

HISTOPATHOLOGICAL PROFILE OF SURGICALLY EXCISED EYELID LESIONS AT A TERTIARY CARE CENTRE IN NORTH-EAST INDIA: A RETROSPECTIVE STUDY

Ningthoujam Linthoingambi¹, Anthony kamson², Rohit Mutum³, Reena Sorokhaibam⁴, Ananya Madhu⁵

Received : 04/09/2026
Received in revised form : 01/10/2026
Accepted : 13/10/2026

Keywords:
Benign, Eyelid lesions, Histopathology, Malignant.

Corresponding Author:
Dr. Anthony Kamson,
Email: kamson22@gmail.com

DOI: 10.47009/jamp.2026.8.5.123

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2026; 8 (5); 781-785



¹Assistant Professor, Department of Ophthalmology, CMC, Churachandput, Manipur, India.

²Assistant Professor, Department of Ophthalmology, JNIMS, Porompat, Imphal, Manipur, India.

³Optometrist, Manipur Health Services, India.

⁴Community Ophthalmologist, Manipur Health Services, India.

⁵PGT, Department of Ophthalmology, JNIMS, Porompat, Imphal, Manipur, India.

ABSTRACT

Background: Eyelid lesions are most common seen in daily clinical practice. Unique anatomical features of the eyelid contribute to the occurrence of diverse eyelid tumours. It is estimated that 5-10% of skin tumours present in the eyelid. **Objective:** To describe the demographic characteristics, anatomical distribution, and histopathological profile of surgically excised eyelid lesions at a tertiary care centre in Northeast India. **Materials and Methods:** Retrospective observational study was conducted at Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur, over a 3-year period from march 2022 to march 2025. Hospital records of the patients who underwent surgical excision of tumours were retrieved. Cases without histopathological confirmation or incomplete data were excluded. **Results:** A total of 58 eyelid lesions from 52 patients were analysed. The age ranged from 10 to 83 years, with the highest proportion in the 51–60 years age group (32.7%). Females constituted 67.3% of patients. Of the 58 lesions, 49 (84.5%) were benign and 9 (15.5%) were malignant. Intra dermal nevus was the most common benign lesion (25.9%), while basal cell carcinoma was the most common malignant lesion (12.1%). Malignant lesions were predominantly observed in older patients. The upper eyelid was the most commonly affected site (56.8%), and right-sided involvement was observed in 59.6% of patients.

INTRODUCTION

Tumours of the eyelid encompass a diverse group of lesions arising from the unique anatomical features of the eyelid, which includes skin and its appendages, muscle, modified sebaceous glands, and conjunctival mucous membrane.^[1] The eyelids are made up of four layers: skin and subcutaneous tissue including its adnexa, striated muscle (orbicularis oculi), tarsus with the meibomian glands, and the palpebral conjunctiva.^[2] This unique histogenesis and embryologic origin of eyelid accounts for the wide spectrum of both benign and malignant neoplasms arising from any of these layers encountered in this region. Tumours of eyelid are most commonly classified on basis of their histological origin. Eyelid tumours are most common encountered neoplasia in ophthalmic practice and constitute approximately 5–10% of all skin cancer.^[3]

There are several factors have been associated with development and distribution of eyelid tumours, including geographical location, exposure to sunlight and ultraviolet radiation, and genetic predisposition. These lesions form a significant proportion of cases presenting to ophthalmology outpatient departments, particularly in tertiary care settings. The variety of tumours is so diverse that even an expert oculoplastic surgeon finds it challenging. Although the 80% of eyelid tumours are benign^[4], malignant lesions constitute a clinically important subset due to their potential for local invasion, recurrence, and, in some cases, metastasis. Several studies have shown that benign lesions significantly outnumber malignant ones, yet malignancies remain a major cause of morbidity and functional impairment.

Most frequent malignant lesions reported in western population is basal cell carcinoma, accounting for majority of eyelid malignancies.^[5,6] Sebaceous gland carcinoma, in contrast, is considered more aggressive

and is comparatively more common in Asian countries, including India.^[7,8] Such a regional variation underscores the value of epidemiological data in interpretation of disease patterns and to support management strategies. A definitive diagnosis is established based on histopathological findings. Malignant lesions may occasionally resemble benign conditions clinically, leading to delays in diagnosis and treatment and an increased risk of complications. The advanced lesions result in functional disruption of the eyelid and cosmetic disfigurement, necessitating complex lid reconstructive surgeries. Prompt treatment plays a key role in reducing morbidity and mortality while ensuring better functional and aesthetic outcomes. Considering the variability in clinical presentation and regional differences in tumour patterns, the aim of this study is to assess the epidemiological and clinical profile of eyelid tumours at a tertiary care centre, in Manipur, India.

Objective

The objective was to assess the demographic characteristics, anatomical distribution, and histopathological profile of surgically excised eyelid lesions at a tertiary care centre in North-East India.

MATERIALS AND METHODS

This hospital-based retrospective observational study was conducted at Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur. Medical records of patients who underwent surgical excision of eyelid lesions from March 2022 to March 2025 were reviewed, along with their corresponding histopathological reports. All excised specimens were examined in the Department of Pathology, JNIMS. The final diagnosis recorded in the histopathology report was used to classify lesions as benign or malignant and to determine their histopathological type. No additional slide review was performed for this retrospective study. Data collected included patients' demographic details (age and sex) and lesion characteristics, including location, laterality, clinical diagnosis, nature of the lesion (benign or malignant), and final histopathological diagnosis. For the purpose of this study, the term "eyelid lesion" was used as an umbrella term to include all surgically

excised lesions involving the eyelid that underwent histopathological examination. Based on the final histopathological diagnosis, lesions were categorized as benign or malignant.

Cases were identified from the available hospital records and corresponding histopathological reports. All eligible cases fulfilling the predefined inclusion criteria during the study period were included in the analysis. Patients with eyelid lesions who did not undergo surgical excision, those without available histopathological reports, and cases with incomplete demographic data were excluded. Missing data were not imputed, and only cases with complete information for the relevant variables were included in the analysis.

The study was conducted in accordance with the principles of the Declaration of Helsinki, and institutional ethical approval was obtained. Patient confidentiality was maintained, and all data were anonymized.

Data were entered into Microsoft Excel and analysed using SPSSv29. Descriptive statistics, including mean, standard deviation, range, frequency, and percentage, were used. The unit of analysis was the individual patient for demographic variables, including age and sex, as well as laterality (n=52). The individual lesion was the unit of analysis for histopathological diagnosis and anatomical location (n=58). In patients with multiple lesions, each lesion was included separately in the lesion-level descriptive analysis.

RESULTS

A total of 58 eyelid lesions from 52 patients were analysed over the 3-year study period. The age of the patients ranged from 10 to 83 years. The youngest patient was a 10-year-old girl diagnosed with seborrheic keratosis, whereas the oldest was an 83-year-old woman diagnosed with basal cell carcinoma. The highest number of patients was observed in the 51–60 years age group (17/52, 32.7%), followed by the 61–70 years (12/52, 23%) and 71–80 years (8/52, 15.3%) age groups, indicating that the majority of cases occurred in older individuals. Only one patient (1.92%) was below 20 years of age. (Table 1). Malignant lesions were predominantly observed in older age groups.

Table 1: Age-wise distribution of patients with benign and malignant eyelid lesions

Age group (Years)	Total (n=52)	Benign (n=43)	Malignant (n=9)	Percentage %
1-10	1	1	0	1.9%
21-30	5	5	0	9.6%
31-40	3	3	0	5.76%
41-50	5	4	1	9.6%
51-60	17	17	0	32.7%
61-70	12	10	2	23%
71-80	8	3	5	15.3%
81-90	1	0	1	1.92%

Among 52 patients, 17 (32.7%) were male and 35 (67.3%) were female, demonstrating a female preponderance in the study population.

Histopathological profile of eyelid lesions

Among the 58 lesions, 49 (84.5%) were benign and 9 (15.5%) were malignant, indicating a predominance of benign eyelid tumours. The most common lesion identified was intradermal nevus (25.9%), followed by xanthelasma (20.7%), seborrheic keratosis (12.1%), and basal cell carcinoma (12.1%). Other benign lesions included pyogenic granuloma (10.3%), epidermoid cyst (6.9%), and sebaceous cyst (5.2%). Rare lesions encountered in the study were nodular fasciitis (1.7%) and trichoepithelioma (1.7%). Among the nine malignant lesions, basal cell

carcinoma accounted for 77.8% (7/9), followed by sebaceous gland carcinoma, accounting for 22.2% (2/9). An important clinicopathological discrepancy was noted in a 45-year-old female, where a lesion clinically diagnosed as papilloma was later confirmed as basal cell carcinoma on histopathological examination, emphasizing the importance of histopathology in definitive diagnosis. Overall, benign lesions constituted the majority, with intradermal nevus being the predominant lesion, whereas malignant tumours were relatively less frequent. [Table 2, Figures 1-4]

Table 2: Histopathological distribution of eyelid lesions

Sl. No.	Types	Frequency	Percentage
A. Benign		49	84.5
1	Intradermal nevus	15	25.9
2	Xanthelasma	12	20.7
3	Seborrheic keratosis	7	12.1
4	Pyogenic granuloma	6	10.3
5	Epidermoid cyst	4	6.9
6	Sebaceous cyst	3	5.2
7	Nodular fasciitis	1	1.7
8	Trichoepithelioma	1	1.7
B. Malignant		9	15.5
1.	Basal cell carcinoma	7	12.1
2.	Sebaceous gland carcinoma	2	3.4



Figure 1: Seborrheic keratoses



Figure 3: Sebaceous gland carcinoma



Figure 2: Basal cell carcinoma



Figure 4: Intradermal nevus

Laterality and anatomical distribution

Among the 52 patients, right-sided involvement was observed in 31 patients (59.6%), followed by left-sided involvement in 15 patients (28.8%), while bilateral involvement was noted in 6 patients (11.5%) (Table 3). Among the 58 eyelid lesions, the upper

eyelid was the most commonly affected site, accounting for 33 lesions (56.9%), followed by the lower eyelid with 21 lesions (36.2%). Four lesions (6.9%) involved both the upper and lower eyelids. [Table 4]

Table 3: Distribution of patients according to laterality

Laterality	Total patients (n=52)	Percentage
Right eye	31	59.6
Left eye	15	28.8
Bilateral	6	11.5

Table 4: Distribution based on anatomical location of lesion

Location	Total lesion (n= 58)	Percentage
Upper eyelid	33	56.8
Lower eyelid	21	36.2
Both lids	4	6.89

DISCUSSION

Excessive exposure to solar radiation has been implicated in the development of eyelid lesions, as ultraviolet radiation can induce oxidative stress and DNA damage. Other factors associated with development of eyelid lesions are genetic predisposition, fair skin, immunosuppression, and viral infections.^[9] The signs for malignant changes in eyelid are ulceration, crusting, fine telangiectatic vessels, loss of lashes, irregular pigmentation, loss of eyelid architecture, induration of edges, fixation to underlying tissue and enlarged regional lymph nodes.^[10]

In this study, eyelid lesions were more commonly observed in older patients. The 51–60 years and 61–70 years age groups accounted for 32.7% and 23.1% of the 52 patients, respectively. A higher proportion of malignant lesions was observed among older patients. These findings are consistent with previous studies by Prasad N et al. and Paul S et al., who reported that eyelid tumours are more common in elderly population, with malignancies predominance for older age groups.^[11,12] The greater proportion of lesions observed among older patients may reflect age-related and cumulative environmental factors; however, these factors were not assessed in the present study.

In this study, males contributed 32.7% whereas female contributed 67.3% indicating a female preponderance. Karakuchi B et al also report that both benign and malignant lesions were more common in females, with male to female ratio of 1:1.3.^[13] A similar finding was noted in Gupta P et al where male to female ratio was 1:2.5.^[14] The reasons for the higher proportion of female patients could not be determined from the available retrospective data, as factors that may influence the observed sex distribution were not assessed in the present study.

At the lesion level, 49 of the 58 eyelid lesions (84.5%) were benign, whereas 9 (15.5%) were malignant. At the patient level, 43 of the 52 patients had benign lesions, while 9 patients had malignant

lesions. The difference between the patient-level and lesion-level counts was due to the presence of multiple benign lesions in some patients. This is comparable to similar studies by Karakuchi B et al,^[13] in which 94% lesions were benign growths and 6% were malignant. A similar finding has been reported by Deshwal J et al,^[15] who found 82.5% were benign growths and 17.4% cases were proved to be malignant. Kadir et al,^[16] also report benign tumours were 80.5% and histologically confirmed malignant tumours were 19.5%. Most studies show that benign lesions constitute the majority of cases while malignant cases are lesser in percentage.

In our study, intradermal nevus (25.9%) was the most common benign lesions, followed by xanthelasma (20.7%) and seborrheic keratosis (12.1%). Similar findings were reported by Karakuchi B et al., with intradermal nevus (31.9%),^[13] most common benign tumour. Rathod et al. also reported intradermal nevus as the most common benign lesion with 27.8%,^[17] Likewise, studies by Nithithanaphat C et al. study (38, 12%) and Wu Y et al. study (335, 28.83%) also identified intradermal nevus as the most common benign lid lesions.^[18,19]

Among the malignant lesions, basal cell carcinoma (BCC) was the most common malignancy, accounting for 7 of 9 malignant lesions (77.8%) and 12.1% of all 58 lesions. This finding is consistent with studies by Kiran BR et al,^[10] found 5 cases of BCC out of 10 malignant cases, Yu Wu et al,^[19] from Southerncoastal China found 104 cases of BCC out of total 1,302 benign and malignant cases and Nithithanaphat C et al,^[18] from Thailand reported 57 cases of BCC out of total 316 benign and malignant cases. However, Rathod A et al,^[17] reported an equal number of basal cell carcinoma & sebaceous gland carcinoma cases, with 16 cases of each out of 39 malignant tumours. As per the literature, basal cell carcinoma (BCC) is the most common malignant tumour of the eyelids in western countries where population of whites are more,^[5,21] whereas sebaceous gland carcinoma has a relatively higher

prevalence in Asian countries approximately 25–30% in China and India.^[22,23]

In the present study, the upper eyelid was more commonly involved than the lower eyelid, accounting for 56.8%. These findings are consistent with the study by Krishnamurthy et al,^[20] who reported that the upper eyelid (n=131, 60.6%) was more commonly involved. Similar finding was also reported by Jagir M et al,^[23] found upper eyelid to lower eyelid involvement ratio was 1.86:1 and Prasad N et al.^[11] In this study 59.6% of lesion were found on the right eye similar to the findings of Jangir M et al who reported that 51% of cases involved the right eye.^[23]

This study offers region-specific insight into the epidemiological and histopathological profile of eyelid tumours in Manipur, supported by histopathological confirmation. However, its retrospective design, single-centre setting, and relatively small sample size may limit broader applicability, with possible selection bias due to inclusion of only surgically managed cases. The lack of long-term follow-up further restricts outcome assessment. Future multicentric, prospective studies with larger cohorts and follow-up data are needed to better evaluate regional patterns, recurrence, and to enhance early diagnosis and management.

CONCLUSION

Eyelids lesions are a diverse group of conditions, the majority of which are benign, with predominance of intradermal nevus in the current study. Malignant tumours were less common but more prevalent in the elderly, highlighting the significance of age as a risk factor. The most common malignant tumour encountered was the basal cell carcinoma, in line with global trend. Clinically, it can be challenging to ascertain whether a lesion is benign or malignant as both may have similar appearances; hence, histopathological analysis is crucial for establishing a definitive diagnosis. Surgical excision with adequate clear margins remains the mainstay of treatment. In some high-risk cases, adjuvant radiotherapy may be needed to prevent recurrence. Collaboration between oculoplastic, otolaryngology, radiation oncology, pathology, dermatology is essential for achieving a good cosmetic and functional outcome. Timely detection and treatment are crucial to reduce morbidity and enhance quality of life.

Source of funding: Nil

Conflict of interest: None to declare

REFERENCES

- Pornpanich K, Chindasub P. Eyelid tumors in Siriraj Hospital from 2000-2004. *J Med Assoc Thai*. 2005;88 Suppl 9:S11-4.
- Pe'er J. Pathology of eyelid tumors. *Indian J Ophthalmol* 2016;64:177-90.
- Actis AG, Actis G, De Sanctis U, Fea A, Rolle T, Grignolo FM. Eyelid benign and malignant tumors: Issues in classification, excision and reconstruction. *Minerva Chir* 2013;68:11-25.
- Obata H, Aoki Y, Kubota S, Kanai N, Tsuru T. [Incidence of benign and malignant lesions of eyelid and conjunctival tumors]. *Nippon Ganka Gakkai Zasshi* 2005;109:573-79.
- 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* 1999;106:746-50.
- Deprez M, Uffer S. Clinicopathological features of eyelid skin tumors: a retrospective study of 5504 cases and review of the literature. *Am J Dermatopathol* 2009;31:256-62.
- Dasgupta T, Wilson LD, Yu JB. A retrospective review of 1349 cases of sebaceous carcinoma. *Cancer* 2009;115:158-65.
- Kaliki S, Bothra N, Bejjanki KM, Nayak A, Ramappa G, Mohamed A, et al. Malignant eyelid tumors in India: a study of 536 Asian Indian patients. *Ocul Oncol Pathol* 2019;5:210-9.
- Oliveira DS, Sousa-Martins D, Rosa AI, Cabral-Marques H, Bacalhau C, Martins D. Eyelid and conjunctiva epithelial tumours: a review of risk factors and primary prevention options. *ARC J Ophthalmol* 2021;5(1):21-9.
- Kiran Kumar BR, Abdairamov S, Narayanan GS. Eyelid tumours: an institutional experience on clinicopathological profile and management. *Asian Pac J Cancer Biol* 2024;9(2):149-53.
- Prasad N, Dubey A, Patangia P, Kubrey SS, Kumar K. Clinicopathological profile of eyelid tumors at a tertiary care center: an observational prospective study. *Indian J Ophthalmol* 2025;73(Suppl 3):S399-404.
- Paul S, Vo D, Silkiss R. Malignant and benign eyelid lesions in San Francisco: study of a diverse urban population. *Am J Clin Med* 2011;8:40-6.
- Karakuchi B, Jiragyal PA, Chaitra HA. A clinicopathological study of eyelid tumors at a tertiary care hospital in South India. *IP Int J Ocul Oncol Oculoplasty* 2024;10(4):208-12.
- Gupta P, Gupta RC, Khan L. Profile of eyelid malignancy in a tertiary health care center in North India. *J Cancer Res Ther* 2017;13(3):484-86.
- Deswal J, Anand N, Khurana AK. Profile of eyelid tumours at a tertiary eye care hospital in North India: a 3-year retrospective study. *J Evid Based Med Healthc* 2020;7:1765-69.
- Ul Kadir SM, Rani Mitra M, Rashid R, Nuruddin M, Hassan Khan MK, Haider G, et al. Clinicopathological analysis and surgical outcome of eyelid malignancies: a study of 332 cases. *J Skin Cancer* 2022;2022:4075668.
- Rathod A, Pandharpurkar M, Toopalli K, Bele S. A clinicopathological study of eyelid tumors and its management at a tertiary eye care centre of Southern India. *MRIMS J Health Sci* 2015;3(1):54-62.
- Nithithanaphat C, Ausayakhun S, Wiwatwongwana D, Mahanupab P. Histopathological diagnosis of eyelid tumors in Chiang Mai University Hospital. *J Med Assoc Thai* 2014;97(10):1096-9.
- Wu Y, Zhong H, Xiang Z, Zhou P, Wang H, Song X, et al. Clinicopathologic features and new factors affecting constitution of eyelid neoplasms: a 10-year multicentre experience in southern coastal China. *Can J Ophthalmol* 2025;60(2):e227-34.
- Krishnamurthy H, Tanushree V, Venkatesgowda HT, Archana S, Mobin G, D'Silva A, et al. Profile of eyelid tumors at tertiary care institute in Karnataka: a 5-year survey. *J Evol Med Dent Sci* 2014;3(50):11818-32.
- Ho M, Liu DT, Chong KK, Ng HK, Lam DS. Eyelid tumours and pseudotumours in Hong Kong: a ten-year experience. *Hong Kong Med J* 2013;19(2):150-5.
- Kale SM, Patil SB, Khare N, Math M, Jain A, Jaiswal S. Clinicopathological analysis of eyelid malignancies: a review of 85 cases. *Indian J Plast Surg* 2012;45(1):22-8.
- Jangir M, Kochhar A, Khan N, Jaju M. Profile of eyelid tumours: histopathological examination and relative frequency at a tertiary centre in North-West Rajasthan. *Delhi J Ophthalmol* 2017;28:15-8.