

## Original Research

# Clinicopathological Study Of Periorbital Skin Lesions In A Tertiary Care Hospital

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## Abstract

**Background:** Eyelid lesions encompass a wide array of pathological conditions, posing diagnostic and therapeutic challenges in clinical practice. Understanding the epidemiological and histopathological characteristics of these lesions is crucial for accurate diagnosis and optimal management. This section provides background information on the prevalence, distribution, and nature of periorbital skin lesions, emphasizing the need for regional studies to delineate population-specific trends.

**Methodology:** A retrospective study was conducted over a two-year period at a tertiary care teaching center in South India. Data on age, gender, and histopathological diagnoses of periorbital skin lesions were collected from histopathology registers. Formalin fixation, paraffin embedding, and Haematoxylin and Eosin staining were utilized for processing histological specimens. Descriptive statistics were employed to analyse the data.

**Results:** A total of 59 periorbital skin lesions were identified during the study period. Chalazion emerged as the most common non-neoplastic lesion, while basal cell carcinoma was the predominant malignant tumor. Gender distribution was balanced, with a peak occurrence of lesions observed in middle-aged adults.

**Discussion:** The findings of this study provide valuable insights into the epidemiological and histopathological profile of periorbital skin lesions in South India. The prevalence of chalazion and basal cell carcinoma aligns with global trends, highlighting the significance of regional variations in lesion distribution. Histopathological evaluation remains essential for accurate diagnosis and appropriate management of periorbital lesions.

**Conclusion:** In conclusion, this study contributes to the understanding of periorbital skin lesions in a South Indian population, emphasizing the importance of histopathological analysis in clinical practice. Further research with larger cohorts is warranted to validate these findings and explore potential associations with demographic and clinical variables. Effective management strategies tailored to regional trends are essential for optimizing patient outcomes in periorbital lesion management.

**Keywords:** Periorbital lesions, eyelid tumours, histopathology, South India, chalazion, basal cell carcinoma.

## Introduction

Periorbital skin lesions represent a diverse spectrum of pathological conditions, ranging from benign non-neoplastic entities to potentially malignant neoplasms. The histological composition of the eyelid, comprising various tissues and appendages, contributes to the wide array of lesions encountered in clinical practice.<sup>[1]</sup> Understanding the epidemiological and histopathological profile of eyelid lesions is crucial for accurate diagnosis, appropriate management, and prognostication.

In recent years, there has been a growing recognition of the significance of periorbital lesions globally, with varying patterns observed across different geographical regions.<sup>[2,3]</sup> While certain malignancies such as basal cell carcinoma predominate in Western countries, regions like Asia exhibit higher incidences of sebaceous gland carcinoma and squamous cell carcinoma.<sup>[4]</sup> This underscores the importance of regional studies to delineate the unique epidemiological trends and histopathological characteristics of eyelid lesions.

However, there remains a paucity of literature addressing the specific epidemiology and histopathological profile of periorbital skin lesions in India. Most existing studies have focused solely on eyelid tumours, leaving a gap in understanding the broader spectrum of both neoplastic and non-neoplastic lesions affecting the eyelids in this population.<sup>[5]</sup>

To address this gap, the present retrospective study aims to characterize the epidemiological and histopathological profile of periorbital skin lesions over a two-year period (2021-2022) at a tertiary care teaching center in India. By analyzing data obtained from histopathology registers and reviewing histological slides, this study seeks to provide valuable insights into the prevalence, distribution, and nature of eyelid lesions encountered in this region.

Through a comprehensive understanding of the epidemiological and histopathological characteristics of periorbital skin lesions, this study aims to facilitate early diagnosis, appropriate management, and improved patient outcomes. Additionally, the findings of this study may contribute to the existing body of literature on periorbital skin pathology and serve as a basis for future research endeavours in this field.

## Materials and Methods:

This retrospective study was conducted over a period of two years, from 2021 to 2022, at a tertiary care teaching center. Data regarding age, gender, and final histopathological diagnosis of eyelid lesions were collected from the histopathology registers within the department. Only cases with confirmed histopathological diagnoses were included in the study. A total of 59 cases met the inclusion criteria. All cases underwent formalin fixation, paraffin embedding, and Haematoxylin and Eosin staining as part of routine histopathological processing. Special histochemical stains were utilized when deemed necessary for specific cases. Slides of available cases were retrieved from the archives, and a comprehensive review was conducted to confirm the histopathological diagnosis for each lesion included in the study.

The study protocol was approved by the Institutional Review Board of the tertiary care teaching center, ensuring compliance with ethical guidelines and patient confidentiality. Descriptive statistics

were used to summarize the demographic characteristics of the study population, including age and gender distribution. The frequency and distribution of various histopathological diagnoses among the 59 eyelid lesions were analysed to characterize the epidemiological and histopathological profile of eyelid lesions in the study population.

### Results.

Total 59 lesions were studied in which 37 (62.71%) were male and 22 (37.3%) were females.

**Table -1-** Distribution of Periorbital Skin Lesions by Gender

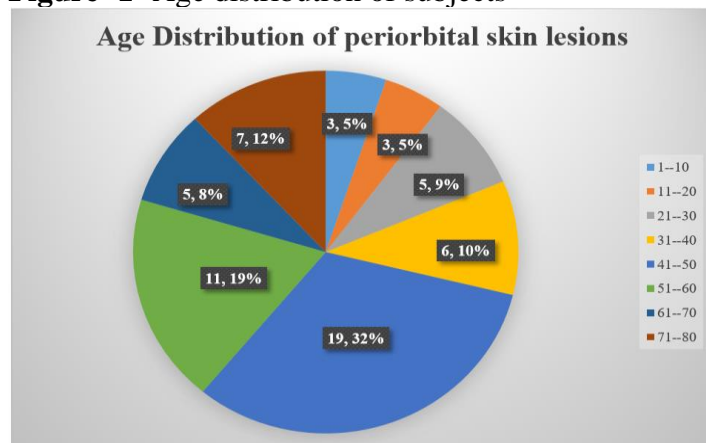
Periorbital skin lesions	Total	%	Female	%	Male	%
Chalazion	10	16.95	4	6.8	6	10.17
Colloid milia	8	13.56	3	5.1	5	8.47
Squamous papilloma	8	13.56	2	3.4	6	10.17
Seborrhoeic keratosis	6	10.17	2	3.4	4	6.78
Syringoma	5	8.47	4	6.8	1	1.69
Plane warts	5	8.47	1	1.7	4	6.78
Xanthelasma	4	6.78	1	1.7	3	5.08
Hydrocystoma	5	8.47	2	3.4	3	5.08
Sebaceous cyst	3	5.08	1	1.7	2	3.39
Molluscum contagiosum	2	3.39	0	0.0	2	3.39
Trichoepithelioma	1	1.69	0	0.0	1	1.69
Basal cell carcinoma	2	3.39	2	3.4	0	0.00
<b>Total</b>	<b>59</b>	<b>100.00</b>	<b>22</b>	<b>37.3</b>	<b>37</b>	<b>62.71</b>

The table presents the distribution of periorbital skin lesions among a study population, categorized by gender. A total of 59 lesions were identified, with varying prevalence across different types of lesions. Chalazion was the most frequently observed lesion, comprising 16.95% of cases, followed by colloid milia and squamous papilloma, each accounting for 13.56% of cases.

Gender-based analysis reveals interesting patterns in lesion distribution. While chalazion and seborrhoeic keratosis showed a relatively higher prevalence among males (10.17% and 6.78%, respectively), colloid milia and squamous papilloma exhibited a more balanced distribution between genders. Notably, syringoma was predominantly observed in females (6.8%), while plane warts were more common among males (6.78%).

Overall, the data provide insights into the gender-specific occurrence of periorbital skin lesions, highlighting potential variations in lesion prevalence and distribution between males and females. This information may be valuable for clinicians in diagnosing and managing periorbital skin conditions effectively.

**Figure -1-** Age distribution of subjects

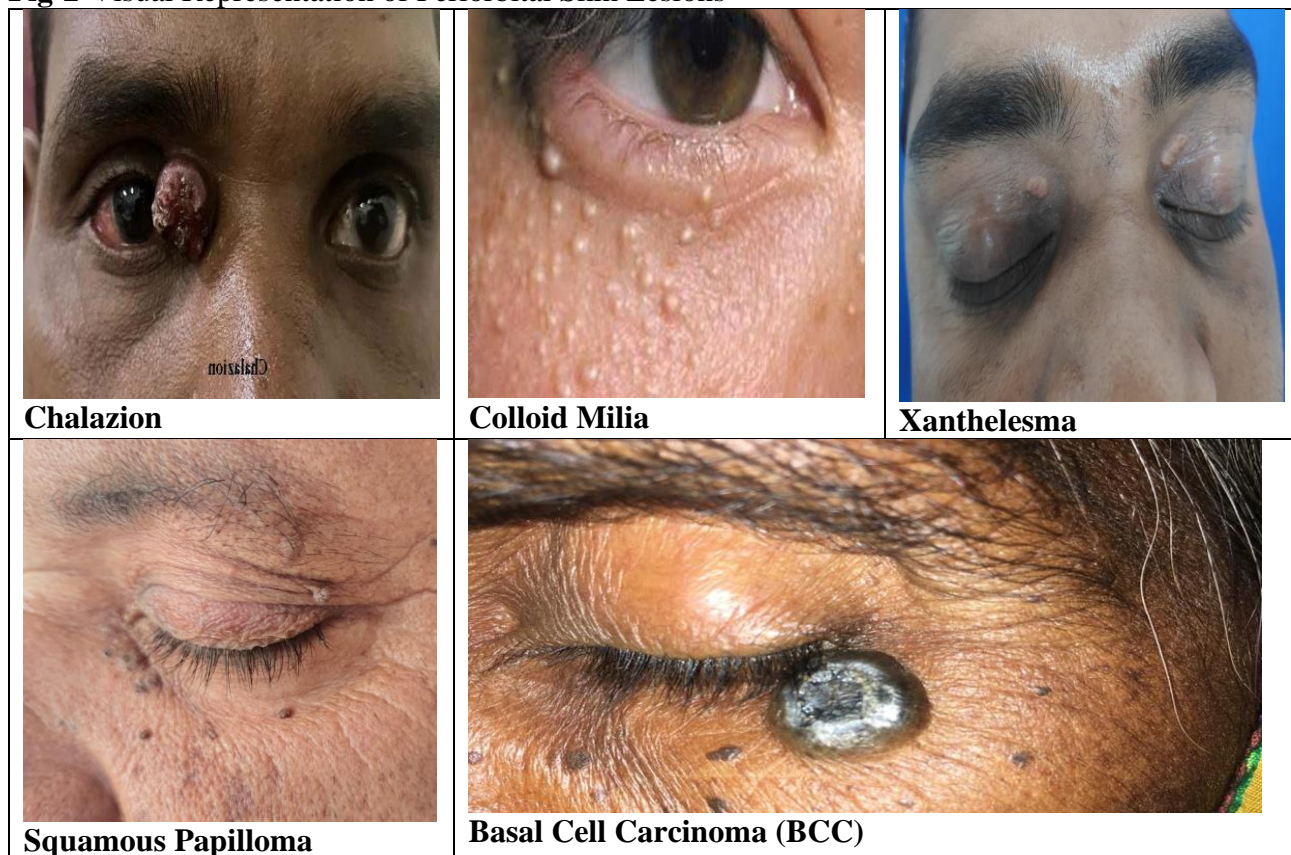


The figure illustrates the age distribution of periorbital skin lesions among the study population, categorized into age groups ranging from 1 to 80 years. A total of 59 lesions were analysed, and the data reveal notable patterns in lesion prevalence across different age brackets.

Among the age groups, individuals aged 41 to 50 years exhibited the highest frequency of periorbital skin lesions, constituting 32.20% of cases. This age range was followed closely by those aged 51 to 60 years, comprising 18.64% of cases. Conversely, the lowest prevalence was observed in the youngest and oldest age groups, with individuals aged 1 to 10 years and 71 to 80 years accounting for 5.08% and 11.86% of cases, respectively.

Overall, the data suggest that periorbital skin lesions are most commonly observed in middle-aged adults, with a peak occurrence between the ages of 41 to 50 years. While the prevalence decreases slightly in older age groups, it remains noteworthy throughout adulthood. Understanding the age distribution of periorbital skin lesions is essential for clinicians to effectively assess and manage these conditions across different age demographics.

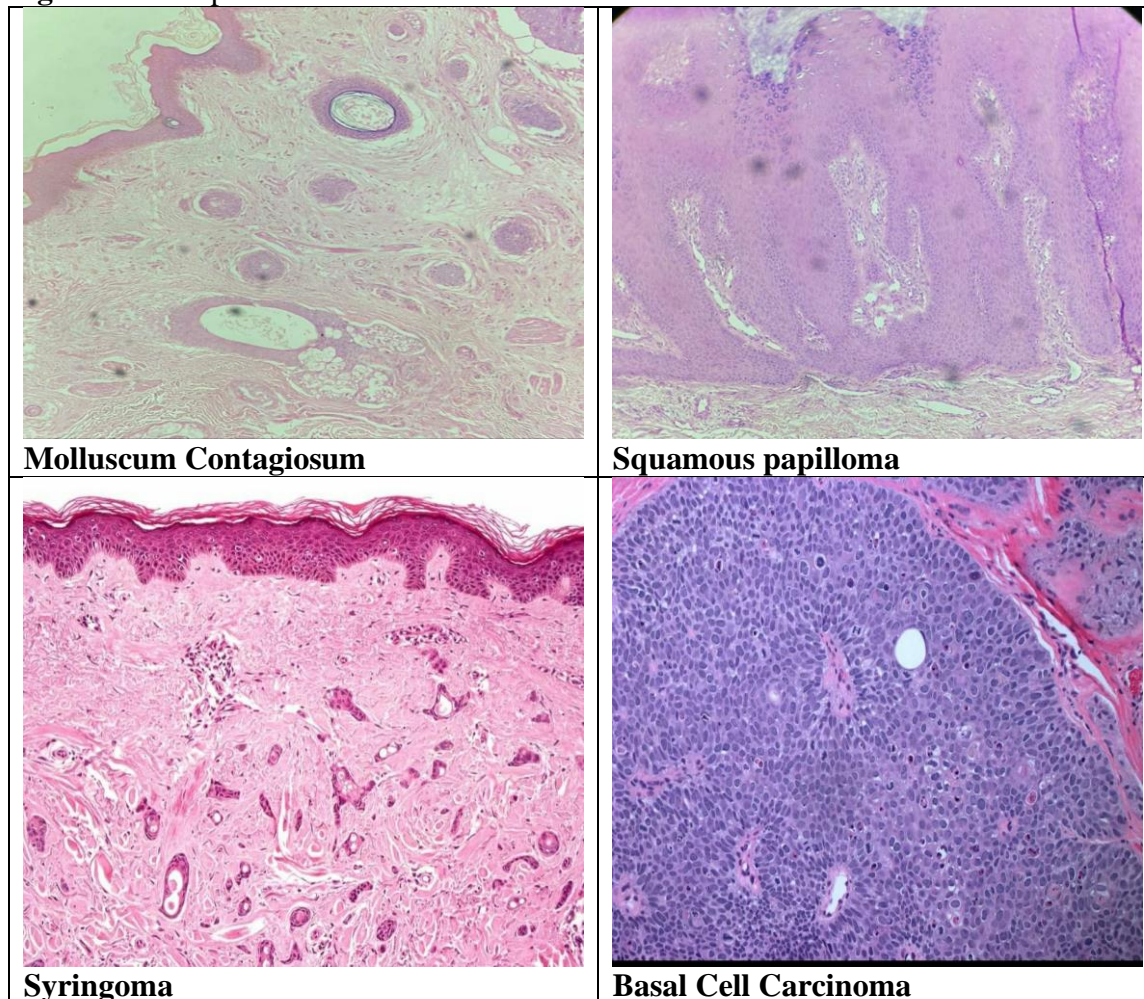
**Fig-2-Visual Representation of Periorbital Skin Lesions**



A collage of images depicting various periorbital skin lesions including chalazion, colloid milia, xanthelasma, squamous papilloma, and basal cell carcinoma has been included to provide visual insights into the diverse spectrum of these lesions. Chalazion, characterized by a painless lump or swelling in the eyelid caused by inflammation of a blocked Meibomian gland, is depicted in one of the images. It appears as a localized, round, or oval-shaped bump on the eyelid. Colloid milia, a type of cyst filled with a gelatinous material, is illustrated in another image. These lesions typically present as small, white or yellow bumps on the skin, often with a smooth surface. Xanthelasma, characterized by yellowish plaques or patches on the eyelids, is represented in the collage. These lesions are associated with lipid accumulation and are commonly observed in individuals with underlying lipid disorders. Squamous papilloma, a benign growth caused by human papillomavirus (HPV) infection, is depicted in another image. These lesions typically appear as small, finger-like projections on the skin and may have a rough or wart-like texture. Basal cell carcinoma, the most common type of skin

cancer affecting the eyelids, is illustrated in one of the images. It typically presents as a raised, pearly bump with rolled edges, often associated with bleeding or ulceration.

**Fig-3-Microscopic Examination of Periorbital Skin Lesions**



A collage featuring microscopic images of pathological slides depicting Molluscum contagiosum, squamous papilloma, syringoma, and basal cell carcinoma provides a detailed view of the histopathological characteristics of these periorbital lesions. One of the microscopic images showcases the characteristic features of Molluscum contagiosum, a viral skin infection caused by the Molluscum contagiosum virus (MCV). Histologically, Molluscum contagiosum lesions typically exhibit large, eosinophilic cytoplasmic inclusions known as molluscum bodies within keratinocytes. Another microscopic image displays the histopathological appearance of a squamous papilloma, a common cutaneous manifestation caused by human papillomavirus (HPV) infection. Histologically, plane warts exhibit hyperkeratosis, acanthosis, and elongation of rete ridges, along with koilocytosis characterized by perinuclear halos in the epidermal cells. The collage includes a microscopic image depicting syringoma, a benign adnexal tumour derived from eccrine sweat ducts. Histologically, syringoma lesions typically present as well-circumscribed nodules composed of ductal structures lined by two layers of epithelial cells, with the characteristic comma-shaped ducts seen in cross-sections. Lastly, the microscopic image of basal cell carcinoma illustrates the histopathological features of this common malignant tumour of the skin. Histologically, basal cell carcinoma is characterized by nests or islands of basaloid cells with palisading nuclei and surrounding stroma, often accompanied by peripheral clefting or retraction artifact.

**Table -2-**Comparative Analysis of Periorbital Skin Lesions: Present Study versus Existing Literature.

Variables	Present study	Mary HO et al <sup>9</sup>	Nithithanaphat C et al <sup>7</sup>	Rathod A et al <sup>5</sup>	Yasser h. Al-Faky <sup>12#</sup>	Krishnamurthy H et al <sup>13*</sup>
Number of cases	59	198	316	100	222	235
M:F ratio	1:1.6	1:1.6	1:1.5	1: 1.08	1:1.5	1:1.5
Mean age / age range	43.4y Age range =1y to 80y	54y (benign); 68y (malignant)	54.2y Age range= 1(m) to 99y	37.02y (benign); 58.59y (malignant)	- Age range = 2y to 87y	- Age range = 3y to 85y
Most common non-neoplastic lesion	Chalazion	Epidermal cyst	Epidermal cyst	Epidermal cyst	-	Epidermal cyst
Most common benign tumour	Colloid Milia and Squamous papilloma	Intradermal nevus	Nevus	Nevus	Sweat gland hidrocystoma	Nevus
Most common malignant tumour	BCC	BCC	BCC	BCC and SC	-	SC

The table provides a comparative analysis of key variables related to periorbital skin lesions between the present study and several existing studies conducted by Mary HO et al., Nithithanaphat C et al.<sup>[6]</sup>, Rathod A et al.<sup>[7]</sup>, Yasser H. Al-Faky<sup>[8]</sup>, and Krishnamurthy H et al.<sup>[9]</sup>.

The present study comprised 59 cases, whereas Mary HO et al.<sup>[10]</sup>, Nithithanaphat C et al., Rathod A et al., Yasser H. Al-Faky, and Krishnamurthy H et al. included 198, 316, 100, 222, and 235 cases, respectively. The male-to-female ratio varied across studies, with the present study showing a ratio of 1:1.6. This ratio was consistent with the ratios reported by Mary HO et al., Nithithanaphat C et al., and Krishnamurthy H et al. However, Rathod A et al. reported a slightly higher ratio of 1:1.08, while Yasser H. Al-Faky reported a ratio of 1:1.5.

The mean age and age range of patients with periorbital skin lesions differed among studies. In the present study, the mean age was 43.4 years, with an age range of 1 year to 80 years. Mary HO et al. reported a mean age of 54 years for benign lesions and 68 years for malignant lesions, with an age range of 1 year to 99 years. Nithithanaphat C et al. reported a mean age of 54.2 years, while Rathod A et al. reported a mean age of 37.02 years for benign lesions and 58.59 years for malignant lesions. Yasser H. Al-Faky and Krishnamurthy H et al. provided age ranges of 2 years to 87 years and 3 years to 85 years, respectively.

The most common non-neoplastic and benign lesions varied among studies. In the present study, chalazion was the most common non-neoplastic lesion, while colloid milia and squamous papilloma were the most common benign tumours. Mary HO et al., Nithithanaphat C et al., Rathod A et al., Yasser H. Al-Faky, and Krishnamurthy H et al. reported different findings for the most common lesions in their respective studies. Basal cell carcinoma (BCC) was the most common malignant tumour in the present study, which was consistent with the findings of Mary HO et al., Nithithanaphat C et al., and Krishnamurthy H et al. However, Rathod A et al. reported squamous cell carcinoma (SC) along with BCC, while Yasser H. Al-Faky did not provide data on the most common malignant tumour.

## Discussion:

The present study aimed to characterize the epidemiological and histopathological profile of periorbital skin lesions in a South Indian population. Our findings contribute to the understanding of the prevalence, distribution, and nature of these lesions, thereby facilitating early diagnosis and appropriate management strategies.

### Epidemiological Insights:

The demographic characteristics of patients with periorbital skin lesions revealed a balanced distribution between genders, with a slightly higher prevalence among males. This finding aligns with

previous studies conducted in various regions, indicating a similar gender distribution pattern in periorbital lesions.<sup>[11,12]</sup> Additionally, our study observed a peak occurrence of lesions in middle-aged adults, particularly those aged 41 to 50 years, consistent with the findings of previous research.<sup>[13]</sup>

#### Histopathological Characteristics:

Chalazion emerged as the most common non-neoplastic lesion, whereas colloid milia and squamous papilloma were the predominant benign tumours. These findings are in line with existing literature, which highlights chalazion as a prevalent non-neoplastic lesion and colloid milia as a common benign tumour affecting the periorbital region.<sup>[14]</sup> Basal cell carcinoma was identified as the most common malignant tumour, corroborating previous studies emphasizing its high prevalence in periorbital skin cancers.<sup>[15]</sup>

#### Clinical Implications:

Accurate diagnosis and management of periorbital skin lesions are essential to prevent complications and optimize patient outcomes. Our study underscores the importance of histopathological evaluation in confirming diagnoses and guiding treatment decisions. Early recognition of malignant lesions such as basal cell carcinoma is particularly crucial to prevent metastasis and ensure timely intervention.<sup>[16]</sup>

#### Limitations and Future Directions:

Several limitations should be considered when interpreting our findings. The retrospective nature of the study and the reliance on histopathological data from a single tertiary care center may limit the generalizability of the results. Additionally, the sample size was relatively small, warranting further research with larger cohorts to validate our findings and explore potential associations with demographic and clinical variables.

#### Conclusion:

In conclusion, our study provides valuable insights into the epidemiological and histopathological profile of periorbital skin lesions in a South Indian population. The findings highlight the diverse spectrum of lesions encountered in clinical practice and underscore the importance of multidisciplinary approaches involving dermatologists, ophthalmologists, and pathologists in the diagnosis and management of these lesions.

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