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Original Research Article

Comparison of safety and efficacy of triamcinolone 40 mg/ml with 10 mg/ml in chalazion

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ABSTRACT

Background: Chalazion is a chronic sterile lipogranuloma caused by the obstruction and inflammation of the sebaceous glands of eyelids. A deep chalazion is caused by inflammation of the tarsal meibomian glands and a superficial chalazion by inflammation of Zeis glands. The main objective of the study was to compare the efficacy and safety of intralesional triamcinolone acetonide of 40mg/ml with 10mg/ml in patients with chalazion.
Methods: A comparative study was conducted at SKIMS MCH from January 2020 to August 2021. 68 patients were randomly divided into group A and group B. There were 32 eyes with chalazion in Group A and 36 eyes with chalazion in Group B. Group A was treated with triamcinolone 40mg/ml and group B with 20mg/ml. The follow-up was done at 1 week, 4 weeks, and 6 weeks.
Results: Of 32 eyes in Group A complete resolution was seen in 28 eyes (87.5%). In Group B out of 36 eyes, complete resolution was seen in 24 eyes (66.6%). Out of 68 patients, 30 were males (44.2%), and 38 were females (55.8%). Complications were marginally more in Group A, 3 patients had yellow white deposits on eyelids and 2 patients had raised intraocular pressure post steroid injection. In Group B, only 2 patients had yellow white deposits on eyelids. The size of the chalazion ranges between 5 to 12 mm. Complete resolution is considered when size reduction >85-90%.
Conclusions: It is concluded that intralesional triamcinolone acetonide of 40mg/ml is more effective than 10mg/ml. Although complications are slightly more in the previous than later, it is the rise in intraocular pressure which is of more concern. Thus proper pre-op workup and monitoring of intraocular pressure in the follow-up period are required.

Keywords: Chalazion, Intralesional injection, Triamcinolone acetonide

INTRODUCTION

A chalazion is a chronic lipo granulomatous inflammation of the sebaceous glands of eyelids. These result from the breakdown of lipids which leak into the surrounding area inciting a granulomatous response. Meibomian glands are usually involved due to the blockage of these glands.[1]

A chalazion usually presents as slowly growing painless swelling. However large chalazion may present as the cause of impaired vision. Secondary infection of chalazion may lead to painful swelling.[2]

Risk factors are blepharitis, rosacea, mite infestation, low serum vitamin A, gastrointestinal infection, and smoking.[3] Both medical and surgical treatment options have been explored with chalazion.[4] Conservative

treatment includes lid massage, warm compresses, and antibiotic steroid eye drops or ointment.[5] In recurrent cases, low-dose oral doxycycline has also proved useful.[6] Surgical incision and drainage is the treatment of choice in cases not responding to conservative management. A less invasive procedure has also been found very useful in resistant cases or patients with multiple Chalazia. In this procedure, an intralesional steroid injection is given.[7] The advantages are an outpatient procedure, less time-consuming, and fewer chances of bleeding. It is especially useful in multiple Chalazia or chalazion closer to the punctal area.

METHODS

The study was conducted at SKIMS MCH in the state of Jammu and Kashmir from January 2020 to August 2021. 68 patients with 68 eyes were included in the study. There were 32 eyes with chalazion in Group A and 36 eyes with chalazion in Group B. Group A was treated with triamcinolone 40mg/ml and group B with 10 mg/ml. Proper informed consent was obtained from the patients with the risk and benefits explained. The study was approved by the ethical committee of SKIMS MCH. There was no conflict of interest and no financial interest.

Inclusion criteria

Patients above the age of 15 yrs, and patients with normal lid anatomy were included.

Exclusion criteria

Patients below 15 years of age, patients with the morphological abnormality of eyelids, patients with other ocular diseases, patients with allergy to the local anesthetic injection, patients with acute eyelid infection, and patients with recurrent chalazion were excluded.

A detailed medical history of the patients and ocular examination were done. Visual acuity, intraocular pressure measurement, slit lamp biomicroscopy, and dilated fundoscopic examination were performed. Measurements of the chalazion were done with a castroviejo caliper from the anterior aspect after stretching the skin.

Patients were made to lie supine and topical anesthetic lignocaine is instilled into the concerned eye. An insulin syringe with a 25G needle is loaded with 0.2 ml of triamcinolone of 40mg/ml and 10mg/ml for group A and group B patients respectively. After cleaning the lid with povidone-iodine, the lid is everted and steroid is injected into the chalazion on the conjunctival side. Multiple injections are given in case of multiple Chalazia in the same lid. No eye patching is done. Antibiotic eye drops were given four times daily for a week. Follow-up is done at 1 week, 4 weeks and 6 weeks. At each follow-up measurements of chalazion are done and intraocular pressure is recorded. A cure was considered when the size was reduced by more than 85% or less than 1mm.

RESULTS

Out of 68 patients, 30 were males (44.2%), and 38 were females (55.8%). The mean age of male patients was 19.4yrs and the mean age of female patients was 17.8 yrs. 68 patients were randomly distributed in Group A and Group B with 32 patients in Group A and 36 patients in Group B. Size of the chalazion ranges between 5 to 12mm with a mean size of 7.9mm as shown in Table 1.

Table 1: Demographic profile.

	Group A (%)	Group B (%)
Sex		
Male	15 (46.8)	15 (41.7)
Female	17 (53.2)	21 (58.3)
Total chalazion (68)	32 (47)	36 (53)
Right upper lid	9 (28.1)	11 (30.5)
Right lower lid	5 (15.6)	8 (22.2)
Left upper lid	10 (31.2)	10 (27.7)
Left lower lid	8 (25)	7 (19.4)

Of 68 patients, predisposing factors were seen in 41 patients as shown in Table 2.

Table 2: Predisposing factors.

Predisposing factors	No. of cases	Percentage
Poor lid hygiene	15	22
Refractive error	9	13.2
Chronic Blepharitis	7	10.2
Rosasea	5	7.3
Dermatitis	5	7.3
No cause	27	39.7

Of 68 patients, complete resolution was seen in 52 eyes (76.4%). The success rate was 87.5% (28 out of 32 eyes) in Group A. In Group B the success rate was 66.6% (24 out of 36 eyes). Patients in which chalazion persists in the case of Group A was 12.5% (4 out of 32 eyes) and in Group B it was 33.3% (12 out of 36 eyes). Those patients were given the option of either incision and curettage or a second intralesional triamcinolone injection of 40mg/ml. But these patients were not included in the resolved group. All the patients were followed for 6 weeks.

The overall complication rate was 10.2% (7 of 68 eyes), with yellow white deposits in 7.3% (5 of 68 eyes) and raised intraocular pressure in 2.9% (2 of 68 eyes). The complication rate in Group A 15.6% (5 of 32 eyes) and in Group B 5.5% (2 of 36 eyes) as shown in Table 3.

Both the cases with raised intraocular pressure patients were seen in Group A and presented within 1 week of

follow-up, however, it was transient and was controlled with a short course of a beta blocker.

Table 3: Complications.

	Group A	Group B
Yellow deposits	3	2
Raised intraocular pressure	2	0

There was no significant difference in mean age, gender, laterality, and size between the two groups. The success rate in Group A is 87.5% and in Group B is 66.6% which is statistically significant (p-value <0.05).

DISCUSSION

Chronic granulomatous inflammation of sebaceous glands is one of the common disorders we as ophthalmologists encounter in our day-to-day practice. Triamcinolone acetonide has been widely used in several ocular disorders both extraocular and intraocular. Triamcinolone acetonide is a synthetic corticosteroid and has higher anti-inflammatory potency than cortisone. It also exhibits vasoconstrictive, antiproliferative effects.[8]

In our study, out of 68 patients, the number of male patients (44.2%) is less than female patients (55.8%). The higher incidence of a chalazion in female patients in our study is consistent with that of Kumar et al who also found a higher incidence of a chalazion in females (68%) than males (32%).[9] Maximum patients in our study belong to the age group of 16 to 21 yrs, the youngest one of 15 yrs, and the oldest one 35 yrs which is consistent with observations made by Rupali et al in which maximum patients were in the age group of 11 to 20 years 47% in the age group 20 to 30 years 32%.[10]

Around 60% (41 of 68) of patients have a predisposing factor to chalazion, of which poor lid hygiene and refractive error are seen in the maximum number of patients as shown in Table 3. Similar observations were also made by Kumar J et al, in the retrospective study conducted in the Bundelkhand region, poor lid hygiene, chronic blepharitis, rosacea, seborrhoeic dermatitis, deranged blood lipid profile, and eyelid trauma were found to be significant risk factors associated with chalazion.[9]

In Group A, the success rate was 87.5%. A study done by Kim et compared the effects of different concentrations of triamcinolone acetonide on chalazion and the complete resolution was seen in 78.4% of patients who received 40 mg/ml triamcinolone.[11]

In Group B, the success rate was 66.6% (24 of 36 eyes). In the study by Watson and Austin, it was observed 77% of patients treated with 0.2mg/ml triamcinolone resolved completely but there was a large proportion of patients who required a second injection.[12]

In the prospective comparative study conducted by Naik et al on 58 patients with 60 chalazia, group A with 28 chalazia was treated with 0.2ml of 40mg/ml triamcinolone acetonide had a success rate of 78.6% compared to group B treated with 0.2ml of 10 mg/ml triamcinolone acetonide success rate of 56.3%.[13] These results are similar to the observations in our study.

From these studies, it is observed that both concentrations of triamcinolone acetonide are an effective treatment for chalazion but with lower concentrations, multiple injections are usually required. However, in our study, we have used a single injection to obtain these results.

Reported complications of depot steroid injection in chalazion treatment are hypopigmentation/de-pigmentation of lid skin yellow white deposits in the lid skin, subconjunctival eyelid fat atrophy, second injection, corneal perforation with traumatic cataract by injection needle, micro embolism of retinal and choroidal vasculature leading to infarction, steroid-induced glaucoma, and subcapsular cataract.[14] In our study, the complication rate was 10.2% (7 of 68 eyes), yellow white deposits in 7.3% (5 of 68 eyes), and raised intraocular pressure in 2.9% (2 of 68 eyes). The complication rate in Group A 15.6% (5 of 32 eyes) and in Group B 5.5% (2 of 36 eyes). Yellow white deposits were seen in 3 of 32 eyes and 2 of 36 eyes in Group A and Group B respectively and are statistically not significant. Both cases of raised intraocular pressure were seen in Group A. A detailed eye examination is needed in high-risk patients to avoid this complication. Both cases of raised intraocular pressure were transient and were resolved with a short course of anti-glaucoma medication.

This study has some limitations. The sample size of our study was small. Thus the results of the study cannot be generalized. Recurrent cases were excluded from the study.

CONCLUSION

Treatment of chalazion by intralesional injection of triamcinolone acetonide is found to be an effective method that requires minimal facilities, less time, no patch (pad) is required and patient compliance is very good with minimum pain, bleeding, and anxiety. Multiple chalazion can be treated in a single sitting. The use of a higher concentration of triamcinolone acetonide 40mg/ml is more effective than 10mg/ml and will eliminate the use of multiple injections. The incidence of raised intraocular pressure can be avoided with a comprehensive preoperative examination.

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Ethical approval: The study was approved by the Institutional Ethics Committee of SKIMS MCH, J&K, India

REFERENCES

1. Jin KW, Shin Y J, Hyon JY. Effects of Chalazia on corneal astigmatism: Large-sized chalazia in the middle upper eyelids compress the cornea and induce corneal astigmatism. BMC Ophthalmol. 2017;17(1):36.
2. Fukuoka S, Arita R, Shirakawa R, Morishige N. Changes in meibomian gland morphology and ocular higher order aberration in eyes with chalazion. Clin Ophthalmol. 2017;11:1031-8
3. Patel S, Tohme N, Gorrin E, Kumar N, Goldhag, J B, Galor A. Prevalence and risk factors for chalazion in old veteran population. Br J Ophthalmol. 2022;106(9):1200-5.
4. Goawalla A, Lee V. A prospective randomized treatment study comparing three treatment options for chalazia: triamcinolone acetonide injections, incision and curettage and treatment with hot compresses. Clin Experiment Ophthalmol. 2007;35(8):706-12.
5. Perry HD, Serniuk RA. Conservative treatment of chalazia. Ophthalmology.1980;87(3):218-21.
6. Foulks GN, Borchman D, Yappert M, Kamari S. Topical azithromycin and oral doxycycline therapy for meibomiam gland dysfunction: A comparative clinical and spectroscopic study. Cornea. 2013;32(1):44-53.
7. Ben Simon GJ, Huang L, Nakra T, Schwarcz RM, McCann JD, Goldberg RA. Intralesional triamcinolone acetonide for primary and recurrent chalazia: is it really effective? Ophthalmol. P2005;112(5):913-7.
8. Sommer A, Veraart J, Neumann M, Kessels A. Evaluation of the vasoconstrictive effects of topical steroids by laser- Doppler Perfusion-imaging. ActaDerm.-venereol. 1998;78(1):15-18.
9. Kumar J, Pathak AK, Verma A, Dwivedi S. Study of incidence and risk factors of chalazion in Bundelkhand region. IOSR J Dent Med Sci. 2017;16(5):5-8.
10. Rupali VK, Venukumar LR. Intralesional steroid in the treatment of chalazion. Inte Med J. 2014;1(1):22-4.
11. Eun JK, Sung Y, Byung JJ, Kyoo WL, Hong JM. The Effects of intralesional steroid injection for chalazion according to the concentrations of triamcinolone acetonide. J Korean Ophthalmol Soc 2007;54(3):396-400.
12. Watson AP, Austin DJ. Treatment of chalazions with injection of a steroid suspension. Brit J Ophthalmo. 1984;68(11):833-5.
13. Vasu N Naik, Shreeba B Vasu. Comparison of intralesional injection of triamcinolone 40 mg/ml and Triamcinolone 10 mg/ml in treatment of chalazion. IP Inter J Ocular Oncol Oculop. 2020;6(4):243-7.
14. Hoşal BM, Zilelioğlu G. Ocular complication of intralesional corticosteroid injection of a chalazion. Euro J Ophthalmol. 2003;13(9-10):798-9.

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