICLE:

Hemalatha Krishnamurthy, Tanushree V, Venkategowda H. T, Archana S, Mobin G, Aylette D'Silva, Bharathi M, Savita Patil "Profile of Eyelid Tumors at Tertiary Care Institute in Karnataka: A 5-Years Survey". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 50, October 06; Page: 11818-11832, DOI: 10.14260/jemds/2014/3555

**ABSTRACT: PURPOSE:** The purpose of this study was to evaluate the proportion of eyelid tumors, compare the clinical diagnosis with histopathological diagnosis in all possible cases in a tertiary eye hospital over a 5-year period. **MATERIALS AND METHODS:** Retrospective chart review was performed for patients with eyelid tumors from June 2009 to June 2014. Data were collected and analyzed on location of tumor, types of treatment, and pathologic findings. Histopathological diagnosis of benign and malignant tumors was stratified based on age, gender and tumor location. **RESULTS:** Total number of 235 patients was evaluated of which, 216 (91.9%) cases were benign and 19(8.1%) cases were malignant neoplasms. Most common benign tumors included epidermal cyst(30.5%), nevi (17.5%), dermoid cyst (13.8%) and papilloma (6.5%). Most frequent malignant tumors included Sebaceous gland carcinoma (SGC) (31.6%), Basal cell carcinoma (BCC) (26.3%), Squamous cell carcinoma (21%), Malignant melanoma (10.5%), Merkel cell carcinoma(5.3%) and Lymphoma (5.3%). Most common site for malignancy was lower lid followed by upper lid. BCC recurred in 1 case in lower lid. **CONCLUSION:** Epidermal cyst, nevi, dermoid cyst and papilloma are the most common benign lesions and SGC is the most common malignant lesion. Recurrence is a feature of BCC in lower lid.

**KEYWORDS:** Epidermal cyst, Histopathology, Sebaceous gland carcinoma, Eyelid tumours.

**INTRODUCTION:** Malignancies in the eyelid account for 5-10% approximately of all skin cancers.<sup>[1]</sup> Early detection of Eyelid tumors are rarely lethal while invasive surgery are needed for advanced tumors and have consequently adverse esthetic effects.<sup>[2]</sup> Several studies have investigated the incidence, risk factors, and clinical manifestations of eyelid tumors.<sup>[1-5]</sup> Histopathological diagnosis and clinical correlation have been studied in published case reviews.<sup>[2-9]</sup> Benign lesions largely constitute the eyelid tumors, outnumbering the malignant.<sup>[3-5]</sup>

Wide varieties of lesions affecting the eyelid are encountered within routine ophthalmology practice. These lesions are numerous due to the unique anatomical features of the eyelid as the whole skin structures, appendages, muscle, modified glands, and conjunctival mucous membrane are represented in the eyelid.<sup>[10]</sup> Benign tumors reported in an Indian study by Abdi et al include vascular tumors, neural tumors, dermoid cysts, squamous cell papilloma and naevi.<sup>[6]</sup> Several studies have found different incidences of each of these lesions.<sup>[2-6,9-16]</sup>

Among the malignant category, basal cell carcinoma(BCC) has been shown to have the highest incidence among the malignant tumors of the eye lids followed by sebaceous gland carcinoma (SGC), lymphoma, squamous cell carcinoma(SCC), and malignant melanoma.<sup>[8]</sup> However the frequency of SCG is higher in Asian countries.<sup>[2,8,17-21]</sup>

## ORIGINAL ARTICLE

---

The present retrospective study evaluated the clinic pathological profile of different eyelid tumors in a tertiary care hospital.

**MATERIALS AND METHODS:** A retrospective case analysis was conducted at the department of Ophthalmology, Mysore Medical College and Research Institute, Mysore, Karnataka, South India. Hospital records of the patients who had undergone treatment for various eye lid lesions from the 15th June 2009 to 15th June 2014, over a 5 year period were reviewed. A total of 235 cases were evaluated for during this period.

The various clinical parameters that were assessed included age, gender, occupation, the length of time between the onset of the disease and referral, the symptoms at each visit, visual acuity, history of trauma and history of tumors in other parts of the body. The affected eye and the eye lid involved were examined, the location, size, physical appearance of the lesion were also noted.

Also, limitation of ocular motility, fundoscopic findings, the anterior and posterior segments of the eye was examined by slit lamp and indirect ophthalmoscope respectively. Visual acuity was recorded using the Snellen's Chart. Type of surgical procedure and technique for repairing the eyelid, treatment results, follow-up examinations and the recurrence of the tumor were recorded. Histopathological correlation was also done in all the cases.

All benign and malignant tumors (including recurrence) were managed by surgical excision of the lesion and lid reconstruction where ever required. All cases that were suspected to be malignant were managed by wide surgical excision of the lesion large enough to obtain tumor-free margins and confirmed by histopathological examination.

**RESULTS:** Out of 235 cases, 216(91.9 %) of the eyelid lesions were benign tumors and 19(8.1%) were malignant. The age of the patients ranged from 3 to 85 years.

Most benign tumors were diagnosed in patients under the age of 60 years. There were 138 females (58.71%) and 97 males (41.3 %), benign tumors were more prevalent among females (n=130, 60%) than in males (n=86, 40%), male to female ratio was 1:1.5. Benign tumors involved the upper eyelid (n=131, 60.6%) more commonly than lower lid (n=85, 39.4%). Involvement of the upper eyelid was more often noted in some pathologic lesions like epidermal cyst, papilloma, and dermoid cysts. Nevi were more common in the lower eyelid.

The most prevalent type of the benign eyelid masses were epidermal cyst (30.5%), nevi (17.5%), dermoidcyst (13.8%), followed by papillomas (6.5%). Other benign lesions included capillary hemangioma, seborrhic keratosis, benign fibrous histiocyoma, verruca, eccrinespiradenoma, pilomatricoma, apocrine hydrocystoma, trichoepithelioma, sebaceous horn, neuroma, neurfibroma, lipoma and fibroma. [Table 1].

Epidermal cysts represented 30.5% (66cases) of all benign lesions. The age group affected was between second to sixth decade, accounting for 55 cases. A preference for upper lid (74.24%) and the right eyelid (66.6%), but no gender preference was seen. Nevi represented 17.5% of all benign lesions, showed a female predominance (89%), more commonly found in the 3rd to 4th decade and in the lower lid.

Dermoid cysts accounted for 13.8% of benign tumors. Involvement of the upper lid was noted in all these cases; left eye to right eye involvement was 5:1 and was found in the younger age group.

## ORIGINAL ARTICLE

---

No gender predilection was noted. Papilloma accounted for 6.5% of cases, demonstrated a greater involvement of upper eyelid, but no gender or eye preference was seen.

In the present study, 19 cases (8.1%) were diagnosed as malignant eyelid tumors, of which six were SGC (31.6%), five were BCC (26.3%), four were SCC (21%), two were malignant melanoma (10.5%) and one each of lymphoma (5.3%) and Merkel cell carcinoma (MCC) (5.3%). The mean age of the patients under the malignant category was 62.2 years. The male to female ratio was 1: 0.7. Regarding the malignant group, the lower lid was involved more (n=14, 74%) than the upper lid (n=5, 26%). [Table 2] The most common location of malignant tumors was lower lid (74%).

The lower lid was also the most common location of tumor for all histological subtypes except SGC where 83.3% of cases involved the upper lid. The most common presenting complaint was mass with ulceration across all histological types. 4 patients of BCC (21%), 3 patients of SGC (16%) and 3 patients of SCC (16%) presented with mass and overlying ulceration. Mass alone was the presenting complaint in 1 patient of BCC, 3 patients of SGC and 1 patient of SCC. Other associated complaints included redness, discharge from eye, pain and ptosis. Two patients of SGC had history of recurrent chalazion.

The mean length of time between the onset of the disease and referral of the patient for benign and malignant tumors was  $96 \pm 24.0$  and  $18 \pm 12.0$  months respectively. Among the malignant tumors, this time was 20 months for BCC, 10 months for SGC, 8 months for SCC, 7 months for malignant melanoma, 4 months for MCC and 2 months for lymphoma.

The average follow-up of patients with benign and malignant tumors was 60 months. One patient who was diagnosed to have BCC, had recurrence in left lower lid after 10 months of surgery. We had one case MCC with lymph node enlargement. No distant metastasis in our series.

**DISCUSSION:** From the retrospective data collected clinic pathological profile of 235 cases with eyelid tumors were reviewed in our hospital. The prevalence of different types of eyelid tumors is influenced by Geographical region, latitude, people protecting themselves from sunlight and Ultraviolet exposure, ethnicity and Genetic factors,<sup>[2]</sup>

In our study, 216 cases (91.9%) were benign eyelid tumours, nearly similar to that reported by Xu et al from Beijing (86.2% benign involving 2638 patients),<sup>[8]</sup> Deprez et al (84% benign from study on 5504 cases),<sup>[5]</sup> Paul S et al (855 cases, 75.9% were benign)<sup>[3]</sup> and Obata H et al (73% of 131 cases).<sup>[11]</sup> However studies by Abdi et al<sup>[6]</sup> from India and Bagheri A et al<sup>[2]</sup> from Tehran have reported only 58.9% (n= 207 cases) and 45.5% (n=182 cases) respectively, showing comparatively lesser incidence of benign lesions. In the general population, benign lesions largely constitute most frequent type of eyelid tumors out numbering the malignant category.<sup>[2,3,5,8,11]</sup> [Graph 1].

In our series the most common benign lesions were epidermal cyst (30.5%), nevi (17.5%), dermoid cyst (13.8%) and papilloma (6.5%). However Abdi et al reported vascular tumors (21.3%), neural tumors (18.0%), dermoid cysts (16.4%), squamous cell papilloma (13.1%) and naevi (12.3%) as the common benign lesions.<sup>[6]</sup> Different studies reported various frequencies of benign tumours some of which are similar to our study. Hsu and Lin et al series reported epidermal cysts (23.1%)<sup>[9]</sup> to be the most common lesion and Kersten et al reported it as the 2<sup>nd</sup> most common lesion in their cases series (22.2%).<sup>[14]</sup>

Four separate studies from Tehran, China, Southern Taiwan and South Korea have reported that the most frequent benign tumors were nevus, papilloma, and cysts.<sup>[2,7,8,16]</sup> Kersten et al<sup>[14]</sup> from

## ORIGINAL ARTICLE

The United States and Ni et al from China<sup>[15]</sup> reported papilloma (43.9% and 27.9%, respectively) to be the most common lesion, Chi et al and Beak et al (South Korea 57.1%),<sup>[16]</sup> A Bagheri et al (Tehran 35%), Obata et al (Japan 21.9%) and Mary Ho et al (Hong Kong 27%) found nevus<sup>[2,11,12]</sup> and YH. AL-Faky et al (Saudi Arabia) documented sweat gland hidrocystoma (29.3%) as the most common benign eyelid lesion.<sup>[10]</sup> [Table 3]

Studies from by Pornpanich et al,<sup>[13]</sup> Chang C H et al<sup>[7]</sup> and A Bagheri et al<sup>[2]</sup> reported 51%, 46%, 57% involvement of upper eyelid in the benign category respectively and more prevalence in females.<sup>[2]</sup>

In contrast, a Chinese study, reported that the lower eyelid was involved slightly more frequently than upper eyelid.<sup>[8]</sup>

Histopathological studies confirmed the clinical diagnosis in 94.44% (204/216) specimens of benign lesions. However discordance between the clinical and histopathological diagnosis was noted in 5.5% (12/216) of the benign lesions. None of the clinically diagnosed benign tumors were proved to be malignant or premalignant lesions, however high index of suspicious and relatively low incidence of malignant lesions can explain such a difference. Nevertheless, twelve benign eyelid lesions (5.5%) were misdiagnosed clinically and proved by histopathology study to be another entity of benign lesions which is higher than Kersten et al (2.3%), YH.AL-Faky et al (4.1%) and less than Özdalet al (6.4%).<sup>[2,14]</sup>

Malignant tumours of the eyelid, which are of different histological types are encountered in Ophthalmic practice. These malignant tumors present differently, their progression varies and response to surgery differs.<sup>[18]</sup> The three most common malignant tumors in our study were SGC (31.5%), BCC (26.3%), and SCC (21%) which was similar to an Indian study by Sihota et al sebaceous adenocarcinoma (32.6%), BCC (29.8%), and SCC (28.1%) in a similar proportion to our study.<sup>[17]</sup>

This is supported in another Indian study where there was 38.8% of BCC, 27.1% of SGC, and 22.4% of SCC were reported.<sup>[6]</sup> Studies from various countries have reported different types and frequencies of malignant eyelid tumors, some of these reports have been concised in Table 4.<sup>[2-8,11-13, 17-20,22-27]</sup>

In the present study, the mean age of patients with malignant tumors was above 62.2 (60 median age). This finding is in agreement with most of the studies by Wang J K et al (62.6 years median age),<sup>[22]</sup> A Bagheri et al (mean age >60 years) as well as the study by Vitaliano and Urbach et al who consider age an important risk factor in non-melanoma skin tumors.<sup>[2]</sup> 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 our study.

Worldwide, BCC is the most common eyelid malignant tumour.<sup>[2,4,5,8,22,25]</sup> The common malignancy in white population is Basal cell carcinoma.<sup>[1]</sup> Studies by Paul S et al, Cook BE Jr et al, Deprez et al reported 71.8%, 90.8% and 86% BCC respectively, which was the most common malignant tumor in their case series.<sup>[3-5]</sup> However reports from central India (Sihota et al (30%), Jahagirdar S S et al (44.5%), Kale SM et al (48.2%)<sup>[17,18,19]</sup> show a relatively lower incidence of BCC. In our cases series BCC accounted for 26.3% and was the 2<sup>nd</sup> most common malignant tumor.

Light pigmentation among whites is a risk factor for BCC; conversely, the BCC is rare among blacks. BCC is related to chronic and cumulative solar damage, and is more common in elderly and fair-skinned adults.<sup>[24]</sup> Its incidence is increasing worldwide by up to 10% a year. Approximately among 10 Caucasians 3 may develop a basal-cell cancer within their lifetime.<sup>[24,28]</sup>

## ORIGINAL ARTICLE

---

The data reveal a significant increase in reported BCC among male patients compared to previous studies. Male to female ratio was 1.5:1 and this tumor also showed a preference for the lower eyelid in the present study, as also reported by Paul S et al and Wang C J et al.<sup>[3,24]</sup> In general, 20% of BCC occur in the periocular area of which half of the cases present in the lower eyelid, one-third in the medial canthus, 15% in the upper eyelid and 5% in the lateral canthus.<sup>[2]</sup>

In this study, the longest period between the onset of disease symptoms and referral was that of BCC (20 months) and the shortest time was related to lymphoma (2 months). Similar to our study, Takamura and Yamashita et al have reported that BCC had the longest time between the onset of the disease and referral (40 months) followed by SGC (11 months), SCC (10 months) and finally lymphoma (1 month).<sup>[2]</sup> BCC in the early stages is asymptomatic and progresses very slowly. Hence in any eyelid lesion a prompt biopsy is highly recommended.<sup>[2]</sup>

In the present study, with a 5 years follow-up of patients, there was 1 recurrent case of BCC after 10 months of initial surgery in an elderly male aged 85 years who had relatively large tumour measuring 1.5 cms. The recurrence rate for the tumor in the lower eyelid was 20% in our study.

The recurrence rate for the tumors in the lower eyelid was 14% in study by A Bagheri et al.<sup>[2]</sup>

Wang C J et al reported a recurrence rate of BCC (11.4%), and mean time of recurrence was 74 months. The mean time to recurrence or metastasis after primary treatment was longer for BCC than for SGC (47 months), SCC (30 months), or MM (22 months).<sup>[22]</sup> Hence BCC patients should be followed up for a longer period.

In the present study, SGC accounted for 31.6% of all malignant cases. SGC is more common in Asian population (South Asian and Indians) accounting for 27–40% of all eyelid malignancies.<sup>[22,23,29]</sup>

In the white population SGC is rare, accounting for 1–5.5% of all eyelid malignancies.<sup>[12,19,22,29]</sup> Racial and genetic predisposition may probably play an important etiological role.<sup>[24]</sup> 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.<sup>[29]</sup>

Thailand, India, Japan, China studies provide evidence, in favour of a higher proportion (30–40%) of occurrence of SGC.<sup>[13,17,18,19,23,24]</sup> Chinese studies have reported an incidence of 8–29%<sup>[22,24,30]</sup>

An incidence of 10% has been reported from Singapore accounting for less incidence of SGC.<sup>[25]</sup> 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.<sup>[24,30]</sup>

The reported incidence of SGC in USA varies from 0.5 to 5% of all lid carcinomas.<sup>[31]</sup> 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 <sup>[3,30]</sup>

In the present study, slight male predominance was noted in BCC and SCC (60%, 100% respectively). However SGC was noted to be predominant in females (83.3%). Various studies report large variations in the sex ratio. Sihota et al reports equal sex distribution for both SGC and BCC, but males were relatively often affected with SCC (60%).<sup>[17]</sup>

Wang et al. reported that though the incidence of lid malignancies was more in women than men (54.3% vs. 45.7%), there was a slight predominance of BCC in men (43 males, 36 females). Women outnumbered men in SGC (21 females, 9 males).<sup>[22]</sup>

## ORIGINAL ARTICLE

---

Fonthip et al. found that most of the patients with eyelid tumors in their study were males.<sup>[17]</sup>

Sihota et al. found that the sex distribution was equal for both SGC and BCC, but males were relatively more often affected with SCC (60%) as also in the present study.<sup>[17]</sup> The variable sex incidence is possible due to the variations in the cohort of patients under study series.

The most common location of all malignant tumors in this study was the lower eyelid (74%), which has been reported in previous studies.<sup>[2,12,19,24]</sup> Patients with SGC showed very strong preference for upper eyelid (83.3%). The lower eye lid was also the most common site for all histological subtypes except SGC.

The predominance of BCC in the lower lid was reported in many studies,<sup>[1,12,22,24]</sup> as also observed in present study (100%). SGC is more common in the upper eyelid than the lower.<sup>[19,22,31]</sup> This preference is linked to relatively greater number of meibomian glands located in the upper lid (30) versus the lower lid (20).<sup>[3]</sup> Various studies have reported greater number of SGC cases in upper eye lid.<sup>[19,29]</sup>

The third most common tumor was squamous cell carcinoma (SCC) accounting for 21% of malignancies examined. Abe et al in Japan, reported SCC (48.1%) to be the most common eyelid cancer in their study, followed by BCC (32.6%) and SGC (13.5%).<sup>[20]</sup> Various reports from India show the prevalence of SCC to be 14-28%.<sup>[17,18,19]</sup> In this study a preference for the lower lid (100%) and a male predominance was noted which is similar to the studies by Mary Ho et al and Sihota et al.<sup>[12,17]</sup>

Other cancers of note in this study included malignant melanoma (2 cases, 10.5%), lymphoma (1 case, 5.3%) and MCC (1 case, 5.3%). With the diagnosis of squamous cell carcinoma, lymphoma and malignant melanoma, a thorough systemic evaluation for regional or distant metastasis is always necessary.<sup>[24]</sup> The number of cases of malignant melanoma in present study were two accounting for 10.5% of malignant tumours, lower lid was involved in both and one case had multiple lesions.

Merkel cell carcinoma (MCC) is a rare and aggressive neuroendocrine skin malignancy that occasionally affects the eyelid, with the potential for significant incidence of local recurrence, regional and distant metastasis.<sup>[24,32]</sup> The number of cases in our present study was only one (5.3%) presented with a painless swelling over the left lower eyelid. Fine needle aspiration and cytology (FNAC), histopathology and immune histochemical (IHC) findings of the swelling and the pre auricular lymph node were diagnostic of MCC with regional metastasis. Current therapeutic regimen includes wide local excision, regional lymphadenectomy with adjuvant radiotherapy.

Ocular adnexal Lymphomas constitute (lymphomas of orbit, eyelids, conjunctiva, lacrimal gland and lacrimal sac) 2% of all extra nodal lymphomas.<sup>[34]</sup> The number of cases in our present study was only one (5.3%). Current therapeutic regimen includes wide local excision with adjuvant radiotherapy.

In summary all excised eyelid lesions must be submitted for histopathologic confirmation because there are some cases where clinical diagnosis does not match pathological diagnosis. To obtain 100% accuracy in clinical diagnosis, it should be strengthened by biopsy report. Early diagnosis remains essential for adequate functional and cosmetic lid reconstruction.

**REFERENCES:**

1. Cook BE Jr, Bartley GB. Treatment options and future prospects for the management of eyelid malignancies: An evidence-based update. *Ophthalmology* 2001; 108: 2088-98.
2. Bagheri A, Tavakoli M, Kanaani A, Zavareh R B, Esfandiari H, Aletaha M, Salour H. Eyelid Masses: A 10-year Survey from a Tertiary Eye Hospital in Tehran: *Middle East African Journal of Ophthalmology* Jul 9, 2013: vol 20, issue 3: page187-192.
3. Paul S, Dat T. Vo, Rona Z. Silkis et al: Malignant and Benign Eyelid Lesions in San Fransisco: Study of a Diverse Urban Population:*American Journal of Clinical Medicine- Winter 2011, Volume Eight, Number One: page 40-46*
4. Cook BE, Jr, Bartley GB. Epidemiologic characteristics and clinical course of patients with malignant eyelid tumors in an incidence cohort in Olmsted County, Minnesota. *Ophthalmology*. Apr 1999; 106 (4):746-750.
5. Deprez M, Uffer S. Clinicopathological features of eyelid skintumors. A retrospective study of 5504 cases and review of literature. *Am J Dermatopathol* 2009; 31: 256-62
6. Abdi UN, Tyagi V, Maheshwari V, Gogi R, Tyagi SP. Tumors of eyelid: A clinicopathologic study. *J Indian Med Assoc* 1996;94:405-9, 416, 418
7. Chang CH, Chang SM, Lai YH, Huang J, Su MY, Wang HZ, et al. Eyelid tumors in southern Taiwan: A 5-year survey from a medical university. *Kaohsiung J Med Sci*. 2003; 19: 549-54.
8. Xu XL, Li B, Sun XL, Li LQ, Ren RJ, Gao F, et al. Eyelid neoplasms in the Beijing Tongren Eye Centre between 1997 and 2006. *Ophthalmic Surg Lasers Imaging* 2008; 39: 367-72.
9. Hsu HC, Lin HF. Eyelid tumors in children: a clinicopathologic study of a 10-year review in southern Taiwan. *Ophthalmologica*
10. Yasser H. Al-Faky Epidemiology of benign eyelid lesions in patients presenting to a teaching hospital. *Saudi Journal of Ophthalmology* (2012) 26, 211-216.
11. Obata H, Aoki Y, Kubota S, Kanai N, Tsuru T Incidence of benign and malignant lesions of eyelid and conjunctival tumors. *Nihon Ganka Gakkai Zasshi*. 2005 Sep; 109 (9): 573-9.
12. Mary Ho, David TL Liu, Kelvin K L Chong, HK Ng, Dennis SC Lam. Eyelid tumours and pseudotumours in Hong Kong:a ten-year experience: *Hong Kong Med J* 2013;19:150-5
13. Pornpanich K, Chindasub P. Eyelid tumors in Siriraj Hospital from 2000-2004. *J Med Assoc Thai*. 2005; 88: S11-4.
14. Kersten RC, Ewing-Chow D, Kulwin DR, Gallon M. Accuracy of clinical diagnosis of cutaneous eyelid lesions. *Ophthalmology* 1997; 104: 479-84.
15. Ni Z. Histopathological classification of 3510 cases with eyelid tumor. *Zhonghua Yan Ke Za Zhi* 1996; 32 (6): 435-7.
16. Chi MJ, Beak SH. Clinical analysis of benign eyelid and conjunctival tumors. *Ophthalmologica* 2006; 220: 43-51.
17. Sihota RK, Tandon SM, Betharia SM, Arora R. Malignant eyelid tumors in an Indian population. *Arch Ophthalmol* 1996; 114: 108-9.
18. Sameer S Jahagirdar, Tushar P Thakre, Satish M Kale, Hemant Kulkarni, Manju Mamtani A clinicopathological study of eyelid malignancies from central India Year: 2007 | Volume: 55 | Issue: 2 | Page: 109-112.

---

**ORIGINAL ARTICLE**

---

19. Satish M. Kale, Surendra B. Patil, Nishant Khare, Mahantesh Math, Arvind Jain, and Sumeet Jaiswal Clinicopathological analysis of eyelid malignancies - A review of 85 cases Indian J Plast Surg. 2012 Jan-Apr; 45 (1): 22-28. doi: 10.4103/0970-0358.96572.
20. Abe M, Ohnishi Y, Hara Y et al. Malignant tumour of the eyelid: clinical survey during a 22-year period. Jpn J Ophthalmol 1983; 27: 175-184.
21. Shields JA, Demirci H, Marr BP, Eagle RC Jr, Shields CL. Sebaceous Carcinoma of the eyelids: personal experience with 60 cases. Ophthalmology, 2004 Dec; 111 (12): 2151-7.
22. Wang JK, Liao SL, Jou JR, et al. Malignant eyelid tumours in Taiwan, Eye (Lond). Mar 2003; 17 (2): 216-220
23. Takamura H, Yamashita H. Clinicopathological analysis of malignant eyelid tumor cases at Yamagata University Hospital: statistical comparison of tumor incidence in Japan and in other countries. Jpn J Ophthalmol. 2005; 49 (5): 349-354.
24. Chang-Jun Wang, Hui-Na Zhang, Han Wu, Xin Shi, Jia-Jun Xie, Jin-Jing He, Koung-Hoon Koo, Sang-Yeul Lee and Juan Ye. Clinicopathologic features and prognostic factors of malignant eyelid tumors. Int J Ophthalmol. 2013; 6(4): 442-447. Published online Aug 18, 2013. doi: 10.3980/j.issn.2222-3959.2013.04.06 PMID: 24210000
25. Lee SB, Saw SM, Au Eong KG, Chan TK, Lee HP. Incidence of eyelid cancers in Singapore from 1968 to 1995. Br J Ophthalmol. 1999; 83: 595-7. [PMCID: PMC1723038] [PubMed: 10216061]
26. Weiner JM, Henderson PN, Roche J. Metastatic eyelid carcinoma. Am J Ophthalmol 1986; 101: 252-254.
27. Ni C, Searl SS, Kuo PK et al. Sebaceous cell carcinomas of the ocular adnexa. In: Ni C, Albert DM (eds). Tumours of the Eyelid and Orbit: a Chinese-American Collaborative Study. Int Ophthalmol Clin 1982; 22: 23-61.
28. Lin HY, Cheng CY, Hsu WM, Kao WH, Chou P. Incidence of eyelid cancers in Taiwan: a 21-year review. Ophthalmology. Nov 2006; 113 (11): 2101-7.
29. Suresh Saquil, Raman Malhotra. The importance of considering Sebaceous gland carcinoma in presumed chalazia in South Asian patients. Br J Gen Pract. Feb 2013; 63 (607): 74.
30. Dasgupta T, Wilson LD, Yu JB. A retrospective review of 1349 cases of sebaceous carcinoma. Cancer. Jan 1 2009; 115 (1): 158-165.
31. Upender K. Wali and Abdullah Al-Mujaini. Sebaceous gland carcinoma of the eyelid Oman J Ophthalmol. 2010 Sep-Dec; 3 (3): 117-121.
32. Tarantola TI, Vallow LA, Halyard MY, Weenig RH, Warschaw KE, Grotz TE, Jakub JW, Roenigk RK, Brewer JD, Weaver AL, Otley CC. Prognostic factors in Merkel cell carcinoma: analysis of 240 cases. J Am Acad Dermatol. 2013; 68 (3): 425-432. [PubMed].
33. Woo KJ, Choi YL, Jung HS, Jung G, Shin YK, Jang KT, Han J, Pyon JK. Merkel cell carcinoma: our experience with seven patients in Korea and a literature review. J Plast Reconstr Aesthet Surg. 2010; 63 (12): 2064-2070. [PubMed].
34. Peter Kristian Rasmussen: Diffuse Large B-Cell Lymphoma and Mantle Cell Lymphoma of the Ocular Adnexal Region, and Lymphoma of the Lacrimal Gland: An Investigation of Clinical and Histopathological Features. Acta Ophthalmologica Special Issue Volume 91, Issue thesis 5, pages 1-27, July 2013.



## ORIGINAL ARTICLE

<b>Histopathological type</b>	<b>No. (Percentage) of cases</b>
Epidermal cyst	66 (30.50)
Dermoid	30 (13.80)
Intradermal nevus	28 (12.90)
Compound nevus	10 (4.60)
Papilloma	14 (6.50)
Haemangioma	09(4.10)
Verruca Vulgaris	08 (3.70)
Trichoepithelioma	04 (1.85)
Seborrheic Horn	02 (0.90)
Seborrheic Keratosis	02 (0.90)
Benign Fibrous Cystiocyoma	01 (0.46)
Apocrine Hydrocystoma	02 (0.90)
EccrineSpiradenoma	01 (0.46)
Pseudoriforus Cyst	01 (0.46)
Lipoma	01 (0.46)
Fibroma	01 (0.46)
Pilomatrixoma	01 (0.46)
Neuroma	01(0.46)
Neurofibroma	01 (0.46)
Microphthalmos with lower lid unilocular cyst	01(0.46)
Others benign lesions	32(14.8)

**Table 1: HISTOLOGICAL SPECTRUM AND FREQUENCIES OF BENIGN EYELID TUMOURS**

<b>Tumor Type</b>	<b>No. (Percentage)</b>
Sebaceous Gland Carcinoma	6(31.6%)
Basal Cell Carcinoma	5(26.3%)
Squamous Cell Carcinoma	4(21.0%)
Malignant Melanoma	2(10.5%)
Lymphoma	1(5.3%)
Merkel cell carcinoma	1(5.3%)

**Table 2: Histopathological types of Malignant Tumors & Incidence**

## ORIGINAL ARTICLE

Type of benign tumour	Present study, India,	Hsu & Lin et al, Taiwan	Abdi et al, India	Deprez et al, US	Kerstein et al, US	Obata H et al, Japan	Paul S et al, San Fransisco	Mary Ho et al, Hong Kong	Ni et al, China	Chi & Beak et al, Korea	YH.AL-Faky, Saudi
Epidermal cyst	31.6%	23.1%			22.2%	10.9%	7%	8%		5.4%	9%
Nevus	17.5%	9%	12.3%	20%		21.9%	12.2%	31%	24.4%	57.1%	8.1%
Dermoid cyst	13.8%	17.9%	16.4%								
Papilloma	6.5%	11.5%	13.1%	26%	43.9%	9.3%	8.6%		27.9%		20.3%
Seborrhoeic Keratosis	0.9%			21%		14%	19.7%	15%			4.9%
Hydrocystoma	0.9%			8%			8.6%				29.3%
Vascular tumour	4.1%		21.3%								0.9%
Neural tumour	0.9%		18%								
Lipogranuloma							13.7%				
Xanthoma				6%							3.6%
Chalazion											21.6%
Warts	3.7%						3.38%	22.4%			3.1%

**Table 3: Common Benign Tumours in various Countries**

Author, country, n= number of malignant cases.	Present study (South India) (n=19)	Abdi et al (India) (n=85)	Lin et al, Taiwan, (n=1166)	Sihota et al (India) (n=178)	Xu XL, Beijing, (n=2639)	Pornpanich, Thailand, (n=32)	Obata H, Japanese, (n=24)
BCC (%)	26.3	38.8	65.1	29.8	41	40.62	37.5
SGC (%)	31.6	27.1	7.9	32.6	39	37.5	37.5
SCC (%)	21	22.4	12.6	28.1	5	6.25	
Malignant melanoma (%)	10.5	3.5	2	2	4	9.3	
Lymphoma (%)	5.3				9		16.6
MCC (%)	5.3						
Others (%)		8.2	4	7.5		6.25	8.3

**Table: 2.A. Common Malignant Eyelid Tumours reported from various Asian Countries. SGC is more common in Asian population (South Asian and Indians) accounting for 27–40% of all eyelid malignancies**

## ORIGINAL ARTICLE

<b>Author, country, n= number of malignant cases.</b>	<b>Paul et al, San Fransisco, (n=206)</b>	<b>Deprez, Switzerland, (n=880)</b>	<b>Ni et al, US, (n=1543)</b>	<b>Weiner et al6 (Australia) (n=475)</b>	<b>Cook B E, Minnesotaa, (n=174)</b>	<b>Bagheri A et al, Tehran, (n=100)</b>
BCC (%)	71.8	86	92.5	88.8	90.8	83
SGC (%)	7.3	3	1.5	3.8		6
SCC (%)	9.7	7	4.6	7.4	8.6	8
Malignant melanoma (%)	9.2		1.1		0.6	
Lymphoma (%)						
MCC (%)						
Others (%)			0.3			

Table: 4.B. Common Malignant Tumours reported from Western Countries and from Tehran  
BCC is the commonest malignant tumour reported from western countries

## ORIGINAL ARTICLE

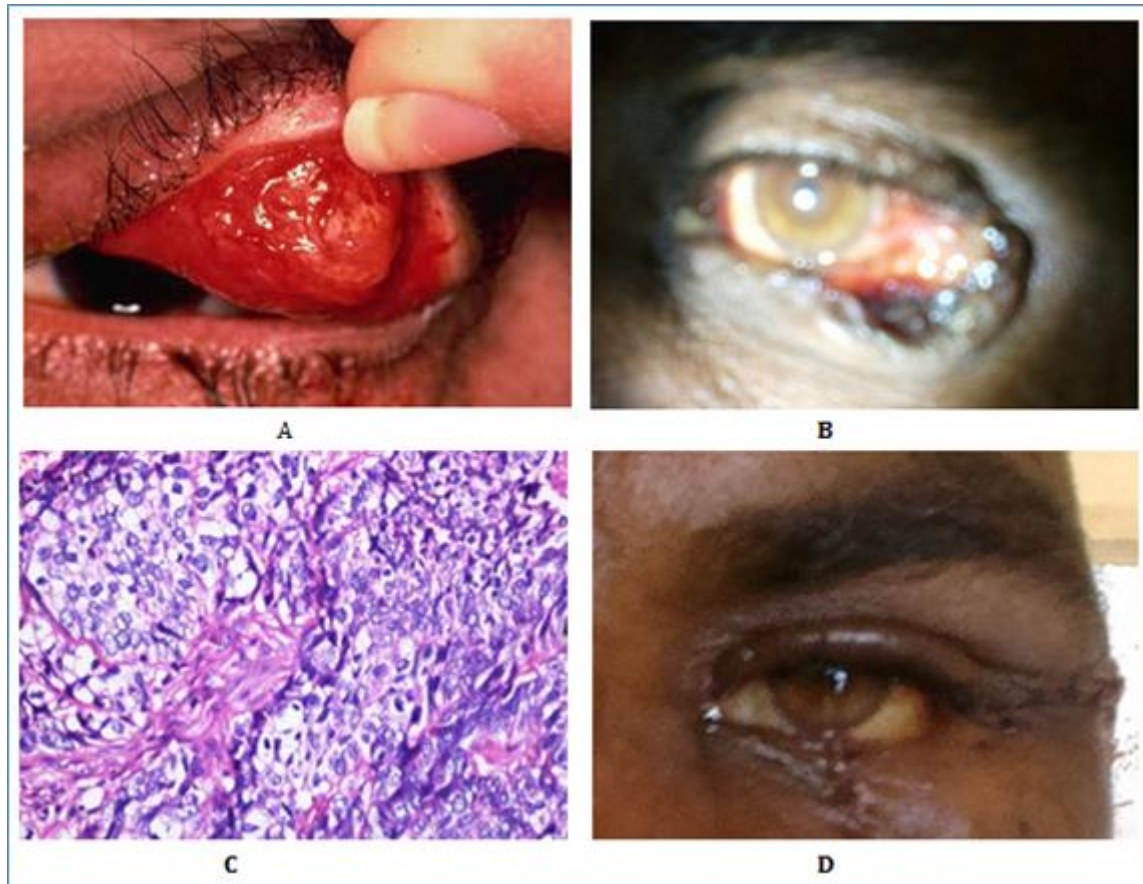
### COMMON MALIGNANT TUMORS:

A- Swelling over the left upper eyelid with ulceration -SGC.

B- Histopathological features of SGC- composed of foamy cells with multivacuolated cytoplasm and undifferentiated cells .

C-BCC- Swelling over the left lower eyelid with central ulceration and raised rolled edges.

D – BCC case Post lid reconstruction surgery.



### RARE MALIGNANT TUMORS:

A1-Nodular firm non-tender swelling over left lower eyelid, in MCC case

A2 Histopathology features of MCC: Composed of uniform cells arranged in nests, lobules, sheets, trabecular pattern with scanty cytoplasm, round nucleus with dispersed chromatin & mitotic figures.

A3 - Immunohistocytometry - Dot-like immunoreactivity for cytokeratin 20.

B1 –Firm tender nodular swelling with overlying chemosis in left lowerlid.

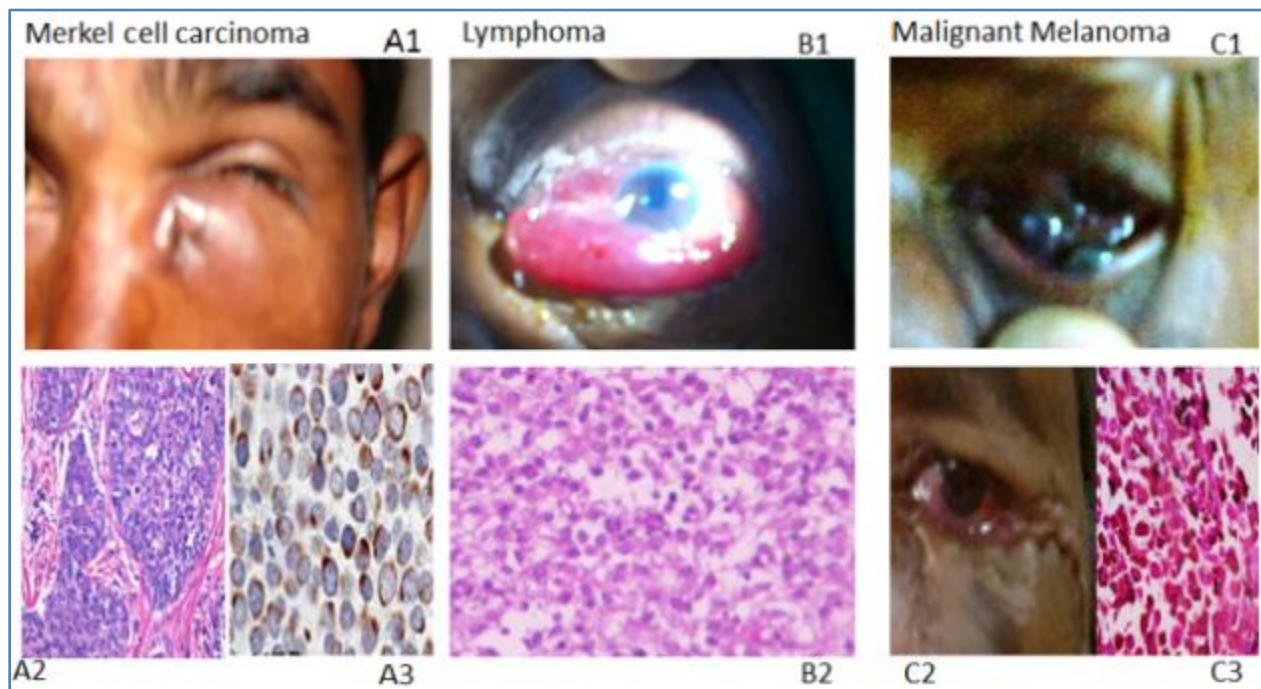
B2- Round to oval large tumour cells with vesicular nucleus,pale pink cytoplasm, arranged in sheets, nest pattern, interspersed amidst are seen spider cells.

C1- Malignant melanoma – Two nodular, black pigmented, indurated lesions in lowerlid.

C2- Malignant melanoma – Post operative picture after tumour excision and lid reconstruction

C3- Nodular malignant melanoma is commonly composed of round to oval epithelioid cells with varying amounts of melanin pigment.

# ORIGINAL ARTICLE

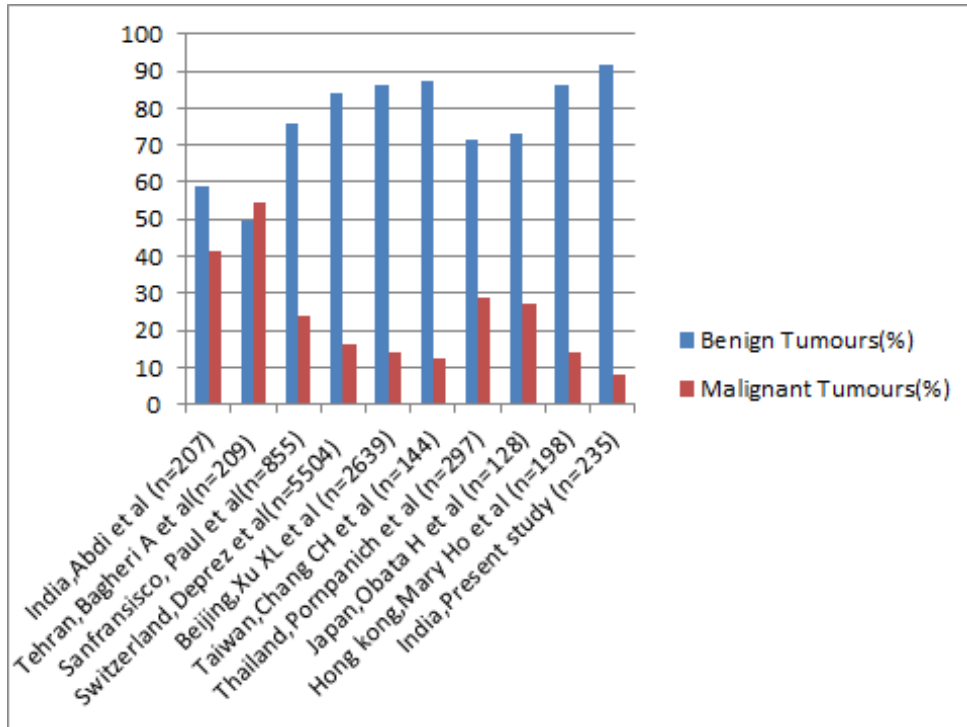


## COMMON TYPES OF BENIGN TUMOURS:

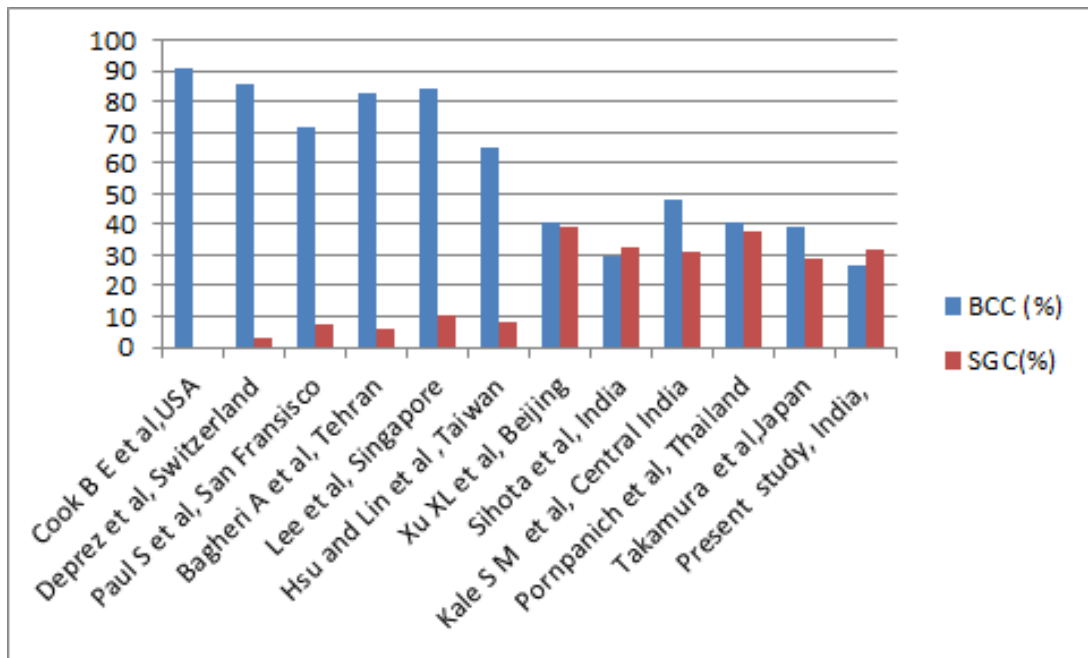
A- EPIDERMOID CYST. B- DERMOID CYST. C- NEVUS. D- PAPILOMACOMMON.



# ORIGINAL ARTICLE



**Graph 1: Comparison of benign and malignant lesions in various other studies**



**Graph 2: Comparison of incidence of BCC and SGC showing increase incidence of SGC in Asian countries and increased incidence of BCC in western countries**

**AUTHORS:**

1. Hemalatha Krishnamurthy
2. Tanushree V
3. Venkategowda H. T
4. Archana S,
5. Mobin G
6. Aylette D'Silya
7. Bharathi M,
8. Savita Patil

**PARTICULARS OF CONTRIBUTORS:**

1. Assistant Professor, Department of Ophthalmology, MMC & RI, Mysore.
2. Senior Resident, Department of Ophthalmology, MMC & RI, Mysore.
3. Professor and HOD, Department of Ophthalmology, MMC & RI, Mysore.
4. Assistant Professor, Department of Pathology, Melaka Manipal Medical College, Manipal University.
5. Junior Resident, Department of Ophthalmology, MMC & RI, Mysore.

6. Junior Resident, Department of Ophthalmology, MMC & RI, Mysore.
7. Professor and HOD, Department of Pathology, MMC & RI.
8. Junior resident, Department of Ophthalmology, MMC & RI

**NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Hemalatha K,  
#904/12,  
Murthy Nilaya,  
Nanju Mallige Circle,  
Mysore-570004.  
Email: dr.hemalatha\_k@yahoo.in

Date of Submission: 14/09/2014.  
Date of Peer Review: 15/09/2014.  
Date of Acceptance: 29/09/2014.  
Date of Publishing: 04/10/2014.