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Case Series

# EFFICACY OF SURGICAL EXCISION COMBINED WITH INTRALESIONAL TRIAMCINOLONE ACETONIDE THERAPY IN EAR KELOID: CASE SERIES

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**ABSTRACT**

Keloids occur due to abnormal wound healing resulting in extension of raised scar tissue beyond its original margins and rarely they regresses spontaneously. The etiology of keloid is still not clear. Cosmetic concerns, pain, erythema, pruritus, paresthesia, and impairment of function are all keloid related symptoms. There is no single effective treatment for keloids. Keloid's surgical excision in absence of any adjuvant therapy is considered obsolete due to the high recurrence rate. Corticosteroids are also used as adjuncts to surgical excision to prevent a recurrence. In this prospective, interventional, and case series, six subjects with ear keloid were treated for pre-operative three doses of intralesional Triamcinolone acetonide (TA) injection followed by surgical excision and post-operative two doses of Triamcinolone acetonide injection at the scar site. No signs of recurrence were shown in any lesion.

**Keywords:** Corticosteroids, Combination therapy, Wound scar, Ear piercing, Keloid.

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## INTRODUCTION

Keloids occur due to abnormal wound healing resulting in extension of raised scar tissue beyond its original margins and rarely they regresses spontaneously [1]. The inflammatory phase is prolonged, which results in histopathological imbalance because of increased synthesis of collagen in the fibroblasts and decreased collagen decomposition after injury [2].

Risk factors for keloids are young age, pigmented skin, and mobile sites with high tension and genetic predisposition.

However, the etiology of keloid is still not clear. In many cases, trauma is the most common associated factor. It was being observed that no keloids were formed on cutaneous lesions on the palms and soles of the feet in keloid patients, which led to the "sebum autoimmune hypothesis." It stated that sebum, which is secreted intradermally, triggers an autoimmune response [3]. As there is increased susceptibility of keloids formation seen in acromegalics and their increased growth during pregnancy, puberty, and hyperthyroidism, the hormonal association is suspected [4].

Keloids are commonly seen on the head-and-neck region, especially ear lobes and the helix of the auricle.

Cosmetic concerns, pain, erythema, pruritus, paresthesia, and impairment of function are all keloid-related symptoms [5]. Keloids have severe psychological effects and impact on individual's physical quality of life.

There is no single effective treatment for keloids. Many advances have been made to understand the process of wound healing and scar formation and this knowledge has led to the introduction of new treatments as well as to a better understanding of how older treatments work [2]. Numerous treatment protocols have been suggested; however, most of these treatment protocols are plagued with spectra of recurrence [2,6-8]. These include surgical excision, intralesional steroid injection, cryotherapy, laser therapy, use of ionizing radiation, mechanical compression dressing, silicone sheet applications, ultrasound and heat therapy, intralesional interferon injection, or combination of techniques, and many others [6-8].

Surgical excision of keloids is a common management option. However, surgical excision without any adjuvant therapy is considered obsolete due to the high recurrence rate [9]. Due to high recurrence following surgical excision alone, combination therapies with intralesional steroids, cryotherapy, pressure therapy, radiotherapy, laser therapy, and silicone sheet application have been advocated [10,11].

Injecting cortico steroids intralesionally has been used as one of the treatment of keloids since the middle of the 1960s [12]. They are also used as adjuncts to surgical excision to prevent are currence. Corticosteroid formulae include hydrocortisone acetate, methyl-prednisolone, betamethasone, dexamethasone, and triamcinolone acetonide (TA). TA is most commonly used and is typically given (10–40 mg/mL) at intervals of 4–6 weeks for several months or until the scar is flattened [13]. Corticosteroid treatment can cause various local and systemic adverse effects, including delayed wound healing, hypopigmentation, dermal atrophy, telangiectasia, and Cushing's syndrome [14].

### Procedure followed

In this case series, six subjects with ear keloid were enrolled for preoperative three doses of intralesional Triamcinolone acetonide(TA) injection followed by surgical excision and postoperative two doses of Triamcinolone acetonide injection at the scar site (Fig. 1: Flowchart).

Female subjects having keloid in either ear were included in this series. Participants were selected among subjects/patients referring to plastic surgery department between 2019 and 2021. The nature and target of this case study were explained for each subject and formal consent was taken for each subject before starting the therapy, after a full explanation of the nature of the disease, course, the procedure of treatment, follow-up, prognosis, and the need for pre- and post-treatment photographs.

Each subject was treated with three doses of intralesional TA injection, at 3 weeks intervals preoperatively followed by extralesional surgical excision of the keloid (Fig. 1: Flowchart). The wound's primary closure

**Table 1: Details of the subjects**

| S. No. | Age (Year) | Sex (M/F) | Comorbidity | Predisposing factor | Site of Keloid | Dose of TA | Recurrence of lesion on follow up | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 4 weeks | 12 weeks | 24 weeks |
| 1. | 22 | F | None | Ear piercing | Bilateral ear lobe | 40 mg/ml | No | No | No |
| 2. | 25 | F | None | Ear piercing | Left ear helix | 40 mg/ml | No | No | No |
| 3. | 22 | F | None | Ear piercing | Right ear helix | 40 mg/ml | No | No | No |
| 4. | 19 | F | None | Ear piercing | Left ear lobe | 40 mg/ml | No | No | No |
| 5. | 30 | F | None | Ear piercing | Left ear lobe | 40 mg/ml | No | No | No |
| 6. | 43 | F | Diabetic | Ear piercing | Right ear lobe | 40 mg/ml | No | No | No |

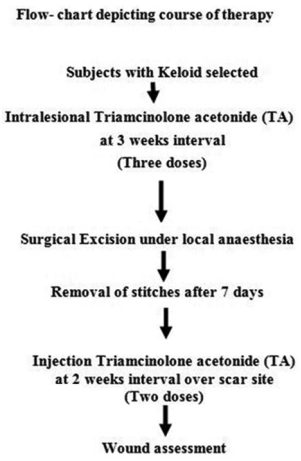


**Fig. 1: Flowchart**

was done with a single layer of 6-0 nylon suture and steristrip dressing done. All the subjects were prescribed antibiotic course as per subject body weight to prevent post-operative infections for 7 days.

After 1 week of surgery, sutures were removed, followed by two doses of injection TA (post-operatively therapy) over the scar region at 2 weeks interval.

Wound healing was assessed by the surgeon who was not aware about the therapy given to the subjects to avoid the bias in assessing the outcome of therapy.

## RESULTS

All subjects were female in the age group of 19–43 years. All of them have a history of ear piercing. Table 1, showing the details of the subjects, which were enrolled in this case series. Post-operative follow-up was done and none of the subjects was lost to follow-up. All subjects remain adherent to prescribed medicines. No signs of infection and recurrence were shown in any lesion.

## DISCUSSION

This study was done to assess the outcome of a combined method of surgical and intralesional steroid therapy for the management of ear keloid. Although there is a lot of information available about this to morphological structure of keloids in the present current literature, yet no proper guideline regarding its treatment has been suggested.

Surgical excision alone showed about 50–100% recurrence rate. Surgical removal of excessive scar tissue returns the wound to the initial state and further post-operatives caring can be reduced by supportive therapies such as intralesional corticosteroid injections, radiotherapy, pressure therapy, and immune modulators. A retrospective and cohort study found that multimodal therapy (excision followed by a combination of steroid and radiation therapyor steroid and silicone gel therapy) showed less recurrence than post-excisional steroid alone [15].

Corticosteroids can be used as first line therapy, with good response rates from 50 to 100% and recurrence rates between 9% and 50% [16]. Side effects which include hypo or hyper pigmentation, telangiectasia, skin atrophy, and pain on injection can been countered in up to 63% of patients [11]. Injection Triamcinolone acetonide can be used in a concentration of 40 mg/mL, at monthly intervals for up to 6 months [11]. Rosen *et al.* treated ear keloids with excision and intraoperative and post-operative injection of steroids and reported a recurrence rate of 23% [16].

Shons *et al*. evaluated 31 ear lobe keloids in 20 patients, they found after surgical excision of the scar and adjunctive therapy using three post-operative injections of triamcinolone; in a follow-up period of 12–62 months, only one recurred [17]. Our experience also showed that a combination of surgical excision and intralesional TA injection is an efficacious and well-tolerated therapeutic modality for keloid management.

Delicate surgical excision, tension free wound closure and strict adherence to follow-up are pivotal in the success rate of this treatment strategy.

Treatment of keloid is still a significant problem and a great challenge for dermatologists and plastic surgeons [2]. Despite numerous treatment protocols being suggested, most of these are plagued with a high recurrence [2,6]. No proper guidelines defining the efficacy of various treatment techniques in terms of low recurrence rate and satisfactory aesthetic outcome have yet been developed.

### Limitations

Keloids located at site other than ear or keloids following infection were not included in this case series.

## CONCLUSION

The combination of surgery and intralesional Triamcinolone acetonide injection could be an effective treatment option for keloid management.

### Suggestion

Double-blind, randomized, and controlled trial is required to see the efficacy of above therapy among both males and female subjects in a large number of cases.

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## CONTRIBUTION OF AUTHORS

All authors have contributed while operating and assessing the study subjects. Also in writing and editing the manuscript. Dr. Sumit Jain did examination, asses and operates on patients. Dr. Tushar assisted him and did the follow-up under his supervision. Dr. Deepak J Bhatti assesses the wound healing during the course of therapy**.** Dr. Raj Kumar did the study design, edited, and proof reading of the manuscript.

## CONFLICTS OF INTEREST

No conflicts of interest.

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