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Effectiveness of intralesional Triamcinolone acetonide in the treatment of primary chalazia

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ABSTRACT

Aim: To determine the effectiveness of intralesional injection of Triamcinolone acetonide in the treatment of primary chalazion.

Patients and Methods: This study was conducated at Postgraduate Department of Ophthalmology, Government Medical College, Srinagar. 30 patients meeting the inclusion criteria were included in the study through OPD. Chalazion was diagnosed on the basis of presence of painless and non tender nodule in the eye lid. Under strict aseptic technique 0.1 to 0.2 ml of triamcinolone acetonide (40 mg/ml) was injected intralesionally. Follow up visit was done at two weeks to determine effectiveness in term of reduction in size of chalazion by 2 mm.

Results: The mean age in our study was28.4 ± 14.4 years (range 6–50years).The mean duration of the chalazion before the intralesional TA injection was 1.6 ± 1.4 months. There were 34.21% (13/38) of chalazions of size 0.5 to 0.8cm , 55.26% (21/38) of chalazions between 0.9 to 1.2cm and and 10.53% (4/38) of chalazions of size 1.3 to 1.5cm diameter. Over all efficacy of the intralesional injection of triamcinolone acetonide in the treatment of chalazion was 86.84%. Average pre-injection size of chlazion was 8.1mm + 2.1 SD with a range of 5 – 15 mm. Efficacy wise distribution shows that 100% efficacy was seen in the range of 0.5 – 0.8cm. In chalazion 0.9 – 1.2cm in size injection of triamcinolone was effective in (90.48%) patients, while in chalazion of size 1.3 to 1.5mm it was effective in (25%) patients.

Conclusion: Intralesional injection of Triamcinolone acetonide is highly effective in the treatment of chalazion with size between 5mm to 15 mm with high effectiveness rates in sizes less than 10mm.

Key Words: Chalazion,Efficacy,Intralesional Triamcinolone,Meibomian gland.

I. BACKGROUD

Focal swelling of the eyelid is a common complaint that is seen in the primary care or urgent care setting. Often, the swelling can be identified as either a hordeolum (stye) or a chalazion, although several other benign and malignant processes can be mistaken for these two[1].Chalazia are the most common inflammatory lesions of the eyelid. A chalazion, also known as a meibomiangland 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. Patients usually present with lid swelling, pain, and symptoms of local irritation. However, larger lesions may be unsightly and may lead to complications such as corneal astigmatism, mechanical ptosis, and secondary infections[2,3].Chalazia can further be categorized into superficial or deep, depending on which glands are blocked[4].Treatment options for chalazions include conservative treatment with eyelid hygiene, warm compression, antibiotic eye ointment, and mild topical steroids[5-7]. Occasionally, systemic antibiotics are given for associated cellulitis. Surgical intervention is considered when conservative management fails. Surgical options include incision and curettage (I&C), total excision, injection of triamcinolone acetonide (TA), or carbon dioxide laser treatment[8,9]. I&C is a painful procedure despite local anaesthesia and is especially high risk when performed in children who are not cooperative.Incision and curettage is one of the mostcommonly performed effective surgical procedure for chalazion[10].Triamcinolone acetonide has been effectively used in the ocular therapeutics for over 50 years; its use has increased dramatically in recent years for periocular and intraocular treatment[11]. Intralesional triamcinolone acetonide have also been tried as a treatment of chalazion[12] and it had showed a success rate of 62%[13], 89.6%[14] and 76%[15].Intralesional triamcinolone acetonide injection is an effective and safe alternative procedure to surgical incision and curettage for the treatment of chalazion[13]. In primary and recurrent chalazion it is effective in achieving lesion regression and it may be considered as a first line treatment in cases where the diagnosis is straight forward[16,17]. The purpose of this study was to investigate the safety andefficacy of intralesional TA injection in the treatmentof primary chalazions not responding to conservative treatment.

II. PATIENTS AND METHODS

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This study was conducted at Postgraduate Department of Ophthalmology, Government Medical College Srinagar from October 2018 to May 2019. A total of 30 patients were included in the study.

Inclusion criteria

- Primary chalazion
- Both male and female patients were included in the study.
- Size ≥5mm to ≤15mm

Exclusion criteria

- Size <5mm and >15mm
- Infected chalazion with associated infection like pre -septal cellulitis
- history of prior treatment to chalazion whether surgical or conservative.
- Concurrent eyelid infection
- Recurrent chalazion
- Atypical features that may indicate suspicion of malignancy
- History of steroid-induced raised IOP
- Defaulted follow-up

An assessment of present complaints, detailed clinicalhistory (present and past), and history of any ocularsurgery, Age, sex,socio-economic status, was recorded. Ophthalmologicalcheck-up as external examination of the eyes, visual acuity by Snellen chart,diffuse torch light examination, slit lamp examination, Intra ocular pressure (IOP) by Non-Contact Tonometer, specific examination of the chalazion including size (measure by Castroviejo calliper), its location, duration, extent was done.Informed consent was taken prior to the procedure. Topical anaesthesia with proparacaine 0.5 % eye drops were instilled prior to the procedure in the affected eye. 10% betadine was used to thoroughly clean the chalazion site. A twenty-six-gauge (26G) needle over a 1ml syringe was taken into used for injecting 0.2ml of 4 mg of Triamcinolone acetonide (TA) intralesional through transcutaneous into the chalazion. After the administration of the drug, no local antibiotic or eye bandage was given. Patching was also not done after the procedure.The patient was kept under observation in the OPD for 30 minutes and was advised to go home.The patients were reviewed every 2 weeks after the TA injection until resolution of the chalazion. The chalazion was measured clinically (length × width) in millimetres. Failure was defined as an absence of maximal chalazion diameter reduction at 2 weeksafter the TA injection.Main outcome measures included the size of the chalazion during each follow-up interval, time taken for a 50 % reduction in the size of the chalazion, time taken for complete resolution, and complications from the procedure.

III. RESULTS

During the study period, 38 primary chalazions in 30 patients were treated with intralesional TA injections. The mean age of patients in our study was 28.4 ± 14.4 years (range 6–50years). Patient demographics are summarised in Table 2.

The mean duration of the chalazion before the intralesional TA injection was 1.6 ± 1.4 months. There were 34.21% (13/38) of chalazions of size 0.5 to 0.8cm, 55.26% (21/38) of chalazions between 0.9 to 1.2cm andand 10.53% (4/38) of chalazions of size 1.3 to 1.5cm diameter. They were given an intralesionalTA injection of 2, 4, and 6 mg, respectively, without any complications or raised IOP noted after the procedure.

73.68% (28/38) of chalazionsachieved complete resolution within 4 weeks postinjection and 84.21 % (32/38) of chalazions achievedcomplete resolution within 6 weeks. 71.05%(27/38) of chalazions achieved a 50 % sizereduction at 2 weeks and 81.58 %(31/38) of chalazionsachieved the same result by 4 weeks.In total, 15.79% (6/38) of chalazions failed to reduce in size by 2 weeks.Over all efficacy of the intralesional injection of triamcinolone acetonide in the treatment of chalazion was 86.84%. The majority of failed cases had chalazions with a diameter between 1.2and 1.5 cm. The mean time to complete resolution was 14.7 ± 11.0 days.

Table 1:

Characteristics	Value
Number of patients	30
Number of chalazia	38
Gender	
Male	18 (60 %)
Female	12(40 %)
Age	6–50years
Location	
RUL	13

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RLL 7
LUL 12
LLL 6
Size (maximal diameter)
0.5 to 0.8cm 13
0.9–1.2 cm 21
1.3 to 1.5 cm 4
RUL right upper lid, RLL right lower lid, LUL left upper lid,LLL left lower lid

Average pre-injection size of chlazion was 8.1mm + 2.1 SD with a range of 5 – 15 mm. Efficacy wise distribution shows that 100% efficacy was seen in the range of 0.5 – 0.8cm. In chalazion 0.9 – 1.2cm in size injection of triamcinolone was effective in (90.48%) patients, while in chalazion of size 1.3 to 1.5mm it was effective in (25%) patients. Pre-injection size of chlazion wise distribution of efficacy is given in table 2:

Table 2:

Pre-injecion size of chalazion(mm)	Efficacy		Total n(%)
	Yes n(%)	No n(%)	
0.5-0.8	13(100)	0	13(34.21)
0.9-1.2	19(90.48)	2(9.52)	21(55.26)
1.3-1.5	1(25)	3(75)	4 (10.53)
Total	33(86.84)	5	38(100)

IV. DISCUSSION

Chalazions are a commonly encountered eye problem due to blockage of the meibomian glands. Previous studies have shown that 29–80 % of chalazionsresolved with conservative treatment alone[18-20].The treatment of chalazia consists of frequent daily use of warm compresses, eyelid hygiene, and topical anti-inflammatory medications in the acute inflammatory phase[21]. Antibiotic therapy may be necessary in case of a secondary bacterial infection[22]. If these measures fail, then surgical incision and curettage or intralesional corticosteroid injection may be necessary. However, the steroid therapy is most effective when the chalazion has not been secondarily infected. If this has already happened surgery is the method of choice[23,24].Intralesional steroid injection for the treatment of chalazion was described first by Leinfelder[16] 1964,1since then many studies proclaimed the efficacy of intralesional corticosteroid injection.

In our study we titrate the volume of TA injection according to the size of the lesion. For chalazions<1 cm, 2 mg of TA was effective and resulted in complete resolution in 95.5 % of chalazions. For larger lesions between 1 and 1.5 cm, 72 % of chalazionsachieved complete resolution with a single TA injection of 4 mg. It seems that chalazion size at presentation was an important determinant of success for TA injection.Our findings are consistent with those of Palva and Pohjanpelto[25]who reported that larger lesions were associated with a lower rate of resolution by intralesionalcorticosteroid injection and a high rate of recurrence.

Intralesional triamcinolone acetonide injection was an effective, safe and rapid form of treatment. Most of the patients displayed prompt and lasting resolution within 2 weeks after 1 injection. The results were astonishing and much more comparable to previous studies. In our study the overall effectiveness of intralesional triamcinolone acetonide using only one injection was observed in 86.84% of patients with failure in only 13.16% of patients who were later referred for incision and curettage under local anesthesia.Our success rate (83 %) was similar to earlier studies that reported success rates of 62–92 % after intralesional steroid injections for chalazions[20,25].

Regarding time taken for resolution, Pavicic´-Astaloset al[26] found that 95 % of chalazions decreased in size by 80 % with no recurrence after an intralesionalTA injection of 4–8 mg, with a mean time to resolution of 15.27 days, which is comparable to our findings (14.7 ± 11.0 days).

Although the overall effectiveness of the intralesional triamcinolone injection was 86.84% in our study, but it was observed that the results are even better and conclusive in the patients who presented with size between <1 cmwith the success rate of100%. A study conducted Thabitet al[27] showed the results comparable to our study. Since the chalazion is not common in older age groups, most of the patients presenting in our study with chalazion had a mean age of 28.4 ± 14.4 years and

almost similar age group was observed in a study conducted by Dhaliwaal MS[28] reporting a mean age group of patients presenting with chalazion was 31.1 years.

V. CONCLUSION

This study was designed to determine the effectiveness of intralesional triamcinolone injection in the treatment of Chalazion. The study proved that the intralesional triamcinolone is an effective treatment of Chalazion. Especially considering the size of Chalazion, the intralesional injection of triamcinolone is found to be heavily effective among patient presenting with size less than 6mm with little failure rates in the sizes above 6mm. So from this study theconclusion can be drawn that for chalazion with sizes less than 6mm the intralesional injection of triamcinolone can be used as a first line therapy keeping other treatment modalities considered with sizes above 6mm.

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