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Evaluation of Prognosis of Chalazion with Triamcinolone Acetonide Injection Compared With Incision and Curettage- A Randomised Controlled Trial

Rana Kanika[1], Jain Ritu[1]*, Ansari Tahir Husain[1]

[1]Department of Ophthalmology, Rohilkhand Medical College, Bareilly, UP, India

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***Corresponding Author**
Jain Ritu

Department of Ophthalmology, Rohilkhand Medical College, Bareilly, UP, India

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A B S T R A C T

Purpose*:** To compare the effectiveness of intralesional triamcinolone acetonide and incision & curettage in the treatment of chalazion. ***Patients and methods*:** A comparative and randomized study performed on patients with chalazion .Depending on the size of chalazion, patients were distributed in two groups, patient with small sized chalazion (1-4mm) and medium sized chalazion (5-7mm), and based on treatment modality these groups were further subdivided into two groups of 30 patients each with one receiving injection triamcinolone acetonide and other undergoing incision and curettage.Results*:** 96.70% of patients in Triamcinolone acetonide and Incision and curettage who had size of lesion between 2-4 mm showed complete resolution. This association was not significant. 73.30% of the patients who had size of lesion 5-7 and were given Triamcinolone acetonide showed complete resolution as compared to 93.30% of the patients who underwent Incision and curettage. This association was statistically significant (p=0.038). ***Conclusion*:** Triamcinolone acetonide injection proves effective in treating chalazion. This simple and cost-effective procedure can be viewed as an alternative primary treatment option. This method of Triamcinolone acetonide injection, offers a strategy with minimal discomfort and recovery time, hence making the patient more compliant.

Keywords: chalazion, meibomian gland, triamcinolone acetonide, incision and curettage

INTRODUCTION

A Chalazion in simpler terms is a chronic, non-infective, lipogranulomatous inflammation of the meibomian gland. When the viscosity of the secreted lipids and proteins, referred to as meibum, elevates due to factors such as aging, hormonal imbalances, or environmental influences, it leads to the accumulation of meibum within the ducts of the gland. Due to this the meibomian glands get plugged and leads to formation of a swelling. When this swelling becomes persistent in nature, it is termed as Chalazion [1, 2].

The widely accepted techniques are incision & curettage and intralesional steroid treatment, with incision and curettage being the conventional where material is completely drained following the breakage of internal septa and scraping of cavity with a curette. The lesion regresses completely in most cases. Incision & curettage is performed under local anesthesia and regarded as the most effective treatment [3]. Triamcinolone Acetonide is the most frequently used corticosteroid for intralesional injections. Along with this anti- inflammatory role, corticosteroids also show antiproliferative and vasoconstrictive actions [4].

Chalazion being one of the most common lesions of the eyelid, with standard treatment being invasive, the present study aim is to describe the role of less invasive modality of chalazion treatment and compare the outcomes of both the modalities.

Patients and Methods

The diagnosis of chalazion was done on based on history and clinical evaluation under slit- lamp biomicroscopy on the patients showing the preindicative symptoms. These symptoms were inflammation, irritation and cosmetic disfigurement, though the lesionsitself were painless, located on the surface of eyelid. We used caliper to measure the

lesion size. And the lesions measuring between 1mm-7mm were included in the study. Exclusion criteria included patients with recurrent chalazion, allergy to lignocaine and triamcinolone acetonide, infected chalazion, multiple chalazion. Depending on the size of chalazion, patients were distributed in two groups, patient with small sized chalazion (1-4mm) and medium sized chalazion (5-7mm), now based on treatment modality these groups were further subdivided into two groups of 30 patients each with one receiving injection triamcinolone acetonide and other undergoing incision and curettage. All the patients were explained the purpose and benefits of the study and assured that the study was done for purely research and publication, along with a written consent. Complete systemic and ophthalmic examination and complete history of all patients was done duly.

Triamcinolone Acetonide injection:

With aseptic precautionary measures, 5% betadine solution was painted on lid and draped, and topical anesthesia eye drops instilled. Chalazion clamp was placed around the lump, everting the full thickness of lid. With 26-gauge needle, 0.1ml Triamcinolone acetonide (4mg/ml) was injected intralesionally. Later, after removing the clamp, antibiotic eye ointment was instilled. Topical coverage was given for 3 days which was later discontinued. Patients were reviewed after 1 week and 2 week.

Incision and Curettage

Under aseptic precautionary measures, topical betadine solution 5% was used for painting and draping of the eyelid. 2 to 3ml of lidocaine 2% was used as local anesthetic for the procedure. The lesion was fixed with chalazion clamp with fenestrated blade on conjunctival surface and the solid blade on the skin surface. The contents were scooped out with chalazion scoop after vertical incision on the lesion. Later, after removing the clamp, pressure was applied over the lid until to control the bleeding. Cotton tipped applicators was used to wipe the wound free of clots and an antibiotic ointment was instilled and eye was patched, which was removed after 2 hours. Topical coverage of antibiotics was prescribed for a week with a follow-up after 2 weeks. If there was no visible or palpable mass found over the eyelid then it was considered as the resolution of chalazion following the treatment. Patients underwent follow-up evaluations at 1 week and 2 weeks.

RESULTS

Table 1: Distribution of study population according to gender

	Triamcinolone acetonide		**Incision and curettage**		**Total**		**chi square**	**p-value**
	N	**%**	**N**	**%**	**N**	**%**		
Male	30	50.00%	26	43.30%	56	46.70%	0.536	0.464
Female	30	50.00%	34	56.70%	64	53.30%		
total	60	100.00%	60	100.00%	120	100.00%		

Study consisted of 56 (46.70%) males and 64 (53.30%) females. Both the groups were analogous with respect to gender (p=0.464).

Table 1.1: Association of outcome with gender

	Partial resolution		**Complete resolution**		**Total**		**chi square**	**p-value**
	n	**%**	**N**	**%**	**N**	**%**		
Female	5	41.7%	51	47.2%	56	46.7%	0.134	.714
Male	7	58.3%	57	52.8%	64	53.3%		
total	12	100.0%	108	100.0%	120	100.0%		

Both the groups were comparable with respect to gender, signifying that gender was not associated with the outcome.

Table 2: Distribution of study population according to age group

Age group	**Triamcinolone acetonide**		**Incision and curettage**		**Total**		**chi square**	**p-value**
	N	**%**	**N**	**%**	**N**	**%**		
<20 years	2	3.3%	4	6.7%	6	5.0%	**3.4**	**0.63**
21-30 years	3	5.0%	3	5.0%	6	5.0%		
31-40 years	31	51.7%	29	48.3%	60	50.0%		
41-50 years	15	25.0%	20	33.3%	35	29.2%		
51-60 years	6	10.0%	3	5.0%	9	7.5%		
>60	3	5.0%	1	1.7%	4	3.3%		
total	60	100.0%	60	100.0%	120	100.0%		

Majority patients were 31-40 years (50%) of age followed by 41- 50 years (29.2%). patients were equally distributed in both the groups and they were comparable with respect to age groups (p=.121).

Table 2.1: Association of outcome with age

age group	Partial resolution		Complete resolution		Total		chi square	p-value
	N	%	N	%	n	%		
<20 years	0	0.0%	6	5.6%	6	5.0%	1.68	.89
21-30 years	1	8.3%	5	4.6%	6	5.0%		
31-40 years	7	58.3%	53	49.1%	60	50.0%		
41-50 years	3	25.0%	32	29.6%	35	29.2%		
51-60 years	1	8.3%	8	7.4%	9	7.5%		
>60 years	0	0.0%	4	3.7%	4	3.3%		
total	12	100.0%	108	100.0%	120	100.0%		

Both the groups were comparable with respect to age, signifying that age was not associated with the outcome.

Table 3: Distribution of study population according to location of chalazion

Location	Triamcinolone acetonide		Incision and curettage		Total		chi square	p-value
	n	%	N	%	N	%		
RUL	20	33.3%	14	23.3%	34	28.3%	3.5	.309
RLL	9	15.0%	17	28.3%	26	21.7%		
LUL	18	30.0%	17	28.3%	35	29.2%		
LLL	13	21.7%	12	20.0%	25	20.8%		
Total	60	100.00%	60	100.00%	120	100.00%		

Majority of chalazion were seen on left upper lid (LUL) (29.20%) followed by right upper lid (RUL) (28.30%) followed by right lower (RLL) and lower lid (LLL) with 21.7% and 20.8% respectively. Patients were equally distributed in both the groups and they were comparable with respect to location of chalazion (p=.0309).

Table 4: Distribution of study population according to outcome

	Triamcinolone acetonide		Incision and curettage		Total		chi square	p-value
	n	%	n	%	n	%		
Partial resolution	9	15.00%	3	5%	12	10%	3.3	0.06
Complete resolution	51	85.00%	57	95%	108	90%		
Total	60	100.00%	60	100.00%	120	100.00%		

We observed that 85% of the patients who were given Triamcinolone acetonideinjections showed complete resolution of the symptoms in comparison to 95% of the patients who underwent incision and curettage. This association was however statistically not significant.

Table 5: Distribution of study population outcome according to size of chalazion

Size	Groups	Partial resolution		Complete resolution		Chi square	P-value
		N	%	N	%		
2-4mm	**Triamcinolone acetonide**	1	3.30%	29	96.70%	**0**	**1**
	Incision and curettage	1	3.30%	29	96.70%		
	Total	2	3.30%	58	96.70%		
5-7mm	**Triamcinolone acetonide**	8	26.70%	22	73.30%	4.320	.038
	Incision and curettage	2	6.70%	28	93.30%		
	Total	10	16.70%	50	83.30%		

96.70% of patients in Triamcinolone acetonide and incision and curettage who had size of lesion between 2-4 mm showed complete resolution. This association was not significant.

73.30% of the patients who had size of lesion 5-7 mm and were given Triamcinolone acetonide showed complete resolution as compared to 93.30% of the patients who underwent incision and curettage. This association was statistically significant (p=0.038)

Table 6: Comparison of grouped data variables of the study

	Triamcinolone acetonide		Incision and curettage		t-value	p-value
	Mean	Std. Deviation	Mean	Std. Deviation		
Age	39.37	10.666	37.22	9.217	1.18	0.240
Pre-size	4.37	1.43	4.25	1.40	0.464	0.643
Time	3.06	0.92	4.79	1.27	-8.57	<0.001
Size immediately after treatment (post-op)	1.79	1.05	1.56	0.89	1.31	0.19
Size after 1 week (FFU)	0.73	0.78	0.61	0.67	0.89	0.37
Size after second week (SFU)	0.67	1.18	0.36	0.60	1.79	0.08
Improvement in size post operatively	2.58	1.42	2.69	1.50	-0.43	0.67
Improvement after 1 week	3.65	1.41	3.64	1.36	0.01	0.99
Improvement after 2 weeks	3.70	1.48	3.89	1.53	-0.68	0.50

We observed that no significant difference was observed in age, size of the lesion between the two group pre operatively, postoperatively, after 1 and 2 weeks. The improvement was comparable for both the groups after two weeks and no significant difference was observed among the two groups.

The improvement seen for triamcinolone acetonide after 2 weeks in size was 3.70±1.48mm while for Incision and curettage it was 3.89±1.53mm. The duration of the procedure was shorter for Triamcinolone acetonide groups than for the incision and curettage patients.

DISCUSSION

Majority patients were 31-40 years (50%) of age followed by 41- 50 years (29.2%). Patients were equally distributed in both the groups and they were comparable with respect to age groups (p=.121). The patients mean age was 38.29±9.98 years. In triamcinolone acetonide group the mean age was 39.37±10.66 years. While in Incision and curettage group it was 37.22±9.21 years patients were equally distributed in both the groups and they were comparable with respect mean age(p=0.240). The results of the current study were similar to the study conducted by Lee *et al*., (2014) [5] who conducted a study on 17 children and 24 adults. The mean age of the adult population in the study was 39.3 ± 16.7 years. Tahir*et al*., [6] in 2015 conducted a study on 142 patients of chalazion and found the mean age to be 32.29 years + 8.4 years. This was comparable to the present study.

Majority of chalazion were seen on LUL (29.20%) followed by RUL (28.30%) followed by RLL and LLL with 21.7% and 20.8% respectively. Patients were equally distributed in both the groups and they were comparable with respect to location of chalazion (p=.0309). The study by Rangu and Rangu [7] conducted in year 2017 suggested that upper lid was more involved than lower lid. Jain *et al*., in their study showed that left upper lid was majorly involved.

We observed that 85% of the patients who were given Triamcinolone acetonideinjections showed full resolution of the symptoms in comparison to 90% of the patients who underwent Incision and curettage. This association was however statistically not significant. Similar results were found in a study done by Jacobs P *et al*., [8] which showed a much higher cure rate by incision and curettage which had a statistical significance value (p=0.0047). A collective data compilation meta-analysis done by Aycinena A *et al*., [9] of the various studies on comparison of Chalazion surgical modalities stated that incision and curettage have a greater success rate than intralesional steroid injection.

On the basis of the size it was found that 96.70% of Triamcinolone acetonide and incision and curettage group who had size of lesion between 2-4 mm showed complete resolution. 73.30% of the patients who had size of lesion 5-7 mm and were given Triamcinolone acetonide showed complete resolution as compared to 93.30% of the patients who underwent Incision and curettage. This association was statistically significant (p=0.038). Our findings were found to be in line with the study done by Khurana*et al*., They came to the conclusion that larger lesions, longer-lasting lesions in older patients all responded better to incision and curettage. Histologic study of the lesion and the outcome of treatment following intralesionalTriamcinolone acetonide injection or incision and curettage were found to be correlated by Dhaliwal and Bhatia [10] that patients with suppurating granulomas histologic typeresponded better to incision and curettage. Mixed-cell granulomas in their study responded equally to both treatment modalities. Tahir*et al*., [6] they came to the conclusion that triamcinolone acetonideintralesional injection is very efficient in treating chalazion ranging in size from 2 mm to 11 mm, with high effectiveness rates in sizes less than 6 mm.

In present study the duration of lesion was not taken in to account which was the limitation of the study. The higher percentage of success in present study in Triamcinolone acetonide group could be due to the fact that we considered only small and medium sized lesion and large lesions were excluded from the study. Thus, the success rate for triamcinolone acetonide was more in our study then previous studies.

CONCLUSION

Triamcinolone acetonide injection proves effective in treating both primary and small chalazia. Triamcinolone acetonide injections might offer greater benefits for marginal chalazion or those positioned near to the lacrimal puncta, as they can help prevent excessive scarring, thus reducing potential cosmetic or functional issues. This method of Triamcinolone acetonide injection, offers a strategy with minimal discomfort and recovery time, hence making the patient more compliant. While Triamcinolone acetonide injection represents a straightforward and efficient treatment, it's crucial for clinicians to identify situations where this procedure should be avoided.

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