Original Article

Chalazion and Its Associated Factors among Patients with Eye Diseases in Sirajganj District

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Abstract

Background: *One of the most prevalent eye disorders that manifests as a mass lesion on the eyelids is a chalazion and every age group exhibits it. Retained secretion from the Zeis or meibomian glands causes chalazion and it is a non-inflammatory process.*

Objectives: *The aim of this study was to find out the prevalence and associated factors of chalazion in Sirajganj District.*

Materials and Methods: *This cross-sectional type of descriptive study was carried out among the patients attending in the outpatient Department of Ophthalmology, North Bengal Medical College, Sirajganj over a period of 12 months from January to December 2025. Approval from the Ethical Review Committee (ERC) was obtained prior to the commencement of the study. A purposive sampling technique was used and a predesigned, validated, structured questionnaire was used to gather data on prevalence and associated factors of chalazion.*

Results: *Out of 90 patients, the mean age was 52.38±8.78 years with a male-to-female ratio 1: 2.46. Chalazion was found in 12 (13.33%) of the patients. Five (41.67%) of the patients had had high blood lipid concentration followed by stress 5 (41.67%), eyelid trauma 4 (33.33%), poor lid hygiene 3 (25.00%), seborrhic dermatitis 3 (25.00%), trachoma 3 (25.00%), chronic blepharitis 2 (16.67%), rosacea 2 (16.67%), tuberculosis 2 (16.67%), immunodeficiency 1 (8.33%) and viral infection 1 (8.33%). There was no statistically significant difference between gender and development of chalazion (p=0.32).*

Conclusion: *The findings of this study might help the ophthalmologists in their day-to-day diagnosis and prevention of chalazion.*

Key words: *Chalazion, Prevalence and Associated Factors.*

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Introduction

A chalazion is a persistent lipogranuloma that is sterile. They are usually non-tender and slowly expanding. Tarsal meibomian gland inflammation results in a deep chalazion. Zeis gland inflammation is the cause of a superficial chalazion. Chalazia can cause long-term complications, but they are usually benign and self-limiting. It is important to check for cancer in cases of recurrent chalazia.[1] Although the precise incidence around the world is unknown, it is a common condition. Adults are more likely to experience chalazia and have equal effect on male and female.[2]

Inflammation and blockage of the eyelids' sebaceous glands result in chalazia. The lesion itself is an inflammatory lesion, although infection may be the source of the inflammation or obstruction that results in a chalazion.[3] Inflammatory lesions known as chalazia develop when products of lipid breakdown seep into the surrounding tissue and trigger a granulomatous inflammatory response. Because of this, a conjunctival granuloma is another name for a chalazion. Because meibomian glands are embedded in the tarsal plate of the eyelids, oedema caused by gland blockage is typically limited to the conjunctival area of the lid. A chalazion may occasionally grow larger and penetrate the tarsal plate to reach the outside of the lid.[4,5] The precise underlying cause of this obstruction is still unknown. Numerous conditions, including seborrhoeic dermatitis, rosacea, chronic blepharitis, high blood lipid concentration, poor lid hygiene, viral infection, stress, eyelid trauma and eyelid surgery have been identified as risk factors for the development of chalazions.[6,7] The study was conducted to assess the prevalence and associated factors for chalazion in Sirajganj District.

Materials and Methods

Study place and period: In order to determine the prevalence and associated factors of chalazion, this cross-sectional descriptive study was conducted in the Department of Ophthalmology at North Bengal Medical College in Sirajgonj between January to December, 2025.

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Study population: A total of 90 patients who were attended in the outpatient departments of North Bengal Medical College

Hospital were enrolled in this study. Inclusion criteria: Exclusion criteria were (i) typical or suspected viral ulcers (ii) Mooren's ulcer, marginal keratitis, interstitial keratitis and atheromatous ulcers (iii) any ulcer associated with systemic/autoimmune diseases (iv) neurotrophic corneal ulcers and (v) unwilling patients.

Sampling technique: The final sample size was ninety and a purposive sampling technique was employed. The researcher created the study's research instrument after consulting with the elders and going over earlier published works.

Ethical Clearance: The North Bengal Medical College's Institutional Review Board (IRB) in Sirajganj provided prior approval. In accordance with the 1964 Helsinki Declaration for Medical Research Involving Human Subjects which was updated in 2013, all research participants were made aware of the study's design, goal, possible advantages and risks. Additionally, they were given the assurance that they could leave the study at any moment for any reason.

Informed consent: Then to finalize the procedure and to evaluate the effectiveness of the questionnaire pretest was carried out on 10 patients. After pretest, some corrections were done and the questionnaire was finalized for data collection. Prior to data collection, patients were briefed about the purpose of the study and their informed written consent was taken.

Research instrument: Data were collected from the patients by an intervieweradministered semi-structured questionnaire. Baseline information of some selected socio-demographic characteristics of the patients and information regarding associated factors of chalazion were collected. All efforts were done to collect data accurately.

Statistical analysis: After collecting data, data were analyzed by using the 'Statistical Package for the Social Sciences (SPSS)' software, version-26. Categorical variables were summarized by using numbers and percentages while continuous variables were summarized by means ± standard deviation (SD). Chi-square test was applied to see the relationship between two categorical variables. A p-value < 0.05 was considered statistically significant for all tests.

Results

Out of 90 patients, 40 (44.40%) were within the age group of 61-70 years, 35 (38.89%) were within the age group of 41-50 years and 15 (16.67%) were ≤ 40 years with mean age 52.38±8.78 years. Majority 64 (71.11%) of the patients were female and 26 (28.89%) were male. Majority 38 (42.22%) of the patients came from rural area, 28 (31.%) from urban area and 24 (26.67%) from semi urban area (Table I).

Table I: Demographic distribution of the patients (n=90).

Variables	Frequency	Percentage
Age (Years)		
≤ 40 years	15	16.67%
41-50 years	35	38.89%
61-70 years	40	44.44%
mean±SD	52.38±8.78 years	
Sex		
Male	26	28.89%
Female	64	71.11%
Male-to-female ratio	1: 2.46	
Residence		
Rural	38	42.22%
Urban	28	31.11%
Semi-urban	24	26.67%

Regarding educational and occupational status, a large 25 (27.78%) of the patients had secondary & higher secondary level of education and 27 (30.00%) were housewives (Table II).

Table II: Distribution of the patients by their educational and occupational status (n=90).

Variables	Frequency	Percentage (%)
Educational status		
Illiterate	5	5.56%
Primary	23	25.56%
Secondary & Higher secondary	25	27.78%
SSC & HSC	21	23.33%
Graduate	16	17.78%
Occupational status		
Housewife	27	30.00%
Farmer	26	28.89%
Day labour	13	14.44%
Govt. service	10	11.11%
Businessman	8	8.89%
NGO worker	6	6.67%

Out of 90 patients, 12 (13.33%) had chalazion and 78 (86.67%) did not have (Figure I)

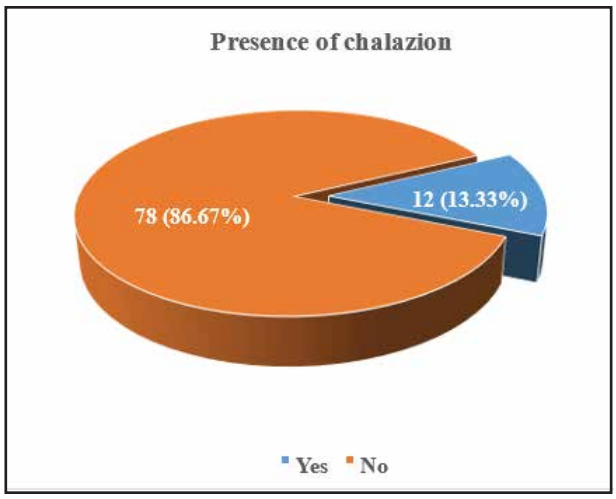

Figure I: Distribution of the patients on the basis of presence of chalazion (n=90).

Among associated factors behind chalazion, 5 (41.67%) had high blood lipid concentration and stress individually, 4 (33.33%) had eyelid trauma, 3 (25.00%) had poor lid hygiene, seborrhic dermatitis, trachoma separately, 2 (16.67%) had chronic blepharitis, rosacea, tuberculosis individually and 1 (8.33%) had viral infection, immunodeficiency individually (Table III).

Table III: Associated factors for development of chalazion (n=12).

Associated factors	Frequency	Percentage
Poor lid hygiene	3	25.00%
Chronic blepharitis	2	16.67%
Rosacea	2	16.67%
Seborrhic dermatitis	3	25.00%
High blood lipid concentration	5	41.67%
Eyelid trauma	4	33.33%
Stress	5	41.67%
Trachoma	3	25.00%
Tuberculosis	2	16.67%
Viral infections	1	8.33%
Immunodeficiency	1	8.33%

N.B. Multiple responses were included here

Though the occurrence of chalazion is more female than male but it was not statistically significant (p=0.32) (Table IV).

Table IV: Comparison of chalazion between male and female patients (n=90).

Gender	Chalazion		
	Yes	No	
Frequency (%)			
Male	2 (7.70%)	24 (92.3 %)	26 (28.9 %)
Female	10 (15.6 %)	54 (84.4 %)	64 (71.1 %)
Total	12 (13.30%)	78 (86.70%)	90 (100.00%)

χ^2=1.007, df=1, p=0.32

Discussion

In the study, mean age of the patients was 52.38±8.78 years. Similar findings were found in the study done by Kim et al.[8] Dissimilar findings were found in the study done by Patel et al.[9] Findings were not similar in the study done by Mustafa and Oriafage[10] where chalazion's average age was stated to be approximately 25 years old and over two thirds of the instances were discovered to take place in the second and third decades of life. The incidence and prevalence of chalazion were also found to be influenced by age. All ages experience chalazion, but it is most common in children and adults under 30, most likely as a result of increased levels of androgenic hormones that promote sebum production and viscosity.[11,12]

In the current study, 64 (71.11%) of the patients were female and 26 (28.89%) were male with male female ratio 1: 2.46. Similar findings were found in the study done by Kumar et al.7 where 24 (32%) were male and 51(68%) were female. Similar findings also found in the studies done by Arbabi et al.[13] and Al-Faky.[14] Findings were not similar in the study done by Patel et al.[9] This is frequently linked to the hormonal impact of sebum production, particularly during pregnancy and puberty.
In this study, 12 (13.33%) of the patients had chalazion and 78 (86.67%) did not had. Dissimilar findings were found in the study done by Kumar et al.[7] where incidence of chalazion was found in 0.24% of the patients. Lower prevalence of chalazion was also found in the study done by Evans et al.[15] Although the precise prevalence in the US is unknown, schoolchildren and adults between the ages of 30 and 50 frequently experience it.[16] According to reports, the incidence in Brazil ranges from 0.2 to 0.3%.[16] According to one study, the incidence in Nigeria was 0.7%.[12]

In the present study, high blood lipid concentration was found in 5 (41.67%) of the patients followed by stress 5 (41.67%), eyelid trauma 4 (33.33%), poor lid hygiene 3 (25.00%), seborrhic dermatitis 3 (25.00%), trachoma 3 (25.00%), chronic blepharitis 2 (16.67%), rosacea 2 (16.67%), tuberculosis 2 (16.67%), immunodeficiency 1 (8.33%) and viral infection 1

(8.33%). Similar findings were found in the studies done by Kumar et al.[7] and Patel et al.[9]

In this study, 10 (15.60%) females had chalazion and 2 (7.70%) male had chalazion but statistically not significant (p=0.32). Similar findings were found in the study done by Kumar et al.[7] where the maximum incidence was seen in females (68%). Similar findings were also found with the studies done by Ni[17], Kumar et al.[7], Mansour et al.[18]

Conclusion

The study concluded that high blood lipid concentration, stress, eyelid trauma, poor lid hygiene, seborrhic dermatitis, trachoma were found to be important associated factors behind chalazion. So, with the proper controlling of lipid profile, stress, maintaining lid hygiene and proper knowledge about associated factors, one can save him/her from chalazion..

Limitation of study

There were several limitations such as sample size was only 90, purposive sampling technique was used and data were taken from only one centre but standard protocols were maintained in all laboratory methods.

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Conflicts of interest : There are no conflicts of interest.

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