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Original article

Incision and Curettage Versus Two Types of Intralesional Steroid Injections for the Treatment of Previously Operated Persistent Chalazion

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ABSTRACT

***Aims**: To compare the effectiveness of two types of intralesional steroid injection [methylprednisolone acetate 40mg/ml (Depo-Medrol), and triamcinolone acetonide. 2mg (0.1ml)] versus surgical treatment (incision and curettage) in the treatment of recurrent chalazia. **Methods**. A prospective, interventional clinical study done in Benghazi in private eye clinic from January to October 2020. Sixty patients that met the inclusion criteria are randomized to receive either methylprednisolone acetate 40 mg/ml (Depo-Medrol), triamcinolone acetonide 2mg (0.1ml)] or incision and curettage by the same Ophthalmologist after giving informed consent. Were 20 cases for each procedure are divided, Patients were followed up at 0ne week, two weeks and at 6 weeks. A full examination was done, including: VA, IOP, size, location and duration of the chalazion before and after the treatment. All possible complications such as: skin changes, drug deposition in the skin, IOP changes, ecchymosis, fat hypertrophy is recorded. **Results**. In total 60 patients with recurrent chalazia were enrolled in this study included 20 patients for each group. Success rate was equal in all groups19(95%) of 20patients.Skin depigmentation were noted in 2 cases, skin deposition &ecchymosis occurred in 6 cases with intralesional steroid injection. **Conclusion**. Both intralesional injections (TA&Depo) &surgical treatment are very effectives procedures in treatment of recurrent chalazia with equal high success rates in all procedures.*

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INTRODUCTION

Chalazion is one of the comments eyelid diseases that we are facing every day in the clinic. It is defined as chronic lipogranulomatous inflammation of meibomian gland due to plugging in their orifice by retention in their secretions [1]. It's a very common disease affect all age group, it may cause local ocular symptoms such as local irritation, lacrimation, heaviness of the eyelid & redness in conjunctiva if it's a small sized [2]. Large chalazion may lead to blurring in visual acuity because its producing astigmatism by pressing the cornea or by

inducing ptosis[2]. Some times its self-limiting in about 25-50% of cases, and can be cured with treatment or partially improved within 1 to 3 months [3].

Treatment modalities for chalaizon divided into medical conservative noninvasive treatment such as lid hygiene, hot compress, antibiotic topical and systemic such as tetracycline in cases of acne rosacea, and surgical invasive treatment as excision and curettage. Intralesional steroids injections also used to treat chalaizons [4].

There are two known types of granulomatous inflammation: The mixed cell granulomas which formed by lymphocytes, neutrophils, macrophages, plasma cells, giant cells, and granulation tissue. The suppurating granulomas that having numerous neutrophils and epithelioid cell granulomas. Where the cells implicated in these lesions are steroid-sensitive, so the intralesional steroids was developed as a modality of treatment in chalazion [5]. Therefore, this study is conducted to compare the effectiveness of two types of intralesional steroid injection [methylprednisolone acetate 40 mg/ml (Depo-Medrol), and triamcinolone acetonide (TA). 2mg (0.1ml)] versus surgical treatment (incision and curettage-I&C) in the treatment of recurrent chalazia.

METHODS

Patients and settings

A prospective, interventional clinical study done in Benghazi in Oyoun clinic, a private eye clinic, from January to October 2020. About sixty patients that met the inclusion criteria are randomized to receive either methylprednisolone acetate 40 mg/ml (Depo-Medrol), triamcinolone acetonide 2mg (0.1ml)] or incision and curettage by the same ophthalmologist. All of the patients were fully informed about the experimental character of the therapy. And they signed an informed consent.

About 20 cases for each procedure were divided into three groups. 1st group received DEPO –Medrol injection, 2nd received TA injection & the 3rd was treated with I & C. Patients were followed up after treatment at one week, two weeks, and at 6 weeks. If the lesion is still not cured after all procedures, topical combined steroids and antibiotics are given with hot compressor advised. Complete resolution about 80% reduction from actual size with no recurrence was the target for definition of successful treatment.

Study procedure

The criteria for diagnosis of chalazion were; a full and careful ocular history and examination was taken, including the vision, the intraocular pressure, the size (measured by ruler), location and duration of the chalazion before and after the treatment. All possible complications such as; skin changes, drug deposition in the skin, IOP changes, ecchymosis, fat hypertrophy was recorded. All the procedures were done in minor operating room under complete aseptic condition. In the DEPO & TA groups, topical anesthesia was applied and mixing the TA or Depo with lidocaine 1% (10mg/ml) at amount of 0.5 ml, by 0.5ml. A29-gauge insulin syringing was used for intralesional injection, the needle passes transcutaneous into the chalazion (0.2 ml injected), the amount depending on the size and resistance felt on the syringe plunger, The eye was patched for 1 hr. In the I&C group, after local anesthesia of the eyelid by injecting 1 ml of lidocaine 2% using 26-gauge needle and 2 cc syringe under a septic condition, the eyelid was everted using a chalazion clamp. Through a single vertical incision all material was curetted. After careful curettage, the clamp was opened, combined corticosteroid and antibiotic ointments were applied, and the eye was bandaged for 24 hrs.

Inclusion and exclusion criteria

Inclusion criteria: age from 14 to 50 years, sex all males and females are involved, duration for more than one month, all patients with history of previous surgery and recurrence occur after while from surgery. Exclusion criteria: cases that had infected chalazion with pre -septal cellulitis for risk of surgical intervention, old age patients more than 50 years. Patients lower than 12 years of age. Glaucoma patients and hypersensitivity to local anesthetics.

Statistical analysis

Data was presented as frequencies and mean ±SD. Statistical analyses performed by using Statistical Package for the Social Sciences (SPSS version 23.0; IBM Corporation, Armonk, N.Y., USA). P-values of 0.05 or less are considered as statistically significant.

RESULTS

In total 60 patients (22male and 38 female) with recurrent chalazia were enrolled in this study. The TA group included 20 patients (8 male and 12 female), Depo group included 20 (7 male and 13 male) and the I&C group included 20 patients (7 male and 13 female). There was not any statistically significant difference between sex distributions in the three groups $p > 0.05$.

Patients were between14 and 46 years of age with a mean age of 28.05±10.2in the TA group, 29±9.7 in depo group and 29.05±7.06 in the I&C group. The difference between age distributions in the three groups was not significant($P>0.05$).

Success rate that achieved was equal in all groups 19(95%) of 20 patients as shown in (Table 1). Most of the patients received 1 injection (27 patients; 67.5%), 2 injections (13 patients; 32.5 %, Table 2).The resolution was the same between all procedures and was statistically significant in all groups(Table 3).

Location of Chalazion was unilateral in 23 cases (38%) and bilateral in 37 cases (62%). Unilateral cases were 18 in UL and 5 in LL. Bilateral cases were 12 in UL, 5 in LL and 20 in both UL & LL No complication, such as decreases VA or increased IOP with intralesional steroid injection, skin depigmentation was noted in 2 cases. Drug deposition in the skin were noted in 6 cases and ecchymosis occurred in 6 cases with intralesional steroid injection.

Table 1. Overall Success rates for all groups

Items	TA	DEPO	I&D
SUCCES	19	19	**19**
Failed (incomplete resolutions)	1	1	**1**
TOTAL	20	20	**20**

Table 2. Success rate and number of injections

Item	1 injection	2 injections	P value
Cases number	27	13	**< 0.05**

Table 3: Correlations between time & resolution:

Items	1 week	2 weeks	6 weeks
TA	8	18	**19**
DEPO	10	18	**19**
I& D	6	17	**19**
P value	> 0.05	> 0.05	**> 0.05**

DISCUSSION

In the current study, it was shown that all intralesional TA & Depo injections and I&C were effective treatment modalities for recurrent chalazia with success rates of 95%, respectively. The difference between age& gender distributions in the three groups was not significant(P>0.05).

Previous studies reported 50–95% success rates for steroid injections [6]. That was in agreement with our study which was 95%. We find that both intralesional injections and incision surgery had the same success rate in recurrent chalazia and most of the patients respond to 1 to 2 injections, were Ben Simon and colleagues' studies showed intralesional TA injection was as effective as I&C in primary chalazia [7,8]. Goawalla and Lee suggested that a single TA injection followed by eyelid massage is almost as effective as I&C in treatment of chalazia with similar patient satisfaction and less pain and patient inconvenience [9].

Other studies reported higher rates of resolution after one to three steroid injections regardless of the duration and consistency of the lesion and we did the same in the study we inject the cases twice if still there is remnant chalazia for complete resolution [10, 8, 7].

Khurana et al. reported that intralesional steroid injection in small, multiple, and marginal chalazia is equally effective as I&C while large lesions had better responses to I&C [11].

Tanweer Hassan et, al., found Intralesional triamcinolone acetonide injection is very useful in resolving chalazion of different sizes, although it is almost 100% effective when the chalazion size is smaller and of lesser duration [12, 13] in our study it was also effective for lager & recurrent chalaizon. We encountered no IOP rise or skin depigmentation after TA injection. With increasing concentration of TA, the risk of drug deposition may have increased specially for re-injected cases.

Finally, we used a ruler to measure the size of the lesion which was ranging from 7mm to 2 mm pre-operative and 3mm to zero size post-operative. Although we did it carefully and reliably, but it may be preferable to estimate the size by digital photography. Chalazion occurs more commonly in the upper lid as the meibomian glands are more numerous than the lower lid [14]. Similarly, it was found in our study that upper lid 40 cases (66.7%) were more involved than the lower lid 20 cases (33.3%), these findings were identical with previous study carried out by Bhattari [15].

CONCLUSION

We conclude from our study that TA & Depo intralesional injections with I&D are very effectives procedures in treatment of recurrent chalazia with equal high success rates in all procedures. Intra-lesional steroid can be started as primary treatment as it is safe and effective treatment in all sizes of chalazion.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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