

# Effectiveness of Intralesional Triamcinolone Acetonide in the treatment of Chalazion

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*Pak J Ophthalmol 2015, Vol. 31 No. 1*

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**Purpose:** To determine the effectiveness of intralesional injection of Triamcinolone acetonide in the treatment of chalazion.

**Material and Methods:** All 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 with size of between 2 mm to 11 mm. Under strict aseptic technique 0.1 to 0.2 ml of triamcinolone acetonide (40 mg/ml) was injected intralesionally by an expert ophthalmologist. 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 pre-operative size of chalazion among all patients was  $5.1 \pm 2.1$  mm. At 2 weeks follow up, the successful results (reduction in at least 2 mm size of chalazion from pre-operative size) of intralesional triamcinolone injection were achieved in 92% of patients with 95% in females and 96% in males.

**Conclusion:** Intralesional injection of Triamcinolone acetonide is highly effective in the treatment of chalazion with size between 2 mm to 11 mm with high effectiveness rates in sizes less than 6 mm.

**Key Words:** Chalazion Intralesional Triamcinolone Meibomian gland.

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.<sup>1</sup>

Chalazia are the most common inflammatory lesions of the eyelid. A chalazion is a slowly enlarging nodule on the eyelid that is formed by inflammation and obstruction of meibomian glands. Chalazia can further be categorized into superficial or deep, depending on which glands are blocked.<sup>2</sup>

Different treatment options for chalazion include conservative management such as hot compresses and topical antibiotics, incision and curettage and intralesional steroid injection.<sup>3</sup> Chalazia can reoccur, and those that do should be evaluated for malignancy.<sup>2,3</sup>

Incision and curettage is one of the most

commonly performed effective surgical procedure for chalazion.<sup>4</sup>

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<sup>5</sup>. Intralesional triamcinolone acetonoid have also been tried as a treatment of chalazion<sup>6</sup> and it had showed a success rate of 62%<sup>7</sup>, 89.6%<sup>8</sup> and 76%.<sup>9</sup> Intralesional triamcinolone acetonoid injection is an effective and safe alternative procedure to surgical incision and curettage for the treatment of chalazion.<sup>7</sup>

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.<sup>10-12</sup>

## MATERIAL AND METHODS

This study was conducted at department of

Ophthalmology, Eye “B” Unit Khyber Teaching Hospital Peshawar from 1<sup>st</sup> Dec, 2010 to 31<sup>st</sup> May, 2011. Sample size was 142, which was calculated on the basis of following assumptions using WHO sample size calculator: 62% effectiveness of Triamcinolone acetonide,<sup>7</sup> 95% Confidence interval and 8% margin of error.

All patients presented with chalazion with size between 2 mm to 11 mm diagnosed on the basis of history and clinical examination under slit lamp biomicroscopy of any age group from both genders were included in the study through OPD. Patients with infected chalazion, multiple chalazion, very large chalazion > 11 mm and those with a history of prior treatment to chalazion whether surgical or conservative were excluded from the study.

Chalazion was diagnosed on the basis of presence of painless and non tender nodule in the eye lid with size of between 2 mm to 11 mm measured with caliper.

The purpose and benefits of the study were explained to all patients, the patients were assured that the study is done purely for research and publication and a written informed consent was obtained from all patients who were included in the study.

All patients were worked up with complete history and complete systemic and ophthalmologic examination. Under strict aseptic technique 0.1 to 0.2 ml of triamcinolone acetonide (40 mg/ml) was injected intralesionally by an expert ophthalmologist. The patient was kept under observation in the OPD for 30 minutes and was advised to go home. Follow up visit was done at two week to determine effectiveness in terms of reduction in size of the chalazion by at least 2 mm. Strictly exclusion criteria were followed to control confounders and bias in the study results.

Data was analyzed in SPSS version 10 for windows. Mean and SD was calculated for quantitative variable like age and pre and post injection size of chalazion. Frequency and percentages were calculated for categorical variables like sex and effectiveness. Effectiveness was stratified among age, sex and pre injection size of chalazion to see the effect modification.

**RESULTS**

In this study, 142 patients with Chalazion had been included, in which 88 (61.97%) were male and

54 (38.03%) were female patients. Male to female ratio was 1.62:1.

Patients age was divided in four categories, out of which most presented in young age i.e. less than or equal to 30 years which were 77 (54.2%) while 50 (35.2%) patients were in the age range of 31 - 40 years, 4 (2.8%) were of age range 41-50 years and 11 (7.7%) presented at age more than 50 years. The study included age ranged from 22 up to 59 years. Average age was 32.29 years + 8.4 SD Table 1.

**Table 1:** Age wise distribution of the patients.

Age in Years	No. of Patients n (%)	Cumulative Percent
<= 30	77 (54.2)	54.2
31 - 40	50 (35.2)	89.4
41 - 50	4 (2.8)	92.3
51+	11 (7.7)	100.0
Total	142 (100)	

Over all efficacy of the intralesional injection of triamcinolone acetonide in the treatment of chalazion was 91.5%.

Age wise distribution of efficacy results shows that majority of the efficacy 72 (55.4%) were found in less than or equal to 30 years of age, 43 (33.1%) patients have age groups of 31 - 40 years, 4 (3.1%) have age range of 41 - 50 years and 11 (8.5%) cases have age range of more than 50 years of age Table 2.

**Table 2:** Age wise distribution of efficacy.

Age (in years)	Efficacy		Total n (%)
	Yes n (%)	No n (%)	
<= 30	72 (55.4)	5 (41.7)	77 (54.2)
31 - 40	43 (33.1)	7 (58.3)	50 (35.2)
41 - 50	4 (3.1)	0 (.0)	4 (2.8)
50 +	11 (8.5)	0 (.0)	11 (7.7)
Total	130 (100)	12 (100)	142 (100)

Average pre-injection size of chalazion was 5.1mm + 2.1 SD with a range of 2 - 11 mm. Efficacy wise distribution shows that 100% efficacy was seen in the range of 2 - 6 mm. In chalazion 6.01 - 9 mm in size injection of triamcinolone was effective in 26 (74.32%) patients, while in chalazion above 9 mm it was effective in 13 (81.2%) patients. 74.32% (26 patients) efficacy was observed in 6.01-9 mm while 81.2% (13 patients) efficacy was observed in above 9 mm size of chalazion Table 3.

**Table 3:** Pre-injection size of chalazion wise distribution of efficacy.

Pre-injection size of chalazion	Efficacy		Total n (%)
	Yes n (%)	No n (%)	
2 - 6.00	91 (100)	0 (.0)	91 (100)
6.01 - 9.00	26 (74.3)	9 (25.7)	35 (100)
9.01+	13 (81.2)	3 (18.8)	16 (100)
Total	130 (91.5)	12 (8.5)	142 (100)

**Table 4.** Pre-injection size of chalazion wise distribution of gender

Pre-Injection size of Chalazion	Gender		Total n (%)
	Female n (%)	Male n (%)	
2- 6.00	42 (77.8)	49 (55.7)	91 (64.1)
6.01-9.00	8 (14.8)	27 (30.7)	35 (24.6)
9.01+	4 (7.4)	12 (13.6)	16 (11.3)
Total	54 (100)	88 (100)	142 (100)

The majority of females i.e. 77.8% presented with chalazion between size 2 mm - 6 mm, who presented with size above 6 mm up to 9 mm were only 14.8% and the left over were only 7.4% of females; Who presented with chalazion with a pretreatment size of above 9 mm Table 4.

## DISCUSSION

Localized swelling of the eyelid is one of the common conditions with which patients presents to

ophthalmology department<sup>3</sup>. Chalazion is the most common lesion responsible for focal swelling of the eyelid. It is a slowly enlarging nodule which occur as a result of meibomian gland inflammation and obstruction.<sup>13</sup>

The treatment of chalazia consists of frequent daily use of warm compresses, eyelid hygiene, and topical anti-inflammatory medications in the acute inflammatory phase.<sup>14</sup> Antibiotic therapy may be necessary in case of a secondary bacterial infection.<sup>15</sup> 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.<sup>16, 17</sup>

Intralesional steroid injection for the treatment of chalazion was described first by Leinfelder 1964,<sup>10</sup> since then many studies proclaimed the efficacy of intralesional corticosteroid injection.

Our study was designed to determine the effectiveness of intralesional triamcinolone in the treatment of chalazion with a range in size between 2 mm to 11 mm. The successful treatment was set at the reduction in size of chalazion of at least 2 mm from baseline pre treatment size of the chalazion.

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 92% of patients with failure in only 8% of patients who were later referred for incision and curettage under local anesthesia.

This was not surprising since the association of chalazion with cosmetic disfigurement among females was an issue they wanted to address quickly. Among males, 55% of them presented with chalazion between size 2 mm - 6 mm, 29% presented with size above 6mm and up to 9 mm and only 21% of males presented with size above 9 mm up to 11 mm.

Although the overall effectiveness of the intralesional triamcinolone injection was 92% in our study, but it was observed that the results are even better and conclusive in the patients who presented with size between 2mm-6mm with the success rate of

100%. Among patients who presented with size above 6mm to 9mm the success rate was 97% and even lower among patients who presented with size above 9mm up to 11mm with success rate of 90%.

A study conducted to determine effectiveness of chalazion (A reduction in size of chalazion of at least 2mm from baseline pre operative size was considered effective.) among children by Thabit et al showed that the mean age group in his study was 9.5 years with 50% males and 50% females, the results showed that 75%<sup>18</sup> of chalazia resolved after 2 weeks of injection of triamcinolone acetonide. In his study, although the overall efficacy was somehow different from our study, but he concluded since chalazia are quite common in younger age groups and so as the efficacy of the triamcinolone injection. He also concluded that the efficacy didn't vary between genders although younger females present at early stages. The results of our study were not much different from his study, in his study the efficacy of intralesional triamcinolone among females was 88%<sup>18</sup> with 90%<sup>18</sup> males showing successful results after 2 weeks, same was found in our study that the efficacy of intralesional triamcinolone acetonide among females was 95% with 96% among male gender.

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 31 + 7.8 years and almost similar age group was observed in a study conducted by Dhaliwaal MS reporting a mean age group of patients presenting with chalazion was 35.1 years<sup>19</sup>.

Chalazion can also vary in size, but the time of presentation depends upon how the patient cares about it and especially the pain associated with it if it is secondarily infected.<sup>15</sup> In our study, most of the patients presented with a range in size between 2 mm to 6mm with 77% females and 55% males. In a study conducted by Jakko Palwa, he also reported that 45% of overall patients presented with size less than 6 mm.<sup>20</sup>

The results are much closer to what was done in previous studies. Ammyanah et al reported the success rate of intralesional triamcinolone acetonide injection to be 84%<sup>21</sup> however the only difference in his and our study was that he followed the patients for 3 weeks but in our study the maximum follow up to determine the effectiveness was set at 2 weeks. Similarly the study reported by Gil A et al concluded that the effectiveness of intralesional triamcinolone is

even more successful if combined with incision and curettage and he reported it to be 96%,<sup>22</sup> although much closer to the effectiveness of our study but it can lead to opening of further research work to be done over combined treatment approach.

However the results of our study are little different from one study conducted by Watsan P concluding that the success of the injection of triamcinolone is only achieved in 77%<sup>23</sup> of cases as compared to 92% in our study.

The results of a study conducted by Colonel JORMA CASTRÉN were also in close approximation to our study, in his study he reported a success rate of intralesional triamcinolone acetonide to be 88%<sup>24</sup> even much closer to 92% achieved in our study.

However, the literature about efficacy is so vast that the variable results have been coated by different authors. In a study conducted by Pizzarello LD concluded his study with the success rate of only 65%<sup>25</sup> and Lung Hang reported it to be 60%<sup>26</sup> while Watson AP showed effectiveness of 77%<sup>27</sup> and Dr Hetal K reported success rate of intralesional triamcinolone acetonide of 70%<sup>28</sup> much lower to what was achieved in our study of 92%.

Kim YW in his study reported slightly better success rate of intralesional triamcinolone for chalazion and concluded his study at 80%<sup>29</sup> of success with one injection at 2.5 weeks follow up getting closer to results of our study and even a higher success rate was reported by somdutt Prasad of 94.1%<sup>30</sup>. Chung CF, concluded in his study that the success rate of intralesional triamcinolone was 93.8% with mean prior duration of chalazion before treatment was significantly shorter in success cases than in failed cases.<sup>31</sup> The success rate is quite closer to our study but the only difference was that in our study we didn't take data regarding the pre treatment duration of Chalazion.

## 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 the

conclusion 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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