COMPARISON OF SUBCUTANEOUS EXTRALESIONAL AND INTRALESIONAL TRIAMCINOLONE INJECTION FOR THE TREATMENT OF CHALAZION

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ABSTRACT

Objective: To compare the efficacy of injection of extralesional subcutaneous triamcinolone and intralesional triamcinolone in the treatment of primary chalazion.

Study Design: Randomized controlled trial.

Place and Duration of Study: Armed Forces Institute of Ophthalmology (AFIO) Rawalpindi, from 1st September 2011 to 31st March 2012.

Patients and Methods: Ninety two patients fulfilling the selection criteria were randomly divided into two groups of 46 patients each group A intralesional triamcinolone (IT) patients received a single extralesional subcutaneous triamcinolone injection while group B extralesional triamcinolone (ET) patients received intralesional triamcinolone injection. Main outcome measure was reduction in chalazion size to 2mm or smaller after steroid injection at 4 weeks follow up visit. The size of chalazion was measured at baseline and then at 2 weeks and 4 weeks post steroid injections. Data analysis was done by "statistical package for social sciences (SPSS) version 13.0 for windows.

Results: Both the groups were age matched with mean age of 30.46 ± 10.09 years in group A and 29.13 ± 6.04 yrs in group B. Among the subjects, there were 64 male and 28 female patients. Out of 92 patients, resolution was seen in 84.8% (39 out of 46 cases) in ET group and 82.6% (38 out of 46 cases) in IT group at 4 weeks follow up that was not statistically significant ($p = 0.45$).

Conclusion: Injection of extralesional subcutaneous triamcinolone is as effective as intralesional triamcinolone in treatment of chalazion.

Keywords: Chalazion, Extralesional injection, Intralesional injection, Triamcinolone acetonide.

INTRODUCTION

The chalazion is a chronic, lip-ogranulomatous inflammatory lesion of meibomian or Zeiss gland, containing various inflammatory cells including neutrophils, eosinophils, lymphocytes, epitheloid and giant cells[1-2]. Chalazia may be recurrent or multiple in patients with acne rosacea and seborrheic dermatitis[3]. According to a study about 25% or more chalazia resolve spontaneously but the rest are unlikely to disappear without treatment[3,4].

Treatment options for chalazia include conservative management, incision and curettage (I & C), transconjunctival intralesional or subcutaneous extralesional steroid injection[1]. I & C necessitates postoperative patching and may result in minor bleeding, postoperative infection, incomplete removal, lid scarring and recurrence.

Intralesional or extralesional steroid injection is a cost effective, quick, convenient and free from major complications. The use of intralesional triamcinolone therapy in chalazia is not new. Even though it is a quick and effective method, it can be technically difficult. It may cause significant pain, hence requiring topical anaesthesia. Subcutaneous injection into looser extralesional tissue causes less pain[1]. It is an easier and safer procedure as does not require penetration of tarsal plate or cyst wall. Side effects are uncommon and include yellow deposits at site of injection, depigmentation of eyelid, accidental globe perforation, microembolization causing retinal and choroidal vascular occlusion and pyogenic granuloma.

The chalazion is a common condition in our setup, mostly being treated with either surgical technique or intralesional steroid injection. The aim of this study was to evaluate and compare the efficacy and safety of

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Received: 26 Jan 2014; revised received: 12 Mar 2014; accepted: 28 Mar 2014

extralesional subcutaneous triamcinolone and intralesional triamcinolone injection procedure for treatment of chalazia.

PATIENTS AND METHODS

This randomized controlled trial was carried out at Armed Forces Institute of Ophthalmology, Rawalpindi, from 1st Sep 2011 to 31st March 2012. Administrative permission from hospital ethical committee was taken. Inclusion criteria were diagnosed cases of primary chalazion (≥ 3mm in size) in adult patients between 20-60 yrs of age with no previous history of lid surgery or trauma. Recurrent or multiple chalazia, acutely inflamed lesions and patients with contraindications /previous known ocular side effects of steroids were excluded. A total of 92 patients fulfilling the inclusion and exclusion criteria, were included in study after informed written consent. A detailed history was taken from patients including medical history and presence of predisposing conditions. A thorough ocular examination including visual acuity, slit lamp biomicroscopy, intraocular pressure measurement, dilated fundoscopy was performed. The size of the chalazion was measured to the nearest millimeter from the skin surface, across its widest dimension by the same surgeon. These patients were randomly divided into two groups of 46 patients each based on table of random numbers.

Group A; Patients received extralesional subcutaneous triamcinolone injection.

Group B; Patients received intralesional triamcinolone injection.

Patients in group A received a 0.3 ml of triamcinolone acetonide suspension (Lonacort by Zafa, 10 mg/ml) within subcutaneous tissue over the chalazion via the percutaneous route using a 1ml tuberculin syringe with a 25-gauge needle. For group B patients proparacaine drops were used to achieve topical anaesthesia. 0.1-0.2 ml of triamcinolone acetonide injection (10 mg/ml) (depending upon the size of chalazion) was injected transconjuctivally into the chalazion by using insulin syringe with 27 gauge needle. A gauze pad was applied for 5 minutes. Chloramphenicol eye ointment at bed time and chloramphenicol drops thrice daily was advised for two weeks. The patient was re-examined after 2 weeks and if chalazion persisted, the triamcinolone injection was repeated. Second follow up visit was performed 1 month postoperatively. Efficacy (resolution)

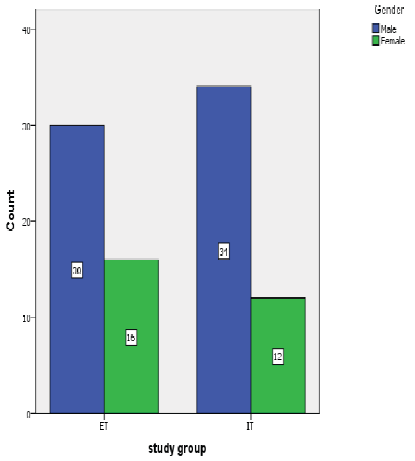

Fig-1: Gender distribution.

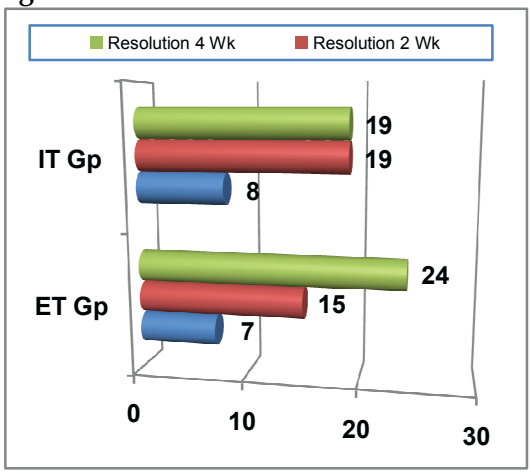

Figure-2: Efficacy of treatment at various time intervals.

Table-: Efficacy (Resolution of chalazion) at 4 Weeks.

Efficacy (Resolution)	Study group- n (%)		*p*-value
	ET (n=46)	IT (n=46)	
Yes	39 (84.8%)	38 (82.6%)	0.45 (Not Significant)
No	7 (15.2%)	8 (17.39%)	

of treatment was considered as reduction in chalazion size to 2mm or smaller after steroid injection at 4 weeks follow up visit. All the relevant details were documented on a pre devised proforma.

Data analysis was done by "statistical package for social sciences'' (SPSS) version 13.0 for windows. Frequency and percentages were calculated for qualitative variables like gender, efficacy (resolution) and complications. Mean and standard deviation (SD) were calculated for quantitative variables like age, pre operation size, and resolution time. Chi square test was used as test of statistical significance to determine the difference in efficacy in two groups and a *p*-value <0.05 was considered significant.

RESULTS

Out of 92 patients who were recruited in the study, 89 completed the follow-up protocol, the remaining 3 patients who did not come for 2nd follow-up visit, were contacted on the phone and asked about the resolution of their chalazia.

Mean age was 30.46 ± 10.09 yrs in ET group and 29.13 ± 6.049 yrs in IT group with most of the patients in their 3rd decade of life(p = 0.44). Among the subjects, 64 were male and 28 were female patients (*p*=0.36) with male population being significantly higher in each group (Fig 1).

The mean initial size of chalazion was 7.24 ± 1.77 mm in ET group and 6.57 ± 1.62 mm in IT group (*p*=0.058). At 2 wks follow-up visit, resolution was seen in 15 out of 46 cases (32.6%) in ET group and in 19 out of 46 cases (41.3%) in IT group. At 4 wks post procedure visit, success rate improved to 84.8% (39 out of 46 cases) in ET group and 82.6% (38 out of 46 cases) in IT group (Fig 2). Efficacy of treatment at 4 weeks follow up visit (84.8% in ET group vs 82.6% in IT group) indicate comparable efficacy of the two treatment options (*p* = 0.45) (Table).

No major side effects of treatment were observed in either group except four patients who developed local skin hypo pigmentation. In this study, no significant change in IOP was encountered after extralesional or intralesional triamcinolone injection. The mean baseline IOP (in mmHg) was 12.70 ± 2.159 in ET group and 12.96 ± 1.619 in IT group (*p*=>0.05). The mean IOP(in mmHg) at 4 weeks after treatment was 12.65 ± 1.119 in ET group and 12.91 ± 1.96 in IT group.

DISCUSSION

According to several reports in literature, the success rate of conservative treatment is 46-58%[1,7] surgical treatment 60- 89%[7-9] extralesional triamcinolone injection 89-93.8%[1] and intralesional triamcinolone injection 72- 88%[6-9].

Many researchers contributed to the field of establishing corticosteroids as an effective therapy for chalazia. According to the study results of Kaimbo and Nkidiaca, the intralesional steroid use in chalazia of 25 patients had a success rate of 72%, which is slightly lower than our study results[6]. Reported success rate of intralesional steroids by Ben Simon et al was 81%[10] which is almost comparable to our study (82%). Another study conducted by Ahmed et al also revealed a similar success rate of 80% with intralesional steroid[8]. Other researchers such as Pavicić-Astalos et al and Biuk D et al also documented the efficacy of intralesional steroid injection in patients with primary or recurrent chalazion[2,11].

Extralesional subcutaneous triamcinolone is a safe and effective alternative to intralesional steroid. This fact was highlighted by the study carried out by SY Ho et al which showed a success rate of 89.6% with subcutaneous steroid injection[4]. Efficacy of subcutaneous steroid was further confirmed by Chung CF et al. whose study showed that with extralesional steroid, success rate was 93.8%[1] which is higher than the success rate achieved in our study i.e; 85%.

Several uncommon side-effects of local corticosteroid injection have been reported e.g. yellow deposits at the site of injection, depigmentation of the eyelid, microembolisation causing retinal and choroidal vascular occlusion[11] and appearance of granuloma[1]. In our study 4 patients had local skin hypopigmentation whereas no other side effects were seen. Studies have shown inhalational and nasal corticosteroids are associated with increase in IOP[13]. In our study,

no change in IOP was encountered before and after extralesional or intralesional triamcinolone injection, which is consistent with prior studies. Biopsy was not performed in any of the patients as all the chalazia were non recurrent.

CONCLUSION

Extralesional subcutaneous triamcinolone is an effective and safe alternative to intralesional triamcinolone injection in the management of non-infected chalazia.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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