

## Original Article

# Intralesional Triamcinolone Acetonide (TA) Versus Incision and Curettage (I & C) for Medium and Large Size Chalazia

Renu Singhania, Nidhi Sharma, Shashi Vashisht, Taru Dewan  
PGIMER, Dr. Ram Manohar Lohia Hospital. Delhi-110001

### Abstract

**Introduction:** Chalazion is a common inflammatory mass lesion of eyelid. Incision and curettage is a conventional treatment but intralesional steroid is also a safe option for multiple chalazia and chalazion near lacrimal drainage system. So, we conducted an interventional study to compare the treatment outcomes of injection triamcinolone acetonide (TA) versus incision and curettage (I&C) in medium and large sized primary chalazion. **Objective:** To compare the success rate of intralesional TA versus I&C for the treatment of medium and large sized primary chalazia. **Materials and Methods:** An interventional study was carried out in 118 patients with primary chalazion. The patients were divided equally into two groups A and B of medium sized (3-7mm) and large sized chalazia (>7mm) respectively. Treatment modality either I&C or TA was decided in each group by randomization Cytological evaluation was done for each case and diagnosis other than chalazion was excluded. Main outcome measure was resolution in size more than 80%. Secondary outcome measure was correlation of cytological features with size, duration, success rate and complications. **Conclusion:** Intralesional TA was found to be as effective as I&C in both the groups. In cytological analysis, we found that in large sized chalazia I&C is superior to TA in suppressing granuloma.

**Key words:** chalazion, incision and curettage, triamcinolone acetonide, cytology

### Introduction

Chalazion is a common inflammatory mass lesion of the eyelid. It is a chronic lipogranulomatous inflammation of the meibomian or Zeis glands (Dhaliwal U & Bhatia A, 2005). Chalazion usually arises secondary to non-infectious obstruction of meibomian gland ducts and retention of meibomian secretions.

**Financial interest:** Nil

**Conflict of interest:** Nil

Received: 19.05.2017

Accepted: 15.12.17

**Corresponding author**

Dr. Taru Dewan

Professor Ophthalmology

Address: Eye opd first floor, Room no. 58A,

Department of ophthalmology

PGIMER, Dr. Ram Manohar Lohia Hospital

New Delhi- 110001, Phone- 9810673180

E-mail- tarudewan@hotmail.com

Inflammation of the meibomian gland leads to formation of internal hordeolum which presents as swelling with localized inflammatory reaction. As the inflammation subsides, it presents as a firm painless swelling in the lid. It may cause cosmetic disfigurement, local eye symptoms such as irritation and visual symptoms resulting from induced astigmatism or mechanical ptosis (Dua HSND, 1982; Perry HD SR 1980; Ben Simon et al, 2005; LiRT et al, 2003 & Lampert SL, 1979)

Histopathologically, chalazion is characterized by a lipogranulomatous reaction to liberated lipid material. A connective tissue pseudocapsule is often present around the lesion. Round clear



spaces in the lesion represents fat deposition. The granulomatous reaction with giant cells may be intermixed with acute and chronic inflammatory cells (Shields JA, Shields CL, 2008; Driver PJ et al, 1996; Gonnering R, 1988; Abboud A et al, 1968).

Some malignant neoplasms, particularly sebaceous carcinoma, can simulate a chalazion (Ozdal PC et al, 2004; Shields JA 2004; Tesluk GC, 1985). Hence, tissue should be sent for pathological study to exclude the possibility of malignancy.

Treatment options for persistent lesions include incision and curettage (I&C), intralesional steroid injection, carbon dioxide (CO<sub>2</sub>) laser, thermal cautery, botulinum neurotoxin type A injection or total excision (Goawalla A et al, 2007; Pizareello LD JF, 1978; Khurana AK, 1988; Mohan K, 1986; Prasad SGA, 1992; Korn EL, 1988;. Brown TM, 2008; Sendrowski DP et al, 2007; Garret GW et al, 1986; Christine LZ, 1986) The prognosis of chalazion is excellent.

I&C and intralesional injection of steroid are the two main acceptable techniques for treatment of chalazion. I&C is the conventional treatment for chalazion. It involves almost complete drainage of retained material of chalazion as the internal septa are broken and the walls of the cavity are thoroughly scraped with a curette. In most cases regression of lesion occurs completely. Watson AP et al, 1984 and Ben Simon et al, 2011 reported success rate with incision and curettage as 79% to 93%. Although I&C is considered a very effective treatment for chalazion, it is nevertheless a minor surgery performed under local anaesthesia (Goawalla A and Lee V, 2007; Khurana A K et al, 1988; Guy J. Ben Simon et al, 2011; Smythe D, 1990).

Intralesional injection of steroid is also a safe and effective treatment option. It is considered better for multiple chalazia and chalazia near the lacrimal drainage system due to lower

risk of damage. After injection patching is not required. Patient compliance is good with minimum bleeding and anxiety. The anti-inflammatory action of corticosteroids is thought to involve lipocortins, phospholipase A2 inhibitory proteins which, through inhibition of arachidonic acid, control the biosynthesis of prostaglandins and leukotrienes. Triamcinolone has 7.5 fold higher anti-inflammatory potency than cortisone. In addition to their anti-inflammatory action, corticosteroids exhibit vasoconstrictive and antiproliferative action. (Mansoor S et al, 2009)

Intralesional TA is reported to cause resolution in 81%-87% cases (Goawalla A and Lee V, 2007; Khurana A K et al, 1988; Guy J. Ben Simon et al, 2011) and does not require injectable anaesthesia hence no chance of associated complications as well as oedema which hinder the excision of small deep seated chalazion.

However, serious complications of intralesional triamcinolone have occasionally been reported such as choroidal and retinal vascular occlusion (Thomas EL and Laborde RP, 1986) and inadvertent globe perforation, which can necessitate anterior segment surgery. There was also a case of post injection haemorrhage in a hypertensive elderly patient. Skin depigmentation changes have been reported in cases where transcutaneous injections are given (Hosal BM and Zilelioglu G, 2003).

Various studies give varying success rates of either procedure. However, no RCT has been done to show the efficacy and safety of TA versus I&C in a specified size of chalazion. In addition cytopathological correlation with success or failure needs evaluation.

So we conducted an interventional study to compare the treatment outcomes of injection triamcinolone acetamide versus incision and curettage in medium and large sized primary chalazion.

## Materials and Methods

It was a prospective comparative interventional study carried out at our institution in the year 2011-12. For sample size calculation, we reviewed various studies which have shown success rate of I&C for chalazia ranging from 79% to 93%. (Watson AP et al, 1984 and Ben Simon et al, 2011) If we take an average success rate as 86% to compare the success rate of intralesional TA versus I&C with 90% power at confidence level of 95%, a sample size of 46 patients is required. In view of a two week follow up period and to account for an anticipated dropout rate of 20% a total of 59 patients were required to be enrolled in each category for the study.

A total of 118 patients with 59 each of medium and large sized chalazia were enrolled for this study which was undertaken with the permission from the institutional ethical committee. Patients with lid swelling of at least one month duration clinically diagnosed as chalazion, of medium (3-7mm) or large size (>7mm) and not responding to conservative management for at least 2 weeks were included. Subjects on anticoagulants which cannot be discontinued, with known allergy to xylocaine or TA used in the study, ocular and periocular infection within 14 days prior to surgery, pregnant and breast feeding women and patient unfit or unwilling for local anaesthesia (LA) were excluded. Patients were divided into two groups, namely Group A and Group B, according to size of chalazia: medium or large, respectively. Patients in each group were randomly distributed by an independent observer using envelope technique into further two arms, one arm undergoing I&C and the other intralesional injection of TA. The study was conducted over a span of one year. Informed written consent was obtained from all participants.

All patients underwent a thorough pre-operative evaluation including history about duration

of lid swelling and conservative treatment received visual acuity (VA) by Snellen VA chart with refraction, intraocular pressure measurement. In case of multiple chalazia, the larger chalazion was enrolled. Horizontal diameter, vertical diameter and anteroposterior bulge of the swelling was measured by caliper from the skin side. The maximum diameter was used to classify the chalazion. Digital photograph of swelling was also taken.

### Technique of intralesional TA :

Under sterile conditions with topical anaesthesia the eyelid was everted. Adequate material for making two slides was aspirated for cytopathological evaluation, by means of 10 ml syringe and 22-24 gauge needle depending on the size of chalazion. 0.1-0.2 ml of TA (10mg/ml) was injected intralesionally using a 26 gauge needle and tuberculin syringe transconjunctivally. The eye was left unpatched.

### Technique of I&C:

I&C was done under sterile conditions after lignocaine sensitivity test where the eyelid was infiltrated with 2% lignocaine using 26 gauge needle and 2 cc syringe. Chalazion clamp was applied. Through a single vertical incision all material was curetted. The walls of the cavity were thoroughly scraped and material was sent for cytopathological evaluation. The floor of the curetted chalazion was cauterized with pure carbolic acid and a thorough wash was done with at least 30ml normal saline. Clamp was removed, antibiotic ointment was applied and pad and bandage done. The patient was asked to remove the patch after 2 hours. Oral antibiotics twice a day was prescribed along with antibiotic and anti-inflammatory eye drops 1 drop 4 times a day for 5 days.

Patients were followed up at 24 hours, 4 days, 1 week, 2 weeks and 3 weeks after the procedure. In case resolution was noted at any of these visits, further follow-up of that case was not

done. All lesions were digitally photographed at each study visit and any post-operative complication was noted. In case after 3 weeks, complete resolution did not occur, it was taken as failure. Failed cases underwent excision and material was sent for histopathology. Cases proven not to be chalazia in origin by cytopathological report were excluded from statistical analysis. Primary outcome variable was lesion resolution measuring greater than 80%.

Statistical analysis was performed using Microsoft excel XP and SPSS programs 16. Pearson Chi-square non-parametric test was used to assess the treatment outcomes of I&C and inj. TA and independent sample t test was used to evaluate the influence of age, the duration of chalazion, and distance from the punctum on clinical outcome.

### Results

In Group A, 27 patients underwent I&C and 32 inj. TA and in Group B, 36 underwent I&C and 23 underwent inj. TA. Overall one from the I&C group and 2 from inj. TA group were lost to follow-up. One each in both the treatment groups was reported to be epidermoid inclusion cyst and was excluded from the statistical analysis.

Baseline characteristics were comparable between the two arms in Group A as well as in Group B.

In Group A both intervention arms were matched for age ( $p=0.94$ ), gender ( $p=0.45$ ), mean duration ( $p=0.76$ ) as well as location ( $p=0.20$ ). In Group B also, both intervention arms were matched for age ( $p=0.51$ ), gender ( $p=0.72$ ), mean duration ( $p=0.09$ ) as well as location ( $p=0.20$ ).

In Group A, the difference in average time to resolution between I&C and inj. TA was statistically significant ( $p = 0.003$ ). Table 1. (Figure1).

**Table1: Time to resolution in Group A (weeks) in between I&C and inj. TA**

GROUP A	Time to Resolution (weeks)	p-value
I&C	2.12	0.003
TA	2.76	

Similarly, in Group B the average time to resolution between I&C and inj. TA was statistically significant. ( $p =0.003$ ). Table 2. (Figure 2).

**Table 2: Time to resolution in group B (weeks) in between I&C and inj. TA**

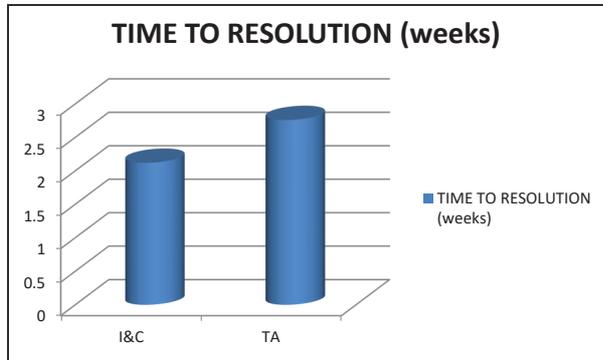
GROUP B	Time to Resolution (weeks)	p-value
I&C	2.47	0.003
TA	2.78	

In Group A, success was achieved in 23 (92%) of 25 patients in I&C group and in 26 (89.7%) of 29 patients in the TA group. This difference was not statistically significant ( $p = .767$ ) (Figure 3). In Group B success was achieved in 31 (91.2%) of 34 patients in I&C group and in 14 (73.7%) of 19 patients in the TA group. This difference was not significant ( $p = 0.088$ ). (Figure 4) On histopathological analysis of medium and large size chalazion, majority are mixed cell granulomas in both groups. However, other types were also found (Figure 5).

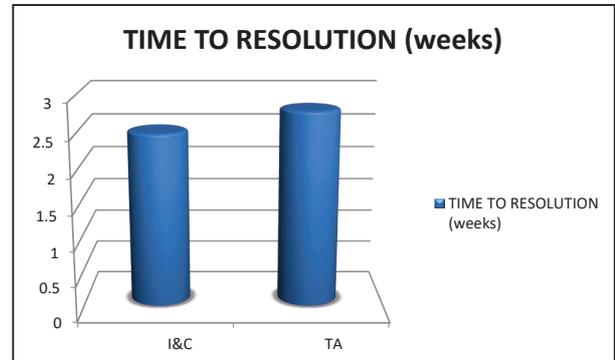
Success rate and duration in medium sized chalazion were not related to cytological diagnosis. On the other hand, success rate in large sized chalazion in TA group was found to be statistically different in mixed cell granuloma (93.75%) and suppurating granuloma (100%) ( $p = .026$ ). It shows that in large sized chalazia, I&C is superior to inj. TA in the small subset of suppurating granuloma. The duration of chalazion was not statistically different in two cytological groups.

No complications were noted in both the groups. In both the groups the visual acuity

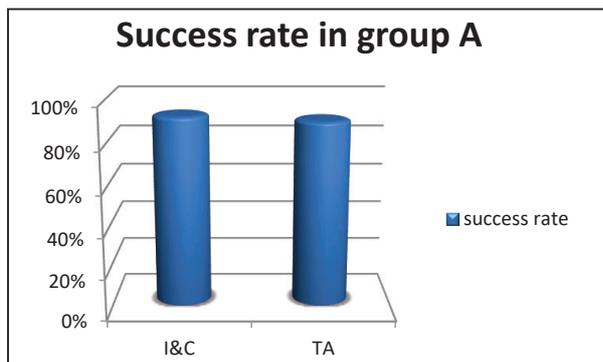
and intraocular pressure remained stable after treatment.



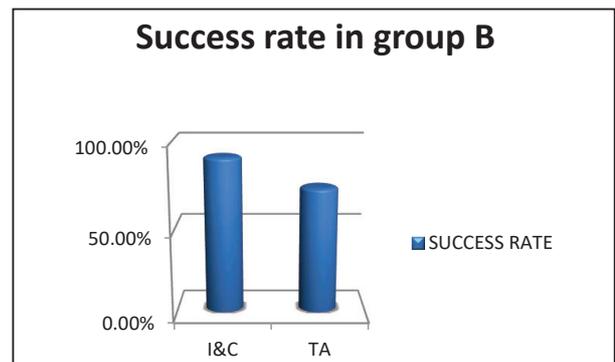
**Figure 1:** Bar diagram showing time to resolution (weeks) in group A between I&C and inj TA



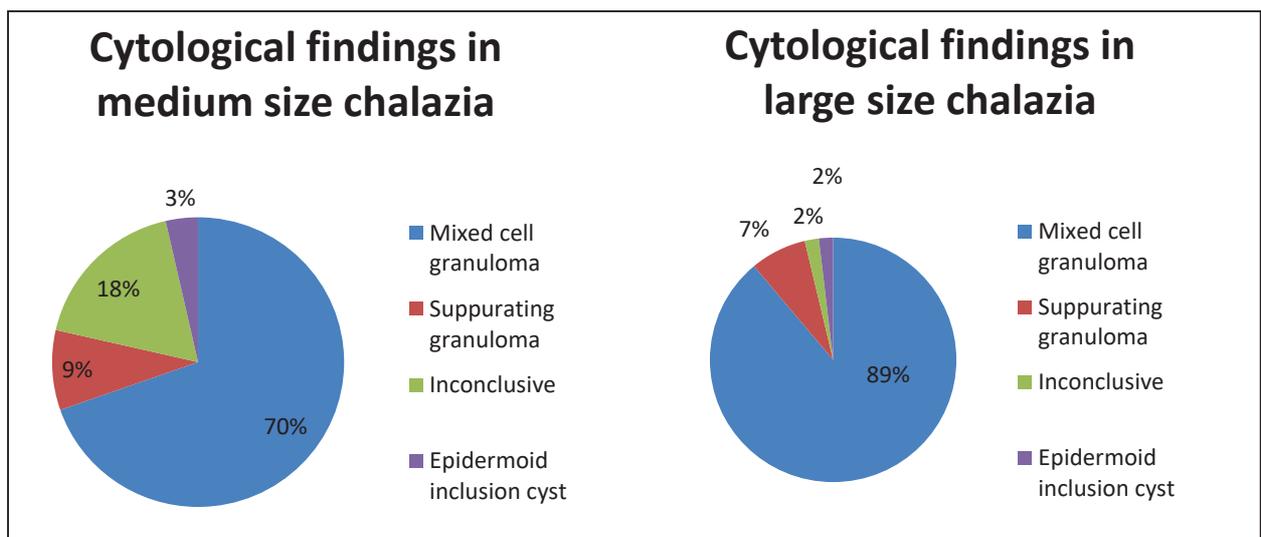
**Figure 2:** Bar diagram showing time to resolution in group B between I&C and inj TA



**Figure 3:** Bar diagram showing success rate between I&C and inj TA in group A



**Figure 4:** Bar diagram showing success rate between I&C and inj TA in group B



**Figure 5:** Pie diagram showing cytological findings in medium sized and large sized chalazion

## Discussion

In our study, both treatment groups included age matched young adults. However, Dhaliwal U & Bhatia A, 2005 concluded that older patient may benefit more from I&C, rather than TA inj. The duration of chalazion was not statistically different in the two groups. Hence, it did not affect the outcome. A study by Dhaliwal U & Bhatia A, 2005 showed that longer duration of chalazion respond better to I&C. The difference in results may be due to prior aspiration of material in the TA group in this study.

In the present study we found that intralesional TA injection with aspiration of material prior to injection was a safe and effective form of treatment for medium sized chalazia. Success rate achieved was 89.7% (26/29 cases) with single injection in 3 weeks and 92% (23/25 cases) in I&C group. Aspiration of material prior to inj. TA decreased the size of lesion promptly which could explain the better results of inj. TA than the previous studies.

In the second group of large sized chalazion, success rate achieved was 73.7% (1/19 cases) with single injection in 3 weeks and 91.2% (31/34 cases) in I&C group. The difference was not statistically significant. Aspiration of material prior to inj. TA helped in debulking and this might explain much better results of inj. TA than the previous studies even in large sized chalazia.

Previous studies have shown varied success rate with TA injections as follows: Jacobs et al, 1984, 8.7% (2/23 cured at 2 weeks); Ahmad et al, 2006, 62% (41/66, 80% after 2 injections); Mustafa et al, 2001 75% (2 of 9 cases required 2 injections and 1 required three injections); Sloas et al, 1983, 76% (16/21); Ben Simon GJ et al, in 2011, 81% (42/52, 4 cases had 2 injections); Goawalla et al, 2007, 84%(47/56).

The success rate of I&C in earlier studies were as follows: Jacobs et al, 1984, 60% (12/27

cured at 2 weeks); Ahmad S et al, 2006, 79% (59/75); Mustafa et al, 2001, 75% (9/12); Goawalla et al, 2007, 87% (39/45); Watson AP et al, 1984, showed 90% resolution, but 27% required a second operation; Ben Simon et al, 2011, reported 79%.

Only few studies considered the size of chalazion and among them Khurana et al, 1988 reported that the intralesional TA was as effective as curettage in small (1-4mm) and medium sized chalazia (5-7mm). However, the results of intralesional injection in large sized (8-12mm) were discouraging. Complete resolution was not seen even in a single case after 2 weeks in large sized chalazia whereas I&C showed 100% success rate.

Dhaliwal et al, 2005 also recommended that I&C should be the procedure of choice in lesions of more than or equal to 11.4 mm size. Palva J et al, 1983 suggested corticosteroid injection as a serviceable alternative to surgery in the treatment of chalazia less than 6mm.

The average time to resolution in I&C group was 2.12 weeks and in inj. TA was 2.76 weeks in medium sized chalazia. In large sized chalazia the average time to resolution was 2.47 weeks in I&C group and 2.78 weeks in TA group, the difference was statistically significant in both the groups. In 2011, Ben Simon et al, 2011 reported that mean time to resolution in I&C group was 4 days and in the TA group was 5 days. The difference was not statistically significant.

Success rate in medium sized chalazion was not related to cytological diagnosis. Success rate in large sized chalazion in TA group was found to be statistically different in two groups of cytological diagnosis of chalazion i.e. mixed cell granuloma and suppurating granuloma. I&C is superior to inj. TA in suppurating granuloma type of large size granuloma. The duration of chalazion was not statistically different in two cytological groups. Dhaliwal et

al, 2004 also had similar results and concluded that suppurating granuloma should be treated by incision and curettage.

Conservative mode of treatment has not been studied in this study. No complications were noticed during the study.

### Conclusion

Intralesional injection TA was found to be as effective as I&C in both the groups. Success rate in Inj. TA group in both medium & large size group was better than previous studies with single Injection of TA. Probable explanation for this better result in Inj. TA group was due to prior debulking of the lesion by FNAC. Resolution time was more after inj. TA than I&C ( $p=0.003$ ). In large sized chalazia I&C is superior to inj. TA in suppurating granuloma.

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