International Journal of Otorhinolaryngology and Head and Neck Surgery
*Warwantkar UV et al. Int J Otorhinolaryngol Head Neck Surg. 2026 Apr;12(2):250-253*
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: https://dx.doi.org/10.18203/issn.2454-5929.ijohns20260794

**Case Series**

# Pinna keloids: any role of complete surgical excision as monotherapy?

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**Received:** 14 December 2025
**Revised:** 05 February 2026
**Accepted:** 06 February 2026

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## ABSTRACT

Keloid is abnormal growth of scar tissue at the site of injury. External ear is one of the most common sites for keloids and most common reason being ear piercing. Many different treatment modalities such as surgery, intralesional steroids/ 5-FU, radiotherapy, silicone gel, cryotherapy, pressure earrings have been used for pinna keloids. Most of the studies suggest combination therapy of surgery and one of the above modalities gives better result and reduced recurrence compared to only surgery as monotherapy. At our institute we operated on 11 patients with 14 pinna keloids developed post ear piercing with aim not to leave behind any residue. None of the patients received any adjuvant therapy immediate post-surgery. Patients were followed up for 1 year. All the patients had good wound healing and acceptable scar post-surgery. Only 3 keloids out of 14 showed signs of recurrence and were treated with intralesional steroids. From this case series we would like to suggest complete surgical excision as primary mode of treatment (monotherapy) for pinna keloids developed post ear piercing without risk of recurrence and adjuvant therapy like intralesional steroids can be started at the onset of recurrence and not generally.

**Keywords:** Keloids, Pinna, Complete surgical excision, Monotherapy, Recurrence

## INTRODUCTION

Keloid develops because of abnormal wound healing. The risk of development of keloid is higher in pigmented population. There are various proposed etiologies for keloid like genetic, hormonal, poor wound healing due to skin tension, inflammation and infection.[1]

Pinna keloids usually develop post ear piercing and have better prognosis compared to keloids of other body parts.[2] Recurrence is quite common in pinna keloids post -surgery and it is mostly attributed to nature of the disease and patient factors. Generally, it is thought that recurrence rate of pinna keloids after monotherapy with surgical excision is higher than traditional combination therapy of surgery plus intralesional steroid injections. Many recent studies suggest otherwise. According to these papers complete surgical excision of pinna keloids with negative margins can significantly reduce the recurrence, which is mostly due to residual keloid tissue. We have presented series of few cases here who underwent complete surgical excision as monotherapy for their pinna keloids without any adjuvant therapy immediate postop.

## CASE SERIES

11 patients who presented to ENT OPD underwent complete surgical excision for their pinna keloids which were developed post ear piercing. 3 patients had bilateral pinna keloids. All patients were followed up for at least 1 year after excision. 3 patients showed signs of recurrence at 3 months and were treated with intralesional triamcinolone (Table 1).

### *Surgical technique*

After taking proper informed consent patient was listed for pinna keloid excision under local anaesthesia. Procedure

was carried out under proper aseptic precautions. 2% xylocaine with adrenaline was used for local anaesthesia. Skin incision was taken with No. 15 blade 2-3mm above the base of keloid (on the body of keloid) all around the keloid lesion. Incision depth was maintained just below the dermis without incising the fibrous tissue of keloid (Figure 1).

**Table 1: Patient details.**

| S. no. | Age (years) | Gender | Site | Revision | Approx. size (cm) | Recurrence |
|---|---|---|---|---|---|---|
| **1** | 31 | F | Right ear lobe | N | 2×2 | No |
| **2** | 28 | F | Right ear lobe | N | 2×1 | No |
| **3** | 41 | F | Bilateral pinna | N | 1×1 and 3×2 | Yes, left pinna |
| **4** | 17 | F | Left pinna | Y | 2×2 | No |
| **5** | 26 | F | Left pinna | N | 2×1.5 | No |
| **6** | 35 | F | Left ear lobe | N | 2×1 bilobed | No |
| **7** | 29 | F | Bilateral pinna | N | 2×1 and 1×1 | No |
| **8** | 21 | F | Right pinna | N | 3×2 | Yes |
| **9** | 32 | F | Right ear lobe | N | 1×1 | No |
| **10** | 36 | F | Right ear lobe | Y | 2×2 | Yes |
| **11** | 38 | F | Bilateral pinna | N | 2×1 and 2×2 | No |

Sharp and meticulous dissection was carried out with no. 15 blade to dissect lower 2-3 mm of skin form surface and base of keloid (Figure 2).

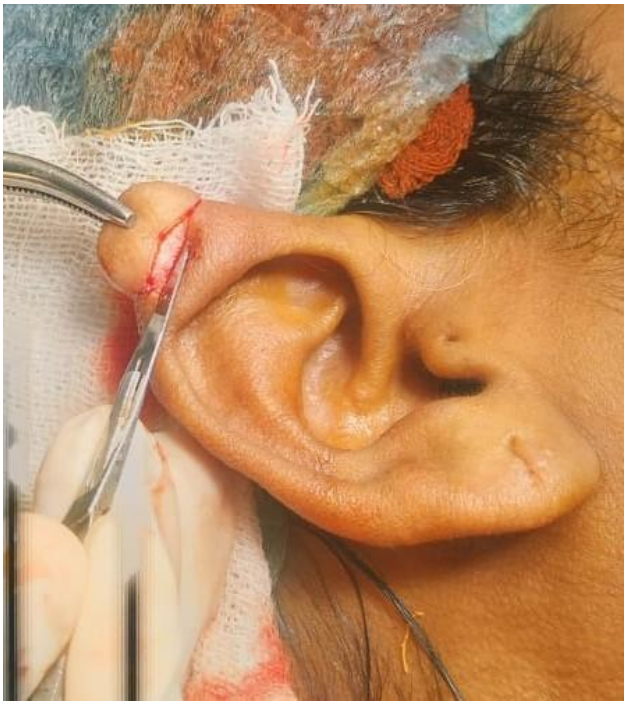

**Figure 1: Incision.**

Once we reached at the base of keloid attempt was made to find plane between pinna cartilage and fibrous keloid. And the dissection was continued in the same plane all around to completely remove the keloid without leaving behind any residual keloid tissue (Figure 3).

Many of the keloids had sinus tract going through the cartilage at the site of ear piercing. Attempt was made to completely excise the sinus tract in toto along with the keloid (Figure 4).

**Figure 2: Dissection.**

**Figure 3: No residual tissue post excision.**

In case of bilobed keloids both the lobes were removed separately with separate skin incisions along with interconnecting sinus tract.

Care was taken not to leave behind any fibrous tissue at the base after keloid excision and the area was smooth and supple on palpation (Figure 3). Wound was closed with suitable sutures with maximum possible care not to leave cartilage exposed.

**Figure 4: Specimen.**

## DISCUSSION

Keloids are benign hyperproliferative growth of dermal fibroblasts characterised by the excessive deposition of extracellular matrix components, especially collagen, fibronectin, elastin, proteoglycans, and growth factors like transforming growth factor (TGF) - beta.[1]

The mechanisms of keloid formation include alterations in growth factors, collagen turnover and alignment, as well as genetic and immunological contributions. Trauma, foreign body reactions, infections, and endocrine dysfunctions have all been proposed risk factors for the development of keloids in genetically susceptible people.[1] Ears are common sites for keloid formation mostly post ear piercing. Ear keloids need to be considered differently from other keloids. Ear keloids usually show lower tension and have piercing tract covered with keratinocytes.[3] Many authors have noted lower recurrence in pinna keloids compared to other body parts after surgical excision.

Various treatment modalities have been described in literature for keloid treatment like surgical excision, intralesional corticosteroid injections, cryotherapy, laser, pressure therapy, silicone gel, radiotherapy, 5FU, bleomycin and combination of these.[4] Traditionally it is considered surgical excision alone is not sufficient with high recurrence rate between 50-100%.[4] But recent studies suggest different approach for pinna keloids. As per study conducted by Chan et al, recurrence rate of complete surgical excision of pinna keloids was as low as that in combination therapy using surgical excision and postsurgical adjunctive therapy.[2] In this study they compared recurrence rate in 20 patients who underwent complete surgical excision versus 15 patients who underwent combination therapy.

In another study conducted by Lemperle et al, they removed 387 keloids in Democratic republic of Congo from 2015-2018.[5] They found that 50 % of keloids may be removed surgically without risk of recurrence and earlobe keloids had the lowest recurrence rate after complete surgical excision with negative resection margins. Adjuvant treatment should be started at the onset of recurrence and not generally. In a study conducted by Ramesh and Mohan, use of loupe magnification helped in complete surgical excision of keloids with reduced recurrence rate.[3] In one more study conducted by Chong et al, showed positive margin status in keloid excision was significantly related to local recurrence and complete excision warrants a lower recurrence in Asian population.[6]

We had similar observations in our study. Because of financial and administrative constraints at District Hospital, patients were offered complete surgical excision as the monotherapy for pinna keloids without any postoperative intralesional steroids. Only 3 keloids out of 14 showed signs of recurrence at 3 months who were offered intralesional triamcinolone injections to prevent recurrence. Rest of the 11 keloids did not show any signs of recurrence at 1 year follow up. Recurrence rate of 21.3% is quite comparable to other studies where combination therapy was used for pinna keloids.

## CONCLUSION

Pinna keloids post ear piercing needs to be considered differently compared to other body keloids due to generally favourable outcomes. Recurrence in pinna keloids is significantly related to residual keloid tissue. Every attempt should be made to completely excise the pinna keloids with negative margins and manageable cosmetic deformity. Adjuvant therapy like intralesional steroids can be used where complete excision is not possible or when there are signs of recurrence during follow up. This way we can reduce the overall cost of treatment for pinna keloids and we can also avoid side effects of adjuvant therapy whenever possible.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: Not required*

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**Cite this article as:** Warwantkar UV, Chandan SR. Pinna keloids: any role of complete surgical excision as monotherapy?. Int J Otorhinolaryngol Head Neck Surg 2026;12:250-3.