

# A comparative study of once intraoperative versus intraoperative plus two post-operative injections of triamcinolone in wedge excision of keloid

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## Abstract

**Introduction:** It is well known that keloids are “Confused scars that do not know when to stop growing”. The basic pathology is an imbalance between anabolic (proliferation) and catabolic (apoptotic) phases of the healing process. The various treatment modalities so far described in managing keloids are surgical excision, intraregional steroidal injections, compression therapy with silicon sheets, cryotherapy, laser,  $\alpha$ -2b interferon and chemotherapeutic agents like 5 fluorouracil. Surgical excision totally eliminates the lesion but the main disadvantage is  $\geq 50\%$  recurrence if used alone.

**Aims and Objective:** To study the effectiveness of Intraoperative Plus Two Post-Operative Injections of Triamcinolone versus Once Intraoperative Triamcinolone in Wedge Excision of Keloid. This was a randomized controlled trial was conducted at the Department of Plastic Surgery at tertiary care health Centre. All the patients diagnosed and want operations or treatment during the complete year 2014 was included into the study those who does not give consent were excluded from the study. There were 70 patients in this study. The study protocol was approved by the institutional ethics committee. Patients fulfilling the inclusion criteria were picked up using consecutive sampling. Patients were randomly allocated into two groups by using computer-generated random number table; Group A having patients who were given single per-operative injection of triamcinolone, and Group B. **Result:** Most common site affected was Ear pinna followed by Chest, Wrist, Back, Buttock, and Face. Mean size of Keloid Preoperatively was  $2.54 \pm 0.516$  and  $2.61 \pm 0.569$  respectively in Group A and Group B but the observed difference was not statistically significant ( $t=0.539, df=68, p>0.05$ ). But the Recurrence was 10 (28.57%) in Group A was significantly higher than that of the Group B i.e. 3 (8.57%) ( $z=2.15, p<0.03$ ). Mean size of Keloid Post-operatively was  $2.64 \pm 0.495$  significantly higher in Group A as compared to Group B i.e.  $1.23 \pm 0.521$  ( $t=11.60, df=68, p<0.001$ ). **Conclusion:** It is better to use Two Post-Operative Injections of Triamcinolone in Wedge Excision of Keloid than single use of injection Triamcinolone alone to prevent the not only the recurrence but the size of keloid those in who it was recurred.

**Keywords:** Keloid, Triamcinolone, Wedge Excision.

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## INTRODUCTION

It is well known that keloids are “Confused scars that do not know when to stop growing”. The basic pathology is

an imbalance between anabolic (proliferation) and catabolic (apoptotic) phases of the healing process.<sup>1</sup> The various treatment modalities so far described in managing keloids are<sup>2,3</sup> surgical excision, intraregional steroidal injections, compression therapy with silicon sheets, cryotherapy, laser,  $\alpha$ -2b interferon and chemotherapeutic agents like 5 fluorouracil. Surgical excision totally eliminates the lesion but the main disadvantage is  $\geq 50\%$  recurrence<sup>3</sup> if used alone. The disadvantage with the other procedures is incomplete ablation of the lesion leaving poor aesthetic results. To remove the lesions totally and to prevent recurrence needs “surgical excision in combination with one or more of the other modalities of treatment”.<sup>2,7</sup> The primary determinant in choosing a

treatment protocol should be a low recurrence rate particularly in case of ear keloids. Indeed, excision of keloid without an adjuvant treatment to minimize recurrence results in a failure rate of 45% to 100%. Therefore, the establishment of a reliable and safe technique for keloid excision with a low recurrence rate is especially critical for ear keloids. The extensive literature available on decreasing recurrence in the treatment of keloids deals with excision combined with compression therapy, corticosteroid and/or 5 fluorouracil injections, cryotherapy and post-operative radiation.<sup>8</sup> The use of corticosteroids as an adjunct to excision has a long history of use. Most commonly employed regimen is the use of three post-operative injections of corticosteroid. Studies investigating the use of corticosteroids as an adjuvant to excision have shown different recurrence rates ranging from 3% to 16.6%.<sup>9</sup> Unfortunately, these studies have failed to identify the recurrence rates in keloids of earlobe and keloids of helix separately. This differentiation is necessary as term keloid is not a homogenous biological entity.<sup>10</sup> Recognition of different morphological phenotypes is necessary in understanding pre-disposition and aiding diagnosis, treatment and prognosis of keloids. Hypopigmentation, telangiectasia, necrosis, ulceration and wound dehiscence are the reported side effects of repeated local application of a low-dose depot preparation. It has been found that single intra-operative dose of steroids is most critical to arrest inflammatory response and produce minimal side effects.<sup>11</sup> With this background the present study was planned to determine the outcome of single intra-operative versus an intra-operative and two post-operative injections of triamcinolone after wedge excision of keloids of helix.

## MATERIAL AND METHODS

This was a randomized controlled trial was conducted at the Department of Plastic Surgery at tertiary care health Centre. All the patients diagnosed and want operations or treatment during the complete year 2014 was included into the study those who does not give consent were excluded from the study. The study protocol was approved by the institutional ethics committee. Patients fulfilling the inclusion criteria were picked up using consecutive sampling. Patients were randomly allocated into two groups by using computer-generated random number table; Group A having patients who were given single per-operative injection of triamcinolone, and Group B having patients who were given one per-operative and two post-operative injections of triamcinolone. All patients were operated under local anesthesia using lignocaine 2% with 1:100000 adrenaline. Extra-lesional wedge excision of keloids was done including cartilage and about 1mm normal tissue. This

was followed by infiltration of flaps and wound base with 0.5-1cc of triamcinolone 40mg/cc with the volume given proportional to incision length. Afterwards, the wound was closed primarily with polypropylene monofilament suture (6/0). All patients were seen on 7th to 10th post-operative day for the removal of stitches. Later on, the patients were followed up monthly for a minimum period of 1 year. During follow-up Group B patients were given additional injections of triamcinolone at 1st and 2nd monthly visits. At each follow-up, both groups were observed for the evidence of hypertrophy or any signs of Keloid formation. Recurrence was defined as development of hypertrophic scar, which was defined as raised scar above the level of adjacent skin limited to or extending beyond the confines of original wound, up to a minimum follow-up of 1year after the completion of treatment.

## RESULT

**Table 1:** Distribution of the Patients as per Most Common site

Most common site	No. (%)
Ear Pinna	32(45.71)
Chest	25(35.71)
Wrist	5(7.14)
Back	4(5.71)
Buttock	3(4.28)
Face	1(1.42)

From the Table 1: it is clear that the most common site affected was Ear pinna followed by Chest, Wrist, Back, Buttock, and Face.

**Table 2:** Distribution of the Keloid Patients as per Mean size- Pre and Post Operatively and Recurrence

	Group A (n=35)	Group B (n=35)	p-value
Mean size of Keloid	2.54 ±0.516	2.61±0.569	t=0.539,df=68,p>0.05
Preoperatively			
Recurrence	10 (28.57%)	3(8.57%)	z= 2.15.p<0.03*
Mean size of Keloid	2.64± 0.495	1.23±0.521	t=11.60,df=68,p<0.001*
Postoperatively			

From Table 2: It is clear that Mean size of Keloid Preoperatively was 2.54 ±0.516 and 2.61±0.569 respectively in Group A and Group B but the observed difference was not statistically significant (t=0.539,df=68,p>0.05). But the Recurrence was 10 (28.57%) in Group A was significantly higher than that of the Group B i.e. 3(8.57%) (z= 2.15.p<0.03). Mean size of Keloid Post-operatively was 2.64± 0.495 significantly higher in Group A as compared to Group B i.e. 1.23±0.521 (t=11.60,df=68,p<0.001).

## DISCUSSION

The most common site affected was Ear pinna followed by Chest, Wrist, Back, Buttock, and Face this could be because of the reason that the tradition of Indian woman of piercing the ear pinna so may have keloids most common at that site then chest, wrist and buttock may have trauma or injury common at these sites. In our study we found that Mean size of Keloid Preoperatively was  $2.54 \pm 0.516$  and  $2.61 \pm 0.569$  respectively in Group A and Group B but the observed difference was not statistically significant ( $t=0.539, df=68, p>0.05$ ). But the Recurrence was 10 (28.57%) in Group A was significantly higher than that of the Group B i.e. 3 (8.57%) ( $z=2.15, p<0.03$ ). Mean size of Keloid Post-operatively was  $2.64 \pm 0.495$  significantly higher in Group A as compared to Group B i.e.  $1.23 \pm 0.521$  ( $t=11.60, df=68, p<0.001$ ). This explains that there was not any difference in the size of the lesion pre operatively or pre-treatment but the frequency of recurrence and the size of keloid were significantly lesser in the Intraoperative Plus Two Post-Operative Injections of Triamcinolone group the findings are similar with Rosen *et al*<sup>11</sup>, Burd A *et al*<sup>12</sup>.

## CONCLUSION

It is better to use Two Post-Operative Injections of Triamcinolone in Wedge Excision of Keloid than single use of injection Triamcinolone alone to prevent the not only the recurrence but the size of keloid those who recurred.

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