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Original Research Article

Fillet flap method of ear keloid repair and its cosmetic outcome: our experience

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ABSTRACT

Background: Formation of keloid after cosmetic or traditional ear piercing is a very distressing condition for the patient. Ear lobe keloid has been treated with excision followed by primary suture, healing by secondary intention, skin graft or local flap. Fillet flap technique has come up with good cosmetic result, late combined with other medications.
Methods: 20 patients were treated by fillet flap technique. Included in the study were huge, sessile, recurrent keloids. Pedunculated and small (<1 cm) keloids were excluded.
Results: All cases, except one flap survived completely with good primary healing. All patients were women and developed their lesions after cosmetic earlobe piercing. The lesions were unilateral in 16 (80%) patients and bilateral in four (20%) patients. After 1 year, major response was observed in fifteen cases (75%) and moderate response in four cases (20%); one case had a relapse 10 months after the surgery.
Conclusions: Many methods of coverage of defect after surgical excision have been described but each has its own disadvantages. So, fillet flap technique covers the defect and gives very good cosmetic outcome.

Keywords: Earlobe, Fillet flap, Keloid

INTRODUCTION

Keloids are hypertrophic-appearing scars that continue to evolve over time without a quiescent or regressive phase in the process of wound healing.[1,2] They are benign hyper proliferative growths of dermal collagen that usually result from excessive tissue response to skintrauma.[3]

Earlobe keloid can form after cosmetic ear piercing, trauma, or burns, and it poses several difficulties in treatment and distinctive cosmetic implications. Keloids may occur anywhere, but the most common locations are the shoulder, presternal area, neck and upper arms.[4] Added to it, they are known to recur after any modality of treatment. Surgical excision, intralesional injection, application of pressure immediately after injection, silicone gel sheet, radiotherapy or a combination of four techniques for treatment of ear lobe keloids is recommended even for recurrent lesions. Use of a "keloid fillet flap" enables dissection of the keloid core leaving loose skin to effect closure while an island flap uses skin bordering the defect.[5,6] Decreased recurrence rates have been reported with excision in combination with other postoperative modalities such as radiotherapy, injected interferon (IFN) or corticosteroid therapy. Excisional surgery alone has been shown to yield a 45-100% recurrence rate.[7,8] Yencha et al used combination therapy that included compression therapy, laser excision, and serial steroid injection, which has improved our therapeutic outcomes for earlobe keloids.[9]

Verapamil hydrochloride is a widely used calcium channel antagonist which inhibits the synthesis/secretion of extracellular matrix molecules including collagen, glycosaminoglycans and fibronectin while increasing collagenase.[10] Intralesional verapamil has shown promising results in non-randomized early clinical trials as an adjuvant after surgery, or alone.[11]

Ear lobe keloid has been treated with excision followed by primary suture, healing by secondary intention, skin graft or local flap. Primary closure creates tension on suture line. To overcome this fillet flap technique has come up with good cosmetic result, late combined with other medications.

METHODS

20 patients attending plastic surgery OPD at Shimoga Institute of Medical Sciences, Shivamogga, during period from January 2012 to December 2016 were treated by fillet flap technique. All the cases were females aged around 16 to 55 years. All the cases were previously operated and recurrence noticed at the same operated site. Largest of the lesion was 4cm and smallest lesion of 20 patients was 1 cm.

Inclusion criteria included mentally stable adult patients over 16 years of age, complaining of recurrent earlobe keloid (s),who had not received any treatment within the last 6 months and were available for follow-up at regular intervals for 18 months.

Exclusion criteria were patients with skin phototype VI, systemic illnesses such as uncontrolled diabetes mellitus, mental disorders, cancer and cardiac disease, bleeding tendencies or those on anticoagulant medication; systemic isotretinoin therapy within the last 6 months and pregnant and lactating women, written informed consent was provided by all participants before inclusion. Serial photography for each patient was taken preoperatively, intraoperatively and then every 2 months until the end of the follow-up period.

Surgical technique

The surgery was performed under local anaesthesia. Local anesthetic (1% lidocaine with 1:100,000 epinephrine) was infiltrated around the keloid. After 7 minutes for hemoconstriction effect of epinephrine, skin of the keloid was filleted from keloid mass as a flap (Keloid fillet flap) and the keloid mass was completely removed. Incision was usually taken on the posterior side. The removal of entire keloid mass was confirmed by palpating the remaining earlobe tissue. Bleeding was meticulously controlled; Electrocautery to control bleeding was sparingly used, to avoid possible flap necrosis. Keloid flaps were closed with 5-0 nylon after trimming to get the perfect contour. Pressure dressing was applied to the ear and suture removed on 6th to 7th day. Intralesional triamcinolone injection was given for 3 to 4 times since every 3 to 4 weeks.

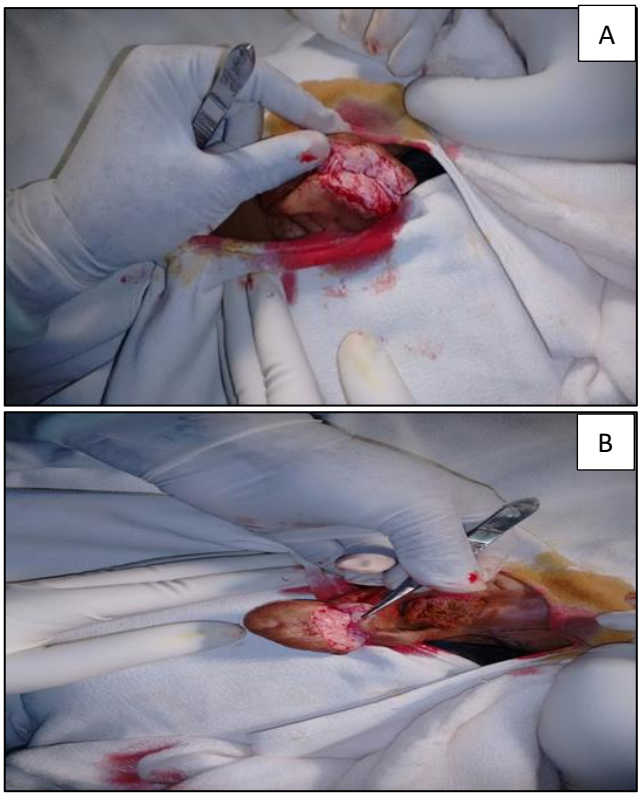

Figure 1: (A) Large earlobe keloid raised and (B) dissected.

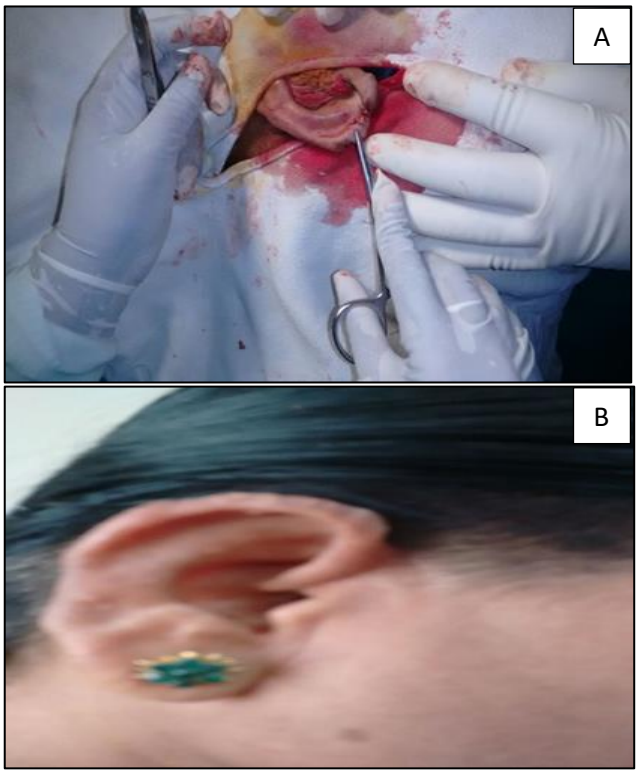

Figure 2: (A) Closure and; (B) final appearance after the repair.

RESULTS

All patients were women and developed their lesions after cosmetic earlobe piercing. The lesions were unilateral in 16 (80%) patients and bilateral in four (20%) patients. After 1 year, major response was observed in fifteen cases (75%) and moderate response in four cases (20%); one case had a relapse 10 months after the surgery.

Table 1: Results of present study.

Variant	Results	n	(%)
Skin phototype	III	05	(25)
	IV	15	(75)
Site of keloids	Unilateral	16	(80)
	Bilateral	04	(20)
Reason for consultation	Pain	06	(30)
	Cosmesis	14	(70)
Family history of keloid	Positive	09	(45)
	Negative	08	(40)
Recurrence	First	16	(80)
	Second	04	(20)
Previous treatment received	Surgical excision	12	(60)
	Excision and steroid injection	06	(30)
	Steroid injection alone	02	(10)
Keloid type	Sessile	11	(55)
	Pedunculated	07	(35)
	Mixed	02	(10)
Response to treatment	Major response	15	(75)
	Moderate response	04	(20)
	Relapse	01	(05)
Complications	No major complications	18	(90)
	Partial flap necrosis	02	(10)

The most common reasons for seeking medical advice were the cosmetic appearance in 14 (70%) patients and pain in six (30%) patients. The skin phototype was Type IV in 15 (75%) patients and Type III in five (25%) patients.

Complications seen in our study were a partial flap tip necrosis in two (10%) keloids. Flap necrosis was limited and healed completely with conservative treatment. There was neither atrophy nor pigmentary change at the surgical site and no hematoma.

DISCUSSION

Earlobe keloid is stressful for patients because of obvious cosmetic deformity and for surgeons because of difficulty in its removal and high recurrence. Earlobe keloid has been treated by surgical excision alone with recurrence rate of approximately 60%.[12]

Many methods of coverage of the defect after surgical excision have been reported including primary suture healing by secondary intension, skin graft or local flap each has disadvantages. Primary suture an close the defect after excision of small keloids but keloids requiring surgical excision are usually large.[13-17] Simple suturing usually maintains tension in closure that promotes keloid recurrence and distorts the reconstructed earlobe. Shaving associated with cryosurgery seems to be a useful treatment for large keloids scars.[18] Defects healed by secondary intension has a longer healing period and the resulting scar causes secondary contracture and is associated with higher recurrence rate. Large keloids require skin grafting or local flap for defect closure resulting in color mismatch. In our study, only one fillet flap tip had gone for necrosis because of highly scarred keloid skin which was operated thrice earlier otherwise all our patients recovered well after surgery with good cosmetic outcome. So we believe that recurrence rate is closely related to the method of coverage of the defect after its surgical excision and the " 5A and 1B" (Asepsis atraumatic technique, Absence of raw surface, Avoidance of tension, Accurate approximation of wound margin and complete control of bleedingare important factors in surgical excision to reduce the recurrence rate. Keloid fillet flap can effectively cover the defect without tension. After wound healing all the cases has undergone intralesional steroid injection.

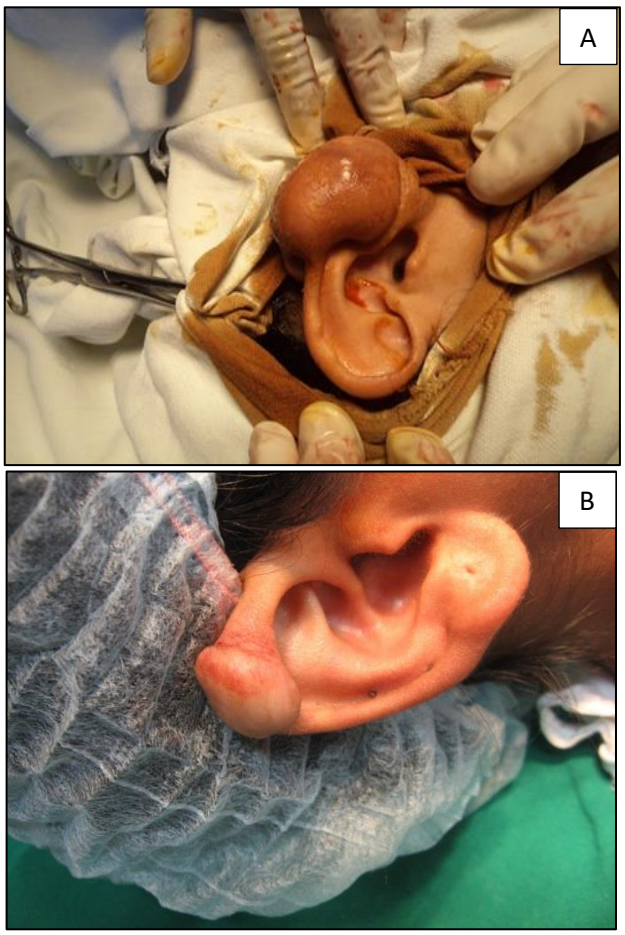

Figure 3: (A), and (B) Large earlobe keloids in different patients.

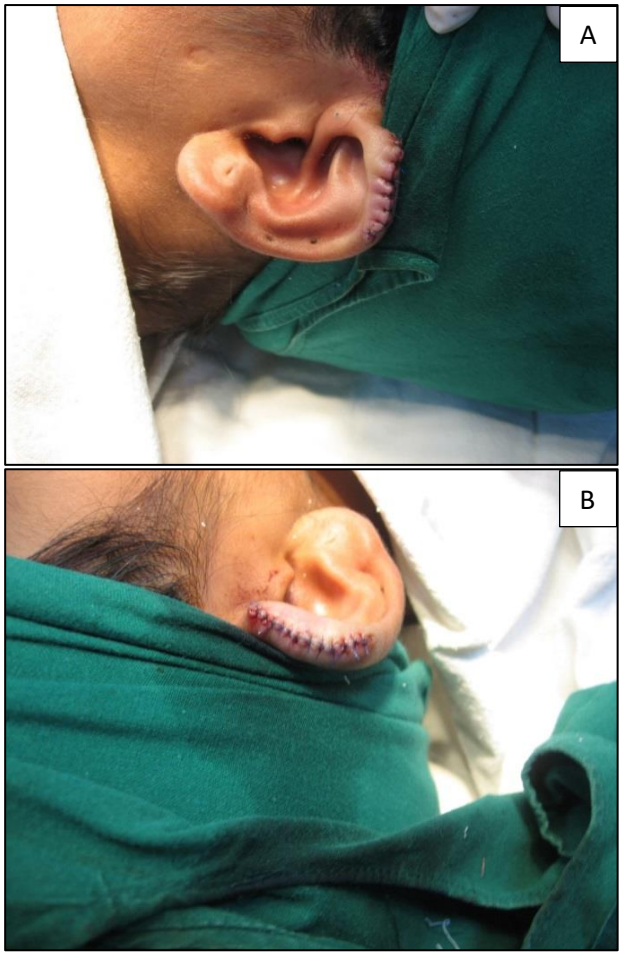

Figure 4: End result after suturing in different patients.

As established from previous studies, excisional surgery alone has been shown to yield a 45-100% recurrence rate while decreased recurrence rates have been reported with excision combined with other postoperative modalities including injections of corticosteroids.

Shanthi M et al. concluded that intralesional verapamil may be a suitable alternative to triamcinolone in the treatment of hypertrophic scars and keloids with significant improvement of all clinical parameters of the scars that were investigated.[19]

According to the modified Chang-Park classification, the most common type of keloid was sessile eight lesions (42.1%), followed by the pedunculated type, seven lesions (36.8%) and mixed type, four lesions (21.1%).[20]

CONCLUSION

Many methods of coverage of defect after surgical excision have been described but each has its own disadvantages. So, fillet flap technique covers the defect and gives very good cosmetic outcome. Our protocol offers advantage over other surgical methods like healing by secondary intension, here the defect is primarily covered with keloid fillet flap so it leaves no raw surface that may introduce scar contracture and promote keloid recurrence ,after excision of large earlobe keloid, primary closure leaves tension at the suture site, which is one of the causative factors of keloid recurrence, keloid fillet flap can effectively cover the defect without tension on suture line. There is no need of a donor site scar as it occurs from harvesting a skin graft or a flap, and the reconstructed earlobe looks cosmetically good in this procedure in which resulting raw area is covered by fillet flap which matches in color and skin quality. No subcutaneous sutures were used and other intraoperative adjuvant preventive procedures like irradiation, steroid injection and pressure devices were not used. During follow-up they were treated with intralesional triamcinolone injection 3 to 4 times at 3 to 4 weeks, since all our cases were recurrent keloids. All our cases have soft and flat scar .only one case had the tip of flap one millimeter area loss probably due to a very scared flap due to three previous surgeries which healed secondarily.

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Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Slemp AE, Kirschner RE. Keloids and scars: a review of keloids and scars, their pathogenesis, risk factors, and management. Curr Opin Pediatr. 2006;18:396-402.
2. English RS, Shenefelt PD. Keloids and hypertrophic scars. Dermatol Surg. 1999;25:631-8.
3. Kelly AP. Medical and surgical therapies for keloids. Dermatol Ther. 2004;17:212-8.
4. Ceovic R, Lipozencic J, Bukvic Mokos Z, Stulhofer Buzina D, Kostovic K. Why don't we have more effective treatment for keloids? Acta Dermatovenerol Croat. 2010;18:195-200.
5. Kim DY, Kim ES, Eo SR, Kim KS, Lee SY, Cho BH. A surgical approach for earlobe keloid: Keloid fillet flap. Plast Reconstr Surg. 2004;113:1668-74.
6. Hatoko M, Kuwahara M, Shiba A, Tada H, Okazaki T, Muramatsu T, et al. Earlobe reconstruction using a subcutaneous island pedicle flap after resection of earlobe keloid. Dermatol Surg. 1998;24:257-61.
7. Meythiaz AM, De Mey A, Lejour M. Treatment of keloids by excision and postoperative radiotherapy. Eur J Plast Surg. 1992;15:13.
8. Lee Y, Minn KW, Baek RM, Hong JJ. A new surgical treatment of keloid: Keloid core excision. Ann Plast Surg 2001; 46:135-40.
9. Yencha MW, Oberman JP. Combined therapy in the treatment of auricular keloids. Ear Nose Throat J. 2006;85(2):93-4.
10. Copcu E, Sivrioglu N, Oztan Y. Combination of surgery and intralesional verapamil injection in the treatment of the keloid. J Burn Care Rehabil. 2004;25:1-7.

11. D'Andrea F, Brongo S, Ferraro G, Baroni A. Prevention and treatment of keloids with intralesional verapamil. Dermatol. 2002;204:60-2.
12. Murray R. Kenalog and the treatment of hypertrophied scars and keloids in Negroes and whites. Plast Reconstr Surg. 1963;31:275.
13. Lawrence WT. Treatment of earlobe keloids with surgery plus adjuvant intralesional verapamil and pressure earrings. Ann Plast Surg. 1996;37:167.
14. Cosman B, Wolff M. Correlation of keloid recurrence with completeness of local excision. Plast Reconstr Surg. 1972;50:163.
15. Ziccardi VB, Lamphier J. Use of keloid skin as an autograft for earlobe reconstruction after excision. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2000;89:674.
16. Venkatramani H, Yadav P. Complete excision with staged reconstruction in the treatment of earlobe keloid after ear piercing. Plast Reconstr Surg. 1999;104:1574.
17. Hatoko M, Kuwahara M, Shiba A. Earlobe reconstruction using a subcutaneous island pedicle flap after resection of earlobe keloid. Dermatol Surg. 1998;24:257.
18. Careta MF, Fortes AC, Messina MC, Maruta CW. Combined treatment of earlobe keloids with shaving, cryosurgery, and intralesional steroid injection: a 1-year follow-up. Dermatol Surg. 2013;39(5):734-8.
19. Margaret Shanthi FX, Ernest K, Dhanraj P. Comparison of intralesional verapamil with intralesional triamcinolone in the treatment of hypertrophic scars and keloids. Indian J Dermatol Venereol Leprol. 2008;74:343-8.
20. Park TH, Seo SW, Kim JK, Chang CH. Earlobe keloids: Classification according to gross morphology determines proper surgical approach. Dermatol Surg. 2012;38:406-12.

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