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Chalazion: Demographic, clinical characteristics and histopathological analysis of 481 cases in a tertiary care centre

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Abstract
Chalazion by itself is innocuous but various malignant and premalignant lesions of the lid can mimic a chalazion. It was a retrospective, interventional study where the medical records of all cases of chalazion which underwent surgical treatment from 2005 to 2015 were reviewed. Data collected included the age, gender, eye and the lid involved, number of lesions, treatment received, outcomes of surgical treatment and the clinical and histopathological correlation of the lesion. All the cases were sent for histopathological examination of the sample obtained to confirm the diagnosis. A total of 481 patients were included. Age of the patients ranged from 2 years to 86 years. Out of 481 cases, 282 (58.6%) were males and 199 (41.4%) were females. Right eye was the commonest eye to be involved. 406 patients (84.4%) had a single lesion and 75 patients (15.59%) had multiple lesions. Recurrence was seen in 25 patients (5.19%) after 6 weeks following incision and curettage. Histopathological discrepancy was seen in 4 cases (0.83%). We recommend that chalazion specimens, primary or recurrent, should be submitted for histopathological examination. Incision and curettage is a safe and effective procedure for the treatment of chalazion and can be used to treat cases which do not respond to conservative management.

Keywords: Chalazion, Histopathology, Clinical correlation

1. Introduction
A wide variety of lesions affecting the eye lid are usually seen in routine ophthalmic practice. Chalazion is the most common lid lesion encountered by an ophthalmologist [1]. A tentative diagnosis of chalazion can be made by the presenting features. Chalazion by itself is innocuous but various malignant and premalignant lesions of the lid can mimic a chalazion. A study by Shield *et al* reported that 20% of cases of sebaceous cell carcinoma were misdiagnosed as chalazion [2]. There is limited literature available on the demographic characterstics, clinical features and histopathological correlation of a chalazion. Hence a study was planned and conducted to analyse the epidemiology, clinical features and histopathological correlation in cases of chalazion not responding to conservative management.

2. Materials and methods
The study was conducted in Medical Research Foundation. It was a retrospective, interventional study where the medical records of all cases of chalazion which underwent surgical treatment from January 2005 to January 2015 were reviewed. Ethical committee approval was obtained for the study. Informed consent was obtained from all the participants. Data collected included the age, gender, eye and the lid involved, number of lesions, treatment received, outcomes of surgical treatment and the clinical and histopathological correlation of the lesion. All these patients underwent thorough ophthalmic evaluation including dilated fundus copy. Surgical intervention was done only in cases where conservative management failed. Conservative management was in the form of hot fomentation, lid scrubs, and antibiotic eye ointment for local application for one month. The surgical treatment was incision and curettage. Care was taken to completely curette the lesion. All the cases were sent for histopathological examination of the sample obtained to confirm the diagnosis. The data collected was tabulated and analysed. Statistical analysis was done using SPSS software and p less than 0.05 was considered significant.

3. Results
A total of 481 patients who underwent incision and curettage for a clinical diagnosis of chalazion over ten year period were included in the study. Age of the patients ranged from 2 years to 86 years with a mean age of 38.11 years. Majority of the patients were under the age of 40 years. Out of 481 cases, 282 (58.6%) were males and 199 (41.4%) were females and it was statistically significant (p=0.006). [Table 1] Right eye was the commonest eye to be involved in the study. Left upper lid (37%) was the commonest lid to be involved followed by right upper lid (36.8%), left lower lid (33.3%) and right lower lid (28.5%). In males, left upper lid was the commonest lid to be involved where as in females right upper lid was the commonest lid to be involved but it was not statistically significant (p=0.09). [Table 2] In individuals less than 40 years age right upper lid was the common lid to be involved whereas above 40 years age left upper lid was commonly involved but it was not statistically significant. [Table 3] In children less than 15 years age, right upper lid was commonest lid to be involved compared to individuals more than 15 years age

(p=0.15). Out of 481 patients, 406 patients (84.4%) had a single lesion and 75 patients (15.59%) had multiple lesions. 9 out of 31 patients (29.03%) in age less than 15 years and 66 out of 375 patients (17.6%) had multiple chalazion, but this was not statistically significant (p=0.20). Recurrence was seen in 25 patients (5.19%) after 6 weeks following incision and curettage. There was no statistically significant differences in the recurrences between age groups less than 15 years and more than 15 years. On histopathological analysis, clinical and histopathological discrepancy was seen in 4 cases (0.83%) out of which three cases (0.62%) were found to have sebaceous cell carcinoma and one case (0.20%) was found to have nodule secondary to tuberculosis.

Table 1: Table showing the age and gender distribution of patients

Age Distribution	Male	Female	Total	P value
0 - 10 Years	14	12	26	0.611
11 - 20 Yrs	14	29	43	0.0003
21 - 30 Yrs	70	63	133	0.099
31 - 40 Yrs	57	27	84	0.0587
41 - 50 Yrs	46	15	61	0.0044
51 - 60 Yrs	41	23	64	0.3431
61 - 70 Yrs	28	23	51	0.5677
More than 70 Yrs	12	7	19	0.6825
Grand Total	282	199	481	

Table 2: Table showing lid wise distribution of cases with respect to gender

	Right upper lid	Right lower lid	Left upper lid	Left lower lid
Males	104	80	113	95
Females	74	58	65	66
P value	0.94	0.85	0.09	0.90

Table 3: Table showing lid wise distribution of cases with respect to age

	Right upper lid	Right lower lid	Left upper lid	Left lower lid
Less than 15 years	19	11	17	13
More than 15 years	159	127	161	148
P value	0.15	0.85	0.45	0.89

4. Discussion

The present study to the best of our knowledge, is the first to describe the epidemiological patterns of chalazion. A chalazion is a benign inflammatory eyelid lesion, which shows slow and painless evolution. Age of the patients in the study ranged from 2-86 years with majority of the patients between 21-30 years. This can be explained by the fact that chalazion can occur at any age and the younger group must have presented with cosmetic problem due to chalazion. It was common in males compared to females. This must have been because females have less access to medical facilties compared to males in developing countries.

Analysis of lid wise involvement with the gender revealed that there was a large proportion of involvement of left upper lid in males compared to females but this was not statistically significant. In children less than 15 years, there was an equal chance of both eyes getting involved. These were an observation in the study and the propensity for the particular involvement cannot be explained.

Histopathological examination of a chalazion shows a Lipogranulomatous reaction usually surrounded by a pseudocapsule. The lids comprising a wide variety of tissues, can be a site for the occurrence of various benign and malignant lesions. Owing to the diverse variety of lesions, clinical misdiagnosis usually occurs in lid lesions. Kersten *et al* in their study found that of the clinically diagnosed benign lesions, 2% were found to be malignant upon histopathological evaluation [3]. In another study, a discrepancy between clinical and histopathological diagnoses was noted in 16.2% of the eyelid lesions; 4.6% of these were clinically presumed benign conditions later proven to be malignant [4].

Chalazion can mimic various benign and malignant lesions of the lid. Various eyelid tumours like sebaceous cell carcinoma, Merkel cell tumour, desmoplastic malignant melanoma, microcystic adnexal carcinoma, and neurilemoma have been reported masquerading as chalazion [5-10]. Various studies have shown discrepancies in clinical and pathological diagnosis of chalazion. In study by Domarus *et al*, the clinical misdiagnosis rate was reported to be 33 out of 138 cases (23.9%)and 21 out of 89 cases (23.6%) in study by Hollwich *et al*. [11, 12]. The clinical misdiagnosis rate was much less in our study being 0.62% compared to the other studies. Three cases (0.62%) were found to have sebaceous cell carcinoma and one case (0.20%) was found to have tuberculous nodule. This difference must have been because majority of patients in the study group were young patients in whom the incidence of malignant lesions is less. Secondly, all the cases in the study were examined by a trained oculoplasty surgeon preoperatively which would have resulted in better clinical suspicion. Ozdal *et al* in their study reports delayed diagnosis and treatment of sebaceous cell carcinoma which is the most frequent missed malignancy for a chalazion may be life threatening for the patient and hence all chalazion samples should be sent for histopathological evaluation. We agree with their study and we subjected all our samples to histopathology.

Incision and curettage is a simple, safe and effective procedure, if done properly will have only few recurrences. Recurrences were seen in 5.19% cases in the study. This was in accordance with other studies where recurrence was seen in 3%-16.66% after 6 weeks.

5. Conclusion

A variety of different benign, premalignant, and malignant conditions may clinically masquerade as a chalazion. Delayed diagnosis and treatment of malignant lesions may be life threatening for the patient. Therefore, all chalazion specimens, primary or recurrent, should be submitted for histopathological examination. Incision and curettage is a safe and effective procedure for the treatment of chalazion and can be used to treat cases which do not respond to conservative management. Any suspected lesion should be examined by a oculoplasty surgeon to avoid clinico histological discrepancy and then to plan treatment accordingly.

6. References

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