



## Epidemiology of Benign Eyelid Lesions in Patients Presenting to A Teaching Hospital

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**ABSTRACT**

### Purpose

This study evaluates the relative frequency of benign eyelid lesions presented to a teaching hospital in Rajasthan, India.

### Patients and methods

Charts of patients with benign eyelid lesions were retrospectively reviewed from January 2015 to December 2015. Clinical details included demographic data, symptoms and signs, surgical findings, primary diagnosis, and indication for biopsy were analyzed in a histopathologically confirmed benign eyelid lesions. Eyelid lesions were arranged according to their order of frequencies.

### Results

A total of 87 biopsies were evaluated from 87 patients (male 39.2% and female 60.8%). The age of the patient at the time of biopsy ranged from 2 to 87 years old. The most common benign eyelid lesion encountered in our practice was sweat gland hidrocystoma followed by chalazion, skin tag, epidermal cyst, nevus, seborrheic keratosis, xanthelasma, and molluscum contagiosum respectively. Histopathological studies confirmed the clinical diagnosis in 95.9% of specimens and was different from the clinical diagnosis in 4.1% of the lesions which included seborrheic keratosis (n = 3), pilomatrixoma, steatocystoma, hemangioendothelioma, juvenile xanthogranuloma.

### Conclusion

Sweat gland hidrocystoma with classical clinical features and straightforward diagnosis is the most frequent lesion in our series which could be due to characteristic dry climate.

### KEYWORDS

Epidemiology, Eyelid, Benign, Lesions

### Introduction

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. Eyelid lesions can be divided into congenital, inflammatory, traumatic, or neoplastic (benign or malignant). Neoplastic lesions can be further classified according to their anatomical origin. A tentative clinical diagnosis based on the characteristic features is given then routinely confirmed by histopathological examination of the tissue specimen. The concern is the off chance histopathologic investigation which identifies a diagnosis different than the suspected clinical diagnosis with some diagnoses coming with deleterious implications. Histopathologic evaluation enforces our clinical diagnostic skills and is extremely important in early detection of tumors, particularly in masquerade syndromes.

The relative frequencies of different benign eyelid lesions are variable from different locations in the world and are widely reported in the literatures. Therefore, this study was aimed at evaluating the relative frequency of benign eyelid lesions presented to a teaching hospital in Saudi population to help clinicians prioritizing their presumed clinical diagnoses according to the commonly presented lesions in the community. We also highlighted the most characteristic clinical features helped the attending physician to catch up the exact diagnosis and the most likely alarming sign raised the possibility of unusual lid lesion.

### Patients and methods

The histopathological reports of specimens obtained from patients with presumed benign eyelid lesions who were seen in a

teaching hospital between January 2015 and December 2015 were reviewed. Patient age, gender, clinical features, indication for biopsy, surgical findings, and pre-excision clinical diagnosis (PECD) were retrieved. Special attention was focused on the predominant symptoms, signs, and intraoperative observation frequently documented on the chart that determined PECD. Histopathological assessment was performed in the Pathologic laboratory. Eyelid lesions were arranged according to the frequency of each histopathologically confirmed diagnosis. Special attention was given to the most common presenting clinical features which helped the attending physician to catch up the exact histopathologically confirmed diagnosis. Moreover, clinically misdiagnosed benign eyelid lesions were analyzed regarding their frequencies, mislabeled clinical diagnosis, misleading clinical features and the most likely alarming sign that raised the possibility of unusual lid lesion.

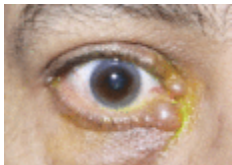
### Results

A total of 87 eyelid lesions were evaluated in 87 patients. There were 36 male and 51 female patients. The age of the patient at the time of biopsy ranged from 2 to 87 years old shows the pre-excisional clinical diagnosis (PECD) for all patients in order of frequency. The number and percentage of biopsies, number of patients, sex, and age groups for each eyelid lesion are shown as well as the comparison to the final histopathological results. The most common benign eyelid lesions encountered in our practice was sweat gland hidrocystoma followed by chalazion, skin tag, epidermal cyst, nevus, seborrheic keratosis, xanthelasma, and molluscum contagiosum.

Histopathological studies confirmed the PECD in 95.9% of specimens and was different from the clinical diagnosis in 4.1%) of the lesions which revealed seborrheic keratosis

( $n = 3$ ), pilomatrixoma, steatocystoma, hemangioendothelioma, juvenile xanthogranuloma, calcinosis cutis, and syringocystadenoma papilliferum. The PECD to these lesions included epidermal cyst ( $n = 3/23$ ; 13%), chalazion ( $n = 3/48$ ; 6.3%), skin tag ( $n = 1/34$ ; 2.9%), eyelid nevus ( $n = 1/19$ ; 5.3%), and molluscum contagiosum ( $n = 1/7$ ; 14.3%).

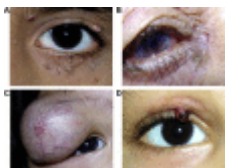
Sweat gland hidrocystoma was clinically diagnosed in 26 biopsies. The cysts were variable in size ranging from 1 to 13 mm with disfiguring mass as an indication for excision in all cases (Fig. 1). Clinical diagnosis was based primarily on the presence of clear fluid and transillumination. Intraoperative observation of thin walled cyst contained clear fluid supported our clinical impression. Histopathology confirmed this diagnosis in 100% of cases and revealed apocrine hidrocystoma, cyst of Moll, (93.8%), and eccrine hidrocystoma in four biopsies.



**Figure 1**  
Multiple sweat gland hidrocystoma.

Chalazion was given as a PECD in 48 specimens. Indications for histopathological evaluation included recurrent chalazion ( $n = 16$ ; 33.3%), associated fleshy mass thought to be granuloma pyogenicum ( $n = 11$ ; 23%), abnormal content ( $n = 10$ ; 20.8%), fibrosed chalazion ( $n = 9$ ; 18.7%), chalazion on top of nevus ( $n = 1$ ; 2.1%), and extraordinarily large chalazion ( $n = 1$ ; 2.1%). Histopathological study confirmed PECD in 94% (45/48) of specimens. Three biopsies (6.2%) were clinically identified as chalazion with abnormal contents however, histopathology reports revealed pilomatrixoma, steatocystoma, and hemangioendothelioma in these cases.

PECD of skin tags (fibroepithelial polyps, squamous cell papillomas) was given for 27 specimens and wart in seven specimens (total 34 biopsies). They were included in the same group for analysis because of histopathologic similarities, except for viral origin of wart (detected by the presence of inclusion bodies). Indication for removal in all cases was a slowly enlarging disfiguring lesion. All skin tags in this group had a raspberry-like feature being of similar or slightly darker color than the skin, while filiform pale multiple lesions with history of recurrence and development of new lesions in a short time were the most striking features in all of the suspected warts. The greatest number of warts was 12. This occurred in a child who also presented with molluscum contagiosum (Fig 2A). Histopathology confirmed PECD in 97% (33/34) of the biopsies. A single specimen (3%) was found to be a seborrheic keratosis (Fig 3A).



**Figure 2**  
Unusual presentation of eyelid lesions. (A) Multiple warts with molluscum contagiosum. (B) Atypical seborrheic keratosis mimic BCC. (C) Unusual large capillary hemangioma. (D) Atypical capillary hemangioma.



**Figure 3**

Unexpected diagnosis. (A) Seborrheic keratosis misdiagnosed as fibroepithelial polyp. (B) Juvenile xanthogranuloma misdiagnosed as epidermal cyst.

PECD of epidermal and epidermal inclusion cysts were postulated in 23 specimens. History of trauma was given in three patients which raised the possibility of epidermal inclusion cyst. Histopathology confirmed the PECD in 87% (20/23) of the lesions with typical yellowish, well circumscribed lesion with intraoperative observation of clear line of cleavage between the cyst and surrounding tissue and yellowish sequestered content. Three specimens (13%) were histopathologically different from PECD that included juvenile xanthogranuloma involving the eyelid margin in a 43-year-old female (Fig 3B), calcinosis cutis in a 12-year-old girl, and seborrheic keratosis in a 63-year-old female.

PECD of eyelid nevi was given in 19 specimens; five of these were non-pigmented. Indications for excision included cosmetic reasons ( $n = 13$ ), increase of lesion size ( $n = 3$ ), inflamed nevus ( $n = 2$ ), and itching with bleeding ( $n = 1$ ). Histopathology reports revealed 16 intradermal nevi (84.2%) and two junctional nevi while seborrheic keratosis was reported in one biopsy (5.3%) from a female patient age 43 years old with right upper and lower eyelid non-pigmented lesions, one of which proved to be an intradermal nevus.

PECD of seborrheic keratosis was given in 11 specimens. An isolated lesion was present in six patients and multiple in two. The clinical presentation was variable. Nine lesions were non-pigmented. Most lesions were cauliflower-like greasy masses ( $n = 7$ ), others were sessile lesions (Fig 2B) mimicking basal cell carcinoma ( $n = 3$ ), or rarely painless yellowish dome-shaped swelling mimicking an epidermal cyst ( $n = 1$ ). Histopathological examinations confirmed the PECD in 100% of the lesions with two lesions confirmed as a variant of seborrheic keratosis (Inverted Follicular Keratosis, IFK).

Xanthelasma was a suspected PECD in eight patients. All eyelids were involved in four patients with upper lids being more severely affected. Three patients had only bilateral upper lid involvement and one had unilateral upper lid involvement with a history of surgical trauma. Histopathological studies confirmed the PECD in 100% of the lesions.

Molluscum contagiosum was suspected clinically in seven biopsies from three pediatric patients and one adult. Multiple lesions were present in two children. Histopathology confirmed the clinical diagnosis in six biopsies with one biopsy which revealed syringocystadenoma papilliferum in the lone adult patient.

Excisional biopsy was performed in two children with a PECD of capillary hemangioma. This was done because of large lesion in one patient with severe ptosis (Fig 2C), the other had an atypical presentation of a pedunculated, rapidly enlarging lesion with bleeding (Fig 2D). Histopathology findings confirmed the clinical diagnosis of lobular capillary hemangioma in both cases.

PECD of foreign body granuloma ( $n = 2$ ), eyelid coloboma ( $n = 1$ ), traumatic eyelid notch ( $n = 1$ ), and local lid margin fibrosis after radiofrequency electrolysis ( $n = 1$ ) were each confirmed histologically.

## Discussion

In clinical practice, we encounter different lesions affecting the eyelid, mostly are benign but some have malignant potentials or frank malignant features. The incidence of such lesions has been widely reported by different previous studies. 3,7,10,16 In our study, none of the clinically expected benign lesion was proved to be malignant or premalignant, which is different from previous studies, however high index of suspicious and relatively low incidence of malignant lesions could explain such a difference. 5,7,10,12 Nevertheless, nine benign eyelid lesions (4.1%) were misdiagnosed clinically

and proved by histopathology study to be another entity of benign lesions which is higher than Kersten (2.3%) and less than Özdal (6.4%) studies.<sup>10,17</sup> The result of this study revealed sweat gland hidrocystoma as the most common benign eyelid lesion encountered in our practice followed by chalazion, squamous papilloma, epidermal cyst, and eyelid nevus respectively. The most common benign eyelid lesion was variably reported in previous literatures from different countries; Kersten (United State) and Ni (China) reported papilloma (43.9% and 27.9%, respectively), Chi and Beak (South Korea) found nevus (57.1%), while Hsu and Lin (Taiwan) documented epidermal cyst as the most common benign eyelid lesion (23.1%).<sup>3,7,10,16</sup>

Sweat gland hidrocystoma was the most common lesion in this series (29.3%). Dry climate in the central province in North western part of India leaves open the question whether excessive stimulation of the sweat gland may play a role in having higher frequency of hidrocystoma in our study. Histopathologic study confirmed PECD in all cases due to classical presentation of a clear cystic lesion along the lid margin, making the clinical diagnosis straightforward.<sup>13,20,22</sup> Nevertheless, some eccrine variety is confusing and the value of the histopathology study comes out to differentiate it from epidermal cyst which is another entity of benign lesion with no malignant potential.<sup>22</sup>

Chalazion is the most common lid lesion faced by the ophthalmologist,<sup>13,24,27</sup> but it was the second most common benign lesion in our series (21.6%) due to referral nature of our tertiary hospital. Recurrent chalazion was the most common indication for chalazion biopsy as sebaceous cell carcinoma (SGC) was always included as a differential diagnosis as some cases of SGC can mimic this lesion.<sup>17</sup> One study reported as much as 20% of sebaceous carcinomas were initially misdiagnosed as recurrent chalazion.<sup>21</sup> Having mentioned that, any abnormal content or tissue proliferation is an alarming sign which necessitates histopathologic evaluation. In this series, intraoperative observation of abnormal content raised the possibility of differential diagnosis and actually all cases of rare eyelid tumors namely pilomatrixoma, steatocystoma, and hemangioendothelioma were included in this category.

Papillomatous skin lesions is a wide descriptive name rather than a true clinical diagnosis that makes them very tricky. The lack of clear clinical sub-classification may lead to misdiagnosis or even mislabel malignant lesions as benign ones.<sup>10</sup> In this study, skin tags, warts and seborrheic keratosis were specifically mentioned clinically and clearly evaluated as separate subgroups of the papillomatous lesions, therefore no malignant lesion has been unexpectedly diagnosed. Despite differentiation between subgroups, altogether (45 biopsies; 20.3%) were the third frequent lesions in this series. *Skin tags* represented 15.3% of all biopsied lesions. The presence of the characteristic raspberry-like surface with almost the same or slightly darker color as the skin was the most common pathognomonic sign, and when present, always had a confirmatory histopathological diagnosis.<sup>9,13,14,27</sup> This clinical feature was absent in one case which was histopathologically proved to be seborrheic keratosis. Histopathologic evaluation of *wart* (verruca) is important in terms of eradication of the disease and prevention of spreading of this papillomatous lesion as it has viral origin.<sup>27</sup> *Seborrheic keratosis* (basal cell papilloma) is another papillomatous lesion which can mimic other benign and malignant lid lesions.<sup>10,14</sup> Three cases of histopathologically confirmed seborrheic keratosis were clinically felt to be a skin tag, an epidermal cyst, and an eyelid nevus. Therefore given its clinical variability in this series, histopathological study is extremely helpful any time this diagnosis is considered.

Nevus was not that common in our series due to the tertiary service nature of our hospital and referral policy. Ni reported pigmented nevi as the second leading lesions in his series (24.4%).<sup>16</sup> In our study, intradermal nevi were reported in the vast majority of eyelid nevi that have no malignant potential

( $n = 16$ ; 84.2%), while junctional nevus, which has low malignant potential, was reported in two biopsies (10.5%). Chi and Beak reported same frequencies, while compound nevus was the most common one reported by Hsu and Lin.<sup>3,7</sup>

*Xanthelasma* has a typical presentation and very rarely requires consideration for a differential diagnosis and yet omitted from most of the studies dealing with eyelid lesions.<sup>6,18</sup> In this series, there was only one case in which presumed xanthelasma was part of a differential diagnosis as it was a unilateral lesion with a history of previous surgical trauma that raised the possibility of necrobiotic xanthogranuloma which has been reported before.<sup>28</sup>

*Molluscum contagiosum* has peculiar clinical feature with high accuracy of clinical diagnosis.<sup>9,19,27</sup> All our cases were reported in the pediatric age group, occurring in otherwise normal children, with the exception of the unexpectedly diagnosed syringocystadenoma papilliferum that occurred in the middle aged female.

Capillary hemangioma is frequently seen in pediatric population but rarely treated by surgical excision which explains the rarity of such a lesion in our study.<sup>4,23</sup> However, one of our cases was large, localized and amenable to excision with meticulous hemostasis. The other one was a rapidly growing, pedunculated, red lesion with bleeding, which placed keratoacanthoma in the differential diagnosis. Biopsy was essential to confirm the diagnosis and to exclude other vascular lesions with recurrence potential such as a hemangioendothelioma or tufted angioma.<sup>8,11,25</sup>

Foreign body granuloma, coloboma, traumatic eyelid notch, and post-electrolysis fibrosis were rarely reported in this series as well as others.

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