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Intralesional Triamcinolone Acetonide As A First Line Treatment For Chalazion-A Hospital Based Study

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Abstract
Introduction: *A chalazion, also known as a meibomian gland lipogranuloma, is caused by inflammation of a blocked meibomian gland and retained meibomian secretions. Chalazia are initially managed conservatively using warm compress and antibiotic eye ointment for the prevention of secondary bacterial infection. For persistent lesions, incision and curettage (I&C), steroid injection may be considered. Intralesional steroid injection for chalazion has been reported to be effective for the treatment of chalazia with high success rates.*
Materials and methods*: This was a retrospective study**. Data regarding all patients diagnosed with primary or recurrent chalazia in the department of ophthalmology Govt Medical College Srinagar, between June 2019 and December 2019, who received an intralesional injection of 4 mg Triamcinolone Acetonide (0.1– 0.2 ml of 40 mg/ml) were collected and analysed. All injections were done by a single ophthalmologist. The injection was placed directly into the lesion from a skin approach.*
Results: *During the study period, 27 primary chalazions in 22 patients were treated with intralesional TA injections. Most of the patients were in the age group of 15-45 years. There were 51.8 % of chalazions <1 cm in diameter, 40.7 % of chalazions between 1 and 1.5 cm in diameter, and 7.5 % of chalazions >1.5 cm in diameter. Seventy-four percent of chalazions achieved complete resolution within 4 weeks post injection and 88.8 % of chalazions achieved complete resolution within 6 weeks. In total, 14.8 % of chalazions failed to reduce in size by 4 weeks and underwent secondary I&C and 29.6 % of chalazions received a second TA injection and achieved complete resolution 2 weeks after the second injection.*
Conclusion: *We have found that intralesional TA injection*
is safe and effective in primary and recurrent chalazia resulting in resolution or near resolution after an average of 2.5 weeks in more than 80% of cases. No adverse effects were attributed to these injections.

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I. Introduction:

A chalazion, also known as a meibomian gland lipogranuloma, is caused by inflammation of a blocked meibomian gland and retained meibomian secretions. It is benign and often self-limiting, and more commonly affects the upper eyelid.[1,2]

It can affect individuals of all ages and may cause local eye symptoms such as irritation and inflammation and cosmetic disfigurement. Larger lesions can induce mechanical ptosis and corneal astigmatism.[3]

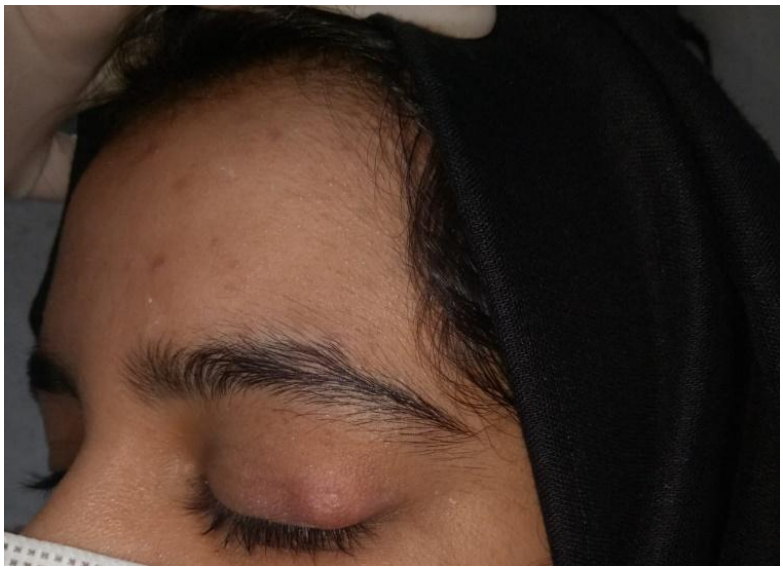
Chalazia are initially managed conservatively using warm compress and antibiotic eye ointment for the prevention of secondary bacterial infection. For persistent lesions, incision and curettage (I&C), steroid injection, or carbon dioxide laser treatment may be considered [4, 5]. I&C warrants referral to an ophthalmologist which takes time and may be associated with surgical risks including pain, bleeding, and scarring. Intralesional steroid injection for chalazion has been reported to be effective for the treatment of chalazia with high success rates [4-12]. This treatment modality is particularly useful in children

II. Patients And Methods:

This was a retrospective study**.** Data regarding all patients diagnosed with primary or recurrent chalazia in the department of ophthalmology Govt Medical College Srinagar, between June 2019 and December 2019, who received an intralesional injection of 4 mg Triamcinolone Acetonide (0.1– 0.2 ml of 40 mg/ml) were collected and analysed. All injections were done by a single ophthalmologist. The injection was placed directly into the lesion from a skin approach (**Fig 2**).

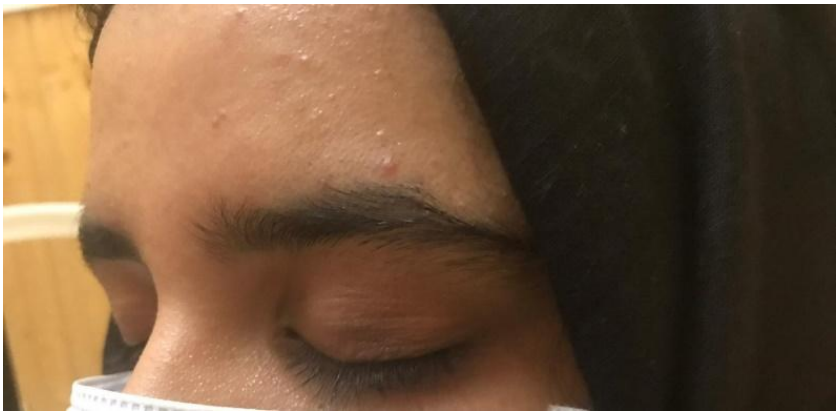
The inclusion criteria included consecutive subjects with the diagnosis of chalazion who consented for intralesional Triamcinolone Acetonide (TA) injection after failure of conservative treatment with lid hygiene, warm compression, and antibiotic ointment for at least 1 month. The exclusion criteria included those with eyelid infection, chalazion duration < 1 month, nonpalpable chalazion, suspicion of malignancy, a history of steroid induced elevated intraocular pressure (IOP). Success was defined as an 80% to 100% decrease in size with no recurrence (**Fig 3**).

The patients were reviewed every 2 weeks after the TA injection until resolution of the chalazion. The chalazion was measured clinically in millimetres. If a lesion recurred or minimally regressed further injection was administered as needed at intervals of 2 to 4 weeks after the previous injection. Patients who declined an injection or who did not respond to 2 injections were referred for surgical excision and drainage.



(Fig 1)

(Fig 2)



(Fig 3)

III. Results:

During the study period, 27 primary chalazions in 22 patients were treated with intralesional TA injections. All patients were of Kashmiri ethnicity most of the patients were in the age group of 15-45 years. Patient demographics are summarised in Table 1. The mean duration of the chalazion before the intralesional TA injection was 2 months. There were 51.8 % (14/27) of chalazions <1 cm in diameter (**Fig 1**), 40.7 % (11/27) of chalazions between 1 and 1.5 cm in diameter, and 7.5 % (2/27) of chalazions >1.5 cm in diameter.

Seventy-four percent (20/27) of chalazions achieved complete resolution within 4 weeks post injection and 88.8 % (24/27) of chalazions achieved complete resolution within 6 weeks. Sixty six percent (18/27) of chalazions achieved a 50 % size reduction at 2 weeks and 81.4 % (22/27) of chalazions achieved the same result by 4 weeks. In total, 14.8 % (4/27) of chalazions failed to reduce in size by 4 weeks and underwent secondary I&C and 29.6 % (8/27) of chalazions received a second TA injection and achieved complete resolution 2 weeks after the second injection. The majority of failed cases had chalazions with a diameter between 1 and 1.5 cm. (Table 2)

Gender did not seem to influence treatment outcome. No correlation was found between age, duration of chalazion, number of injections, and time to resolution. No complications, such as decreased visual acuity or loss of vision, increased intraocular pressure, subcutaneous fat atrophy were noted with the volume and concentration of steroids injected in the current study. However, 3 of our patients developed depigmentation at the injection site which resolved slowly over a period of 3 months.

Table 1 Patient demographics

Characteristics	Value
Number of patients	22
Number of chalazions	27
Gender	
Male	12 (54.5 %)
Female	10 (45.4 %)
Age	15–45
Location	
RUL	2
RLL	9
LUL	11
LLL	5
Size (maximal diameter)	
<1 cm	14
1–1.5 cm	11
>1.5 cm	2

RUL right upper lid, RLL right lower lid, LUL left upper lid, left lower lid left lower lid

Table 2 Dosage of intralesional TA injection and outcome of treatment according to size of lesion

	<1cm (n=14)	1-1.5cm (n=11)	>1.5cm (n=2)
Dosage of intralesional TA injection (mg/mL)	4/0.1	4/0.1	4/0.1
Distribution by size of chalazion (%)	51.8	40.7	7.5
No of chalazions that resolved after a single TA injection	11	4	0
No of chalazions that require secondary I&C	0	2	2
No of chalazions that required a second TA injection	3	5	0

IV. Discussion:

Chalazion is a common cause of lid inflammation and is self-limiting with conservative warm compress in 29–80% [4, 6, 13, 14]. For persistent lesions, I&C and intralesional steroid injection are the most common procedures with reported success rates of 87–89% and 62–92%, respectively [4–12]. Whilst I&C seems to offer a more consistent success rate, intralesional steroid injection has the potential advantages of not requiring additional anesthetic injection, less bleeding and scarring risk, can be performed in the office-setting, and may be used for multiple chalazia and even for lesions that are close to the lacrimal punctum and of course for those where cooperation is compromised like in children or adults with mental incapacities, dementia, or anxiety.

We have found that TA injections for primary and recurrent chalazia result in resolution or near resolution after an average of 2.5 weeks in more than 80% of cases. A single injection was sufficient in more than half of the patients and these patients showed an even faster response. No adverse effects were attributed to TA intralesional injection. However, 3 of our patients developed skin depigmentation which resolved spontaneously over a period of 3 months. Our finding is in line with earlier studies in which steroid injection resulted in a 50% to 95% success rate in clinical remission of the chalazion.[5,10,15,16]

Others report an even higher rate of resolution after 1 to 3 injections, regardless of the duration and consistency of the lesion.[10,15]

It seems that chalazion size at presentation was an important determinant of success for TA injection, with larger lesions more likely to need subsequent I&C or a second TA injection. Our findings are consistent with those of Palva and Pohjanpelto who reported that larger lesions were associated with a lower rate of resolution by intralesional corticosteroid injection and a high rate of recurrence.[4]

One of the earliest studies by Watson and Austin in 1984 found that 77 % of chalazions resolved with a 0.22-mg injection of steroid suspension compared to 90 % in the I&C group[17]. Since then, various publications have affirmed a similar success rate between intralesional steroid injection (80–84 %) and

I&C (87–89 %), with a slightly higher success rate in the latter [4-6,17,18]. More recently, however, Simon et al.[7,8] reported a higher success rate with a 4-mg intralesional TA injection (81 %) compared to I&C (79 %).

In general, our patients were satisfied with the TA injection and in most cases, they preferred repeated injections to surgery. Other advantages of TA injection include the simplicity of the procedure, the ability to treat small children who would not tolerate longer surgery, the ability to inject lesions near the lacrimal punctum, and its use as an alternative to surgery in cases of multiple small and marginal chalazia, where surgery may result in permanent functional and aesthetic defects.

In summary, we have found that intralesional TA injection is safe and effective in primary and recurrent chalazia.

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