

# Keloid Triple Treatment: A Case Report

Sharif Alkoujah

Email: [shreff1981\[at\]hotmail.com](mailto:shreff1981[at]hotmail.com)

**Abstract:** *Keloids are overgrowths of scar tissue that extend beyond the wound border for an unknown reason. Many courses of treatment are available, but none have a 100% success rate, and many have high recurrence rates. The best result can be achieved after a combination of many treatments modality with surgery. This article presents the case of a disturbance keloid that was treated by surgical excision, post - surgery local corticosteroid injection (betamethasone dipropionate) 1ml subcutaneous monthly for three months while intralesional corticosteroid injection in other studies, and topical silicone gel application for six months. An excellent outcome was observed without recurrence. The patient, satisfied and confident after treatment, was free from recurrence for about one year after excision and medical treatment.*

**Keywords:** combination of surgery and medical treatment in Keloid management, Keloid, Keloid treatment, Keloid triple therapy, triple treatment for keloid, Keloid multimodal treatment.

## 1. Introduction

Keloid (derived from Greek word cheloides, which means “crab’s claw”) is an abnormal skin response to trauma that leads to a big scar extending out of the original wound borders. It takes a long time to develop after a trigger event. What triggers keloids to form is still unknown.

Keloids are usually painless, vary in color from the nearby skin, and are often shiny. They can be itchy and tender, especially

If developed over a joint, and present cosmetic difficulties for the patient.

Keloids are most commonly located on the chest, earlobe, face, back, joints or any other traumatized skin.

Once they start to develop, they are difficult to contain and resistant to treatment, with a high rate of recurrence after treatment.

Many common treatments such as pressure, cryotherapy (for small keloids), local steroid injection, topical medicine (steroid, silicone), local verapamil injection, surgery and combination treatments all have high rates of recurrence [1].

In this case report, we present 100% success rate without recurrence by combination of surgery with post - operation

local steroid injection and repeated monthly injections after the operation for two months along with application of topical silicone gel for six months in ear lobe Keloid management. The healing process was satisfactory, and excellent cosmetic results were obtained. The patient was satisfied with the result, and no recurrence was seen the following year, recommending keloid triple treatment as an acceptable protocol.

## 2. Case Presentation

A 24 - year - old South Asian dark skin patient presented complaining of an itchy lump on the left earlobe that had started forming two years prior. He couldn’t remember how it started, but he assumed that it had started either by an insect bite or trauma to his earlobe. He reported that the lump started small, increased in size, and became itchy four months ago. Abnormal swelling was causing the patient excessive shame and stress.

The patient had no past medical or surgical history, and no known medical allergies.

Upon physical examination, the patient, who had dark skin, appeared in good health, but in mild emotional discomfort. There was a dark brown, ill - defined, and highly irregular lump over the outer border of his left earlobe otherwise normal.



**Figure 1:** Left earlobe with keloid before surgery

**Diagnosis:**

Most likely to be Keloid.

**Plan of treatment:**

A combination treatment of surgery, post - surgery local steroid injection, and topical use of silicone was explained to the patient in order to decrease recurrent rate in the future and achieve as possible as cosmetic result. He was informed about the possibility of recurrence and all possible post - surgery complications, such as bleeding, infection, and skin necrosis.

**Operation notes:**

Under antiseptic condition and local anesthesia, the keloid was excised. The wound was then closed with a continuous suture using a nylon 0\4 suture. Then, a local steroid (betamethasone dipropionate 1 ml) was injected under both wound edges, and a compressor dressing was applied.

The patient was discharged on antibiotics, painkillers, and anti - edema medication and the specimen sent to histopathology which confirm the diagnosis of Keloid after three days of surgery.



**Figure 2:** Left earlobe post excision

**Volume 12 Issue 5, May 2023**

[www.ijsr.net](http://www.ijsr.net)

Licensed Under Creative Commons Attribution CC BY

**Follow - up ten days after operation:**

The patient was feeling well, pain free, and was satisfied with the result. The wound was cleaned and showed no swelling, collection or skin necrosis, and an overall satisfactory healing process was observed. Sutures were removed, and the patient was started on topical silicone gel thrice daily.

**Follow - up one month after operation:**

Very good healing was observed with minimal scarring. A local steroid injection (1 ml) was administered, and the

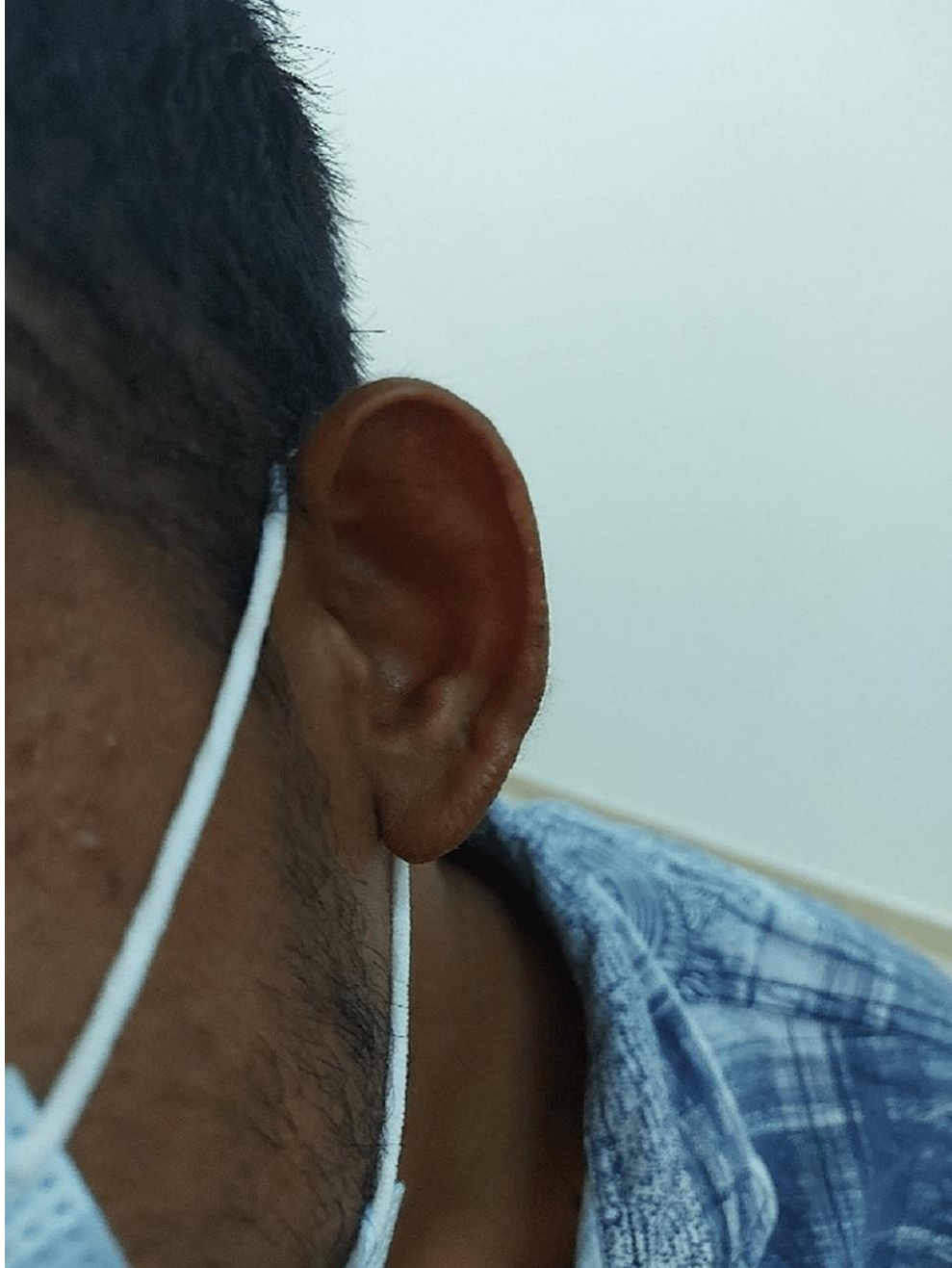
patient was advised to continue application of the topical silicone gel.

**Follow - up two months after operation:**

As during the previous visit, a local steroid injection (1 ml) was administered, and the patient was advised to continue application of the topical silicone gel.

**Follow - up 10 months after operation:**

The patient's earlobe was totally free from any scarring or keloid.



**Figure 3:** 10 months after surgery without recurrence or complication

### 3. Discussion

A keloid is excess fibrosis that occurs during the wound - healing process. Keloids extend beyond the wound and rise above the level of surrounding skin and rarely regress alone. Keloids are 15–20 times more common in people with

darker skin and of African, Spanish, or Asian descent. There is no difference in incidence between males and females. Genetically, there is dominant autosomal with incomplete penetration and expression variable from case to other. Although the mechanisms of keloid formation are not fully understood [2], keloids can result from any kind of trauma to

the skin, such as surgery, burns, lacerations, abrasions, prick injuries like (tattoos, injections, insect bites, or ear stud fixation). They maybe also happen due to skin inflammations, such as acne, chickenpox, zoster, or folliculitis, or may arise spontaneously without clear reason and may cause pain, itching, or burning sensations [2].

Keloids tend to occur over three months to several years after the initial cause, and even minor injuries may trigger a large keloid. Keloids can be small or large. They rise above the surrounding skin, rarely extending into the underlying skin. The most common sites are the earlobe, the deltoid muscle, the chest wall, and the upper back behind the shoulders. Keloids rarely reduce spontaneously and need medical intervention in the case of symptomatic keloids or for cosmetic purposes. Surgical intervention alone has a high recurrence rate and may produce a larger keloid as a result.

Histologically, keloids demonstrate increased epidermal thickness with an absence of rete ridges. There is more amount of collagen and glycoprotein deposition in keloids. There is difference in collagen - bundle structure arrangement between normal skin (where it parallel to surface) and keloid (where it random in position). Collagen synthesize 20 times faster in Keloidal fibroblasts than that observed in normal skin fibroblasts, leading to more collagen in keloids within normal proliferation parameters. Within keloids, there is excessive production of extracellular matrix such as fibronectin, elastin, and proteoglycans. This confused behavior is caused by altered growth factor expression. Fibroblasts in keloid respond to lower levels of TGF -  $\beta$  more than normal fibroblasts do. The reasons for this are currently unknown. Many immunoglobulins such as IgG, IgA, IgM, and IgE are found in the serum of those with keloids, so the immune system appears to be involved in keloid formation. keloids show antinuclear antibodies against fibroblasts, epithelial cells, and endothelial cells.

Lately found different kind of white blood cells present in large numbers at the site of keloid. They produce inflammatory mediators such as cytokines, growth factors, and others are found in keloid tissue. Treatment focuses on restoring normal function to the affected skin, decrease of symptoms, and recurrent rate. For unknown reasons, many different modalities of treatment have been attempted without success. Thus, the aim of treatment is to reduce recurrence rates and improve outcomes. Surgical intervention alone has a high recurrence rate (from 45% to 100%). Recurrence is reduced when surgery is combined with other treatments modality such as corticosteroid injection, topical silicone, or the use of radiation or pressure. Ogawa et al. found a reduced rate of recurrence following intralesional corticosteroid injection, surgery, and application of topical silicone over the scar [3]. One multimodal therapeutic approach improved the clinical outcomes of auricular keloid patients, with similar results [4].

Surgery is recommended for large lesions or as a second choice for recurrent Keloid. Silicone application is painless but needs to be applied constantly 24 hours daily for three months to prevent recurrence. Silicone is considered a good treatment for kids and people who cannot handle the pain

happened in other treatments. Intralesional corticosteroid injections decrease proliferation of the fibroblast collagen synthesis and glycosaminoglycan, the inflammatory process, and TGF -  $\beta$  levels. It is recommended as the first choice when Keloid not response to other topical treatments. Intralesional corticosteroid are more effective on early scars formation. Intralesional corticosteroid decrease keloid symptoms (pain, lesion height, scar hardness) but do not make the lesions disappear. Their success is enhanced when used in combination with surgery and intralesional corticosteroids. Corticosteroid complications include skin atrophy, hypopigmentation, telangiectasias, necrosis, and ulceration. Intralesional injections of chemotherapy have been used both alone and in combination with steroids, especially when the keloids were not responsive to corticosteroid treatment. Radiation has been used in keloid treatment in order to destroy fibroblasts and has a 10% to 100% recurrence when used alone. It is more effective when combined with surgery. Because of the risk of complications, radiation should be reserved for adults who failed to respond to other treatments. Pressure decreases the height of keloids and increases their pliability. Topical retinoids also have been used in treatment, with reported responses to treatment of 50% to 100%. Lee et al. combined fractional laser, cryotherapy, and intralesional corticosteroid treatment and found significant improvement and a reduction in recurrence rates [5].

In the case above, triple treatment (surgery followed by subcutaneous steroid injection and topical silicone) was administered to a 24 - year - old patient with a keloid in his left earlobe. Local anesthesia was administered, and a steroid (betamethasone) was injected into the wound at the time of the operation and then once a month for two months (in Ogawa study inject corticosteroid inside the lesion before surgery to make it smaller in size, decrease it's height and make it softer). Topical silicone was applied after suture removal. One year after surgery, there was no recurrence.

#### 4. Conclusion

Keloids are one of the most difficult lesions to treat. Many treatment courses have been tried, but few have given satisfactory results with low recurrence rates. The triple treatment regime used in this study was found to be more effective, reducing recurrence and resulting in satisfaction and self - confidence for the patient.

#### References

- [1] Brunicardi F. (Eds.), (2015: Schwartz's Principles of Surgery.10. <https://accessmedicine.mhmedical.com/content.aspx>.
- [2] Al - Attar, Ali and others, Keloid Pathogenesis and Treatment. (2006: [https://journals.lww.com/plasreconsurg/Abstract/2006/01000/Keloid\\_Pathogenesis\\_and\\_Treatment.45.aspx](https://journals.lww.com/plasreconsurg/Abstract/2006/01000/Keloid_Pathogenesis_and_Treatment.45.aspx).
- [3] Multimodal therapy in the management of keloids: a review, Authors. Ogawa R, Mitsushashi K, Hyakusoku H, Miyashita T, Published in: Int J Dermatol.2011, 50: 905 - 10.

- [4] A multimodal therapeutic approach improves the clinical outcome of auricular keloid. patients.2019, 58: 745 - 749. 10.1111/ijd.14413. Epub 2019 Feb 27
- [5] Lee, Young In and others: Combined Therapeutic Strategies for Keloid Treatment, (.2019.