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Comparision Of Incision And Curettage With Intralesional Triamcinolone Acetonide Injection For Treatment Of Chalazion

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Abstract:
Background*: Chalazion is a common inflammatory eyelid lesion that often requires intervention when conservative treatment fails. This prospective interventional study aims to compare the efficacy and safety of intralesional triamcinolone acetonide (TA) injection versus incision and curettage (I&C) for chalazion treatment.*
Materials and Methods*: A total of 48 patients were randomly assigned into two groups: one receiving TA injections and the other undergoing I&C. Primary outcomes included lesion resolution rate, time to resolution, and complications. Statistical analysis was performed using SPSS, with significance set at $p < 0.05$. The findings suggest that TA injection is an effective alternative to I&C, particularly for small to medium-sized chalazions.*
Results*: The results of this study suggest that intralesional triamcinolone injection may offer advantages such as less invasive procedure, shorter recovery time and lower risk of complications when compared to I&C while both treatments show similar success rates in terms of resolving chalazion, the choice between these two methods should be guided by factors such as patient preference, lesion size, and physician expertise.*
Key Word: *Chalazion, Triamcinolone, Incision and Curretage*

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I. Introduction

A chalazion is a chronic lipogranulomatous inflammation of the eyelid. It develops as a result of non-infectious blockade in the meibomian gland causing retention of glandular secretions. Chalazion is a benign condition frequently affecting upper eyelids. Symptoms include local irritation, pain and lid swelling leading to complications such as visual disturbances, mechanical ptosis, astigmatism and cosmetic concerns.Most of these cases are self-limiting with conservative management such as warm compresses, topical steroids and topical antibiotics. If these conservative measures fail then other treatment options include incision and curettage (I&C), complete excision or intralesional triamcinolone acetonide injection. I&C is usually performed when the lesions are persistent, non-resolving and causing local discomfort. Intralesional triamcinolone acetonide is an alternative to I&C and atrophy at site of injection works by reducing inflammation and breaks the retained glandular secretions leading to resolution of the lesion

II. Material And Methods

This is a hospital based prospective, randomized treatment study carried out in the department of ophthalmology, Narayana medical college and hospital (NMCH), Nellore, Andhra Pradesh, India. Duration of the study is 10 months (April 2024 – Jan 2025).

Study Design: Prospective randomized treatment study

Study Location: This was a tertiary care teaching hospital-based study done in Department of Ophthalmology, at Narayana Medical College & Hospital, Nellore, Andhra Pradesh.

Study Duration: April 2024 to January 2025.

Sample size: 48 patients.

Sample size, subjects & selection method: Patients were divided into 2 groups in a randomized manner- one group for I&C and the other group for triamcinolone acetonide injection. Preoperative evaluation was done for all these patients which include clinical history (onset, duration, symptoms associated, co-morbidities and past similar complaints) visual acuity with snellens chart, intraocular pressure with NCT, information regarding conservative treatment used and duration of usage Lesion is thoroughly examined – size, shape, number of lesions were all taken into consideration and is measured using calipers.

Inclusion criteria:
1. Patients aged ≥ 5 years with a chalazion persisting for at least 4 weeks despite conservative treatment
2. Lesion size between 3 - 15 mm
3. No signs of acute infection

Exclusion criteria:
1. Recurrent chalazions
2. Suspected malignant eyelid lesions
3. History of steroid-induced intraocular pressure (IOP) elevation
4. Concurrent ocular infection or systemic immunosuppression

Procedure methodology:
Triamcinolone Acetonide Injection:
- A topical anesthetic was applied to the eye, followed by the intralesional injection of 0.1 mL of Triamcinolone Acetonide 40 mg/mL using a 25-gauge needle.
- When feasible, the eyelid was everted, and the injection was administered directly to the tarsal plate.
- If this was not possible, the injection was given transcutaneously.
- No eye patch was applied afterward.

Incision And Curettage:
- The eyelid was infiltrated with 2 to 3 mL of 2% lidocaine.
- Topical Betadine solution 5% was applied to prepare the eyelid, and the procedure was carried out under sterile conditions in the outpatient procedure room.
- Using a chalazion clamp, the eyelid was everted, and a single vertical incision was made at the site of the lesion.
- All pus was cleared with a curette, and the lesion's capsule was incised and removed.
- After applying steroid ointment, the eye was bandaged with a patch for 2 hours.
- The patient was instructed to remove the patch after 2 hours.

Statistical analysis:
Data were analyzed using SPSS software (version 25.0). Continuous variables were compared using an independent t-test, while categorical variables were analyzed using the chi-square test. A p-value < 0.05 was considered statistically significant.

III. Result

Group A (TA Injection Group, n=24):
Patients received a single intralesional injection of TA (40 mg/mL).
The dose was adjusted based on lesion size:3–7 mm: 2 mg; 8–15 mm: 4 mg

Group B (I&CGroup, n=24), Patients underwent standard incision and curettage under local anesthesia.

Complete resolution:

Method	Complete Resolution	Patients
TA Injection	87.5%	21
Incision &Curretage	91.7%	22
p-value	**0.637**	

No statistically significant difference (p = 0.637).

Time to 50% reduction:

Method	Mean Time (weeks)	SD
TA Injection	2.9	0.8
Incision &Curretage	2.1	0.6
p-value	**0.014**	

Statistically **significant (p = 0.014),** favoring I&C.

Time to complete resolution:

Method	Mean Time (weeks)	SD
TA Injection	4.5	1.2
Incision &Curretage	3.6	0.9
p-value	**0.021**	

Statistically **significant (p = 0.021).**

Mild skin depigmentation is seen in 1 patient which resolved spontaneously. Other complications like infections, IOP elevation, postoperative bleeding were not observed.

IV. Discussion

Intralesional TA injection proved to be effective, showing similar efficacy to I&C for the successful treatment of primary chalazion. The majority of lesions resolved with a single injection, with only a few requiring a second one. Additionally, TA injection was successfully used following a failed I&C. TA precipitates occurred in 11% of cases, but they resolved on their own without the need for surgical intervention.

Khurana et al. found that intralesional steroid injection is as effective as incision and curettage (I&C) for small, multiple, and marginal chalazion, while larger lesions showed a better response to I&C. Dhaliwal and Bhatia observed a correlation between the histological characteristics of the lesion and treatment outcomes after intralesional triamcinolone (TA) injection or I&C. Their study suggested that older patients, larger lesions, and those with longer duration, especially those classified as suppurating granulomas, responded better to I&C. In contrast, lesions with mixed-cell granulomas had similar responses to both treatment methods.

An intralesional steroid injection provides the benefits of being a quick, straightforward, and less painful procedure compared to I&C. In younger patients, in addition to the psychological resistance to surgery, performing I&C can be challenging due to potential difficulty in cooperation, often necessitating general anesthesia.

In contrast, I&C is a more time-consuming procedure that requires local anesthesia and carries a higher risk of complications, such as pain, bleeding, and scarring. Furthermore,eye patching is frequently required after the procedure. Conversely, an intralesional TA injection requires minimal resources and time, making it suitable for eyes with multiple chalazions or lesions near the lacrimal punctum, with minimal risk of harming surrounding eyelid structures

V. Conclusion

In conclusion intralesional triamcinolone injection and I&C are effective treatment options for chalazion management. However the results of this study suggest that intralesional triamcinolone injection may offer advantages such as less invasive procedure, shorter recovery time and lower risk of complications when compared to I&C while both treatments show similar success rates in terms of resolving chalazion, the choice between these two methods should be guided by factors such as patient preference, lesion size, and physician expertise. Further studies with larger sample sizes and long term follow up are needed to confirm these findings and establish definitive treatment guidelines.

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