



Modified earlobe reconstruction technique following wide local excision of melanoma that facilitates sentinel lymph node biopsy

Metin Nizamoglu¹ · Charles Loh¹ · Alethea Tan¹ · Mohamed Fahmy Ibrahim¹ · Nabil Mopuri¹ · Naguib El-Muttardi¹

Received: 23 October 2018 / Accepted: 2 January 2019 / Published online: 9 January 2019
© Springer-Verlag GmbH Germany, part of Springer Nature 2019

Abstract

The earlobe represents an important element in the aesthetic appearance of the entire ear. Reconstruction of the earlobe is challenging. The authors present a reconstructive option following wide excision of melanoma of the earlobe that facilitates sentinel lymph node biopsy from the neck without further incision. We report satisfactory results obtained using this technique for immediate earlobe reconstruction. We present two cases of malignant melanoma of the earlobe. Both cases were treated with a 1-cm wide local excision of melanoma scar of the ear lobe and reconstruction with double opposing local transposition flaps and sentinel lymph node biopsy (SLNB) of the neck via the skin flap incisions without further need for incision extension. This is a technique for earlobe reconstruction that provides satisfactory results that can be performed in a single stage procedure simultaneously allowing access for sentinel lymph node biopsy from the cervical, pre- and post-auricular lymph node basins. We feel this technique is an option to be considered when treating melanoma of the earlobe requiring SLNB. Level of Evidence: Level V, therapeutic study.

Keywords Melanoma · Earlobe reconstruction · Sentinel lymph node biopsy

Introduction

The earlobe represents an important element in the aesthetic appearance of the entire ear. Its reconstruction is challenging due to difficulty obtaining a natural appearance and durable outcome. Many techniques have been described for earlobe reconstruction with reconstruction performed either immediately or delayed. The authors present a reconstructive option following wide excision of malignancy of the earlobe that facilitates sentinel lymph node biopsy (SLNB) from the neck without further incision. We report satisfactory results obtained using this technique for immediate earlobe reconstruction.

Operative technique

All melanoma cases are discussed at skin cancer multidisciplinary team (MDT) meeting prior to surgery. Preoperative

lymphoscintigraphy is performed with technetium 99-m colloidal albumin injected into the primary melanoma excision scar. A skin surface marking was made overlying the sentinel node. Prior to surgical prep administration, the melanoma scar is injected with patent blue dye intra-dermally to facilitate identification of the sentinel node. The melanoma scar is then excised with a 1-cm margin, resulting in lobectomy of the earlobe. A pre-auricular transposition flap is then raised with its base attached inferiorly. Another post-auricular transposition flap is raised with its base attached superiorly extending inferiorly to the neck along the posterior border of the sternocleidomastoid. The SLNB is then performed through the incisions used to raise the transposition flaps. The pre-auricular flap and post-auricular flaps are then transposed and inset to reconstruct the anterior surface and posterior surfaces respectively (see Figs. 1 and 2). The flaps are then inset and donor areas closed with 5–0 Nylon sutures. The sutures are removed two weeks post procedure.

Representative cases

Case 1

An 83-year-old gentleman presented with a pigmented lesion on the dorsal aspect of his left earlobe for several years. He

✉ Metin Nizamoglu
mnizam@doctors.org.uk

¹ St Andrew's Centre for Plastic Surgery and Burns,
Chelmsford, Essex CM1 7ET, UK

Fig. 1 Case 1



Fig. 2 Case 2



then more recently developed a further smaller lesion to the medial aspect of the initial lesion which the patient reported as gradually increasing in size. On clinical examination, there was a 6 × 6 mm nodular lesion with telangiectasia and pigmentation; adjacent to this was a 2 × 2 mm pigmented flat lesion without telangiectasia. His past medical history consisted of asthma, prostatism, abdominal hernia repair and polymyalgia rheumatica. An excisional biopsy of both pigmented lesions was performed under local anaesthetic. The histology results showed a nodular malignant melanoma with Breslow thickness of 3-mm Clark level 4 with no ulceration. The mitotic rate was 9 per mm². A wide local excision (WLE) was performed with a 1-cm margin followed by earlobe reconstruction with double opposing local transposition flaps. SLNB was performed through existing skin incisions. Histology revealed no residual melanoma of the excised tissue. Three sentinel lymph nodes were taken at the time of SLNB, all of which were negative for metastatic melanoma. Following surgery, the case was once again discussed at skin cancer MDT meeting. The decision was made to follow up the patient without any further surgery. The wounds healed without complication.

Case 2

A 70-year-old lady presented with a pigmented macule over her right earlobe over several months. Her past medical history consisted of a previous superficial spreading melanoma with 0.9 mm Breslow thickness excised with a 1-cm margin from the right shoulder 4 years earlier, hypertension and hypercholesterolaemia. Excision biopsy of her earlobe lesion confirmed a non-ulcerated superficial spreading melanoma invading to a Breslow thickness of 4.1 mm, Clark level 4, mitotic activity over 1 per mm². A 1-cm WLE of the melanoma scar of the right ear lobe was performed and reconstruction with double opposing local transposition flaps as described. SLNB of right parotid region was performed via the existing incisions. Two sentinel lymph nodes were taken at the time of SLNB from the right neck, all of which were negative for metastatic melanoma. Following further MDT discussion, the decision was made to follow up the patient without any further surgery. She made an unremarkable recovery with no complications.

Discussion

The earlobe not only has aesthetic importance but also may have a role in gathering sound [1]. Many techniques have been described in the literature thus far for earlobe reconstruction. Options include one local flap folded to cover both surfaces [2, 3], a combination of local flaps [4], chondrocutaneous flaps [5, 6], skin grafts [7] and tissue expansion [8]. The technique described follows the concept of two opposing skin flaps similar to that described by Sleilati in 2006 [4]. The

technique has been slightly modified by moving the retromandibular flap posteriorly so that its anterior margin runs in line with the posterior border of the sternocleidomastoid, as well as basing the flap in a more cephalad direction making the base of the flap post-auricular. This technique has several advantages to other methods of earlobe reconstruction. Primarily it is a single stage technique, reducing the number of procedures on the patient as well as reducing healthcare costs for provision of care. Furthermore, the two flaps provide a robust anterior and posterior surface of the earlobe negating the need for a chondrocutaneous graft and its associated donor morbidity. No skin grafts are required for this technique. This technique also allows adequate access to perform sentinel lymph node biopsy without the need for further skin incisions. Although the lymphatic drainage of the external ear is often unpredictable, it has been shown most commonly drainage is to cervical level II and the pre-auricular and post-auricular lymph node basins in the ipsilateral neck [9]. Once skin flaps are raised parotid, pre-auricular, post-auricular and cervical lymph nodes can easily be accessed through these incisions. The size and thickness of the flaps can be tailored to meet the needs of the soft tissue defect. The final result in our case provided a satisfactory outcome without the need for further surgery. The donor site scars are well tolerated and fall within natural skin creases.

Conclusion

This is a technique for earlobe reconstruction that provides satisfactory results that can be performed in a single stage procedure simultaneously allowing access for sentinel lymph node biopsy from the cervical, pre- and post-auricular lymph node basins. We feel this technique is an option to be considered when treating melanoma of the earlobe requiring SLNB.

Funding The authors declare that they did not receive any funding for this work.

Compliance with ethical standards

Conflict of interests Metin Nizamoglu, Charles Loh, Alethea Tan, Mohamed Fahmy Ibrahim, Nabil Mopuri, Naguib El-Muttardi declare that they have no conflict of interest.

Ethical approval For this kind of study formal consent is not required.

Patient consent The patients have given full consent to participate in this study and for use of their photographs for publication.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

1. Shen W, Cui J, Chen J, Chen H, Zou J, Ji Y (2012) Inversion of the flap at the lower ear and restoration of the flap at postauricular skin for reconstruction of the earlobe. *J Craniofacial Surg* 23(2): 560–562
2. Emiroglu M, Al-Saedi M (2001) Gavello's procedure: an old earlobe reconstruction method, revisited and touched up. *Aesthetic Plast Surg* 25(3):187–188
3. Goulão J, Alves J (2016) Total earlobe reconstruction with a superiorly based preauricular flap. *An Bras Dermatol* 91(3): 372–374
4. Sleilati F (2006) Immediate earlobe reconstruction with double-crossed skin flaps. *J Plast Reconstr Aesthet Surg* 59(9):1003–1005
5. Ohsumi N, Shimamoto R (1994) Earlobe reconstruction with a reversed-flow chondrocutaneous postauricular flap and a local flap. *Plast Reconstr Surg* 94(2):364–368
6. Yotsuyanagi T (1994) Earlobe reconstruction using a chondrocutaneous flap. *Plast Reconstr Surg* 94(7):1073–1078
7. Ziccardi VB, Lamphier J (2000) Use of keloid skin as an autograft for earlobe reconstruction after excision. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology* 89(6):674–675
8. Quaba A (1988) Reconstruction of a posttraumatic ear defect using tissue expansion: 30 years after Neumann. *Plast Reconstr Surg* 82(3): 521–524
9. Peach HS, van der Ploeg AP, Haydu LE, Stretch JR, Shannon KF, Uren RF et al (2013) The unpredictability of lymphatic drainage from the ear in melanoma patients, and its implications for management. *Ann Surg Oncol* 20(5):1707–1713