

Post-Auricular Full Thickness Skin Graft by M-Plasty Technique: An Alternative to Classical Elliptical Technique

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Benign lesions over the auricular region are not uncommon. Most lesions require an excisional biopsy for its histopathological confirmation. If excised, the resultant would be a small to medium sized soft tissue defect, exposing the cartilaginous portion of the ear. Options for reconstruction include a full-thickness skin graft, local flap cover or a wedge composite excision to retain the aesthetic appearance of the auricle. Local flap cover or wedge composite resection are not without demerits. If a full thickness graft is needed, the donor area is usually the post auricular region.

We present a modified elliptical incision M-plasty technique to minimize the tissue loss in donor post auricular area when harvesting full thickness skin graft. Although the traditional elliptical incision is used by majority of surgeons to harvest full thickness skin graft from the post-auricular region, the M-plasty technique used in our case is a modification of the traditional elliptical incision which preserves tissue that allows the surgeon to close the wound with less tension and short scar.

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The ear is a visible, aesthetically important structure to every person. Its complex convoluted shape and the thin overlying skin makes closure of any defect challenging.

Benign auricular lesions are common and their excision may result in a soft tissue defect that exposes the underlying cartilage. Most of the defects could be dealt with using full thickness skin graft, which could be harvested from the postauricular region¹.

The site of the defect generally dictates the method of repair. Defects over the anterior and central areas are usually left to heal by secondary intention or dealt with the use of full thickness skin graft, which provides cutaneous covering and maintains the contour of the ear². Other sites such as the helix could be dealt with flaps, such as advancement and transposition flaps³.

Common site to harvest the full thickness skin graft for facial and cervical coverage is the upper arm and post auricular area. Compared to split thickness graft, full thickness graft is superior in skin elasticity, recurrence of scar and matching of normal skin⁴. The full thickness skin graft harvested from the donor area to fit the defect should be closed in an aesthetic tension free method to preserve valuable tissue.

The aim of this report is to report a case where the elliptical excision is modified to reduce the tissue loss in the donor area compared to the classical method.

THE CASE

A fifty-eight-year old female presented with a lesion on the left ear. The patient gave a history of a slowly growing lesion, which was not associated with bleeding or itching. The lesion was a dark pigmented nodule located on the left auricle involving the triangular fossa and superior crus of the antihelix. It measured approximately 14 mm in diameter and 3 mm in elevation, see figure 1.



Figure 1: Dark Pigmented Nodule Located on the Left Auricle Occupying the Triangular Fossa and Superior Crus of Antihelix

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The lesion was not tender and not adherent to the underlying cartilage. There were no palpable lymph nodes.

The patient underwent an excisional biopsy of the entire lesion under local anesthesia. There was a circular defect following excision of the lesion. Template of the defect was made and full thickness skin graft was harvested from the ipsilateral post auricular region using the modified elliptical excision M-plasty technique at the superior pole, see figure 2. Full thickness skin graft was fixed to the defect with 6-0 non-absorbable nylon sutures, see figure 3. The donor area was closed with 4-0 nylon sutures, see figure 4.



Figure 2: M-Plasty Technique for Full Thickness Skin Graft in the Post-Auricular Region



Figure 3: Full Thickness Skin Graft Covering the Defect

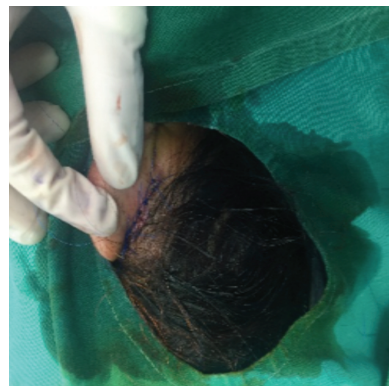


Figure 4: Direct Closure of the Donor Area in Post-Auricular Region

M-Plasty Surgical Technique of Harvesting Donor Full Thickness Skin Graft

A modification was performed in the elliptical incision for harvesting the full thickness skin graft, see figure 5. A classic elliptical excision would have produced loss of excess donor tissue, which may result in more tension within the suture line. In addition, the angles on the lower pole could be made more obtuse than the standard 30-degree angulation used by the classical technique, see figure 6. Central flap of the M-plasty incision was approximated by Gille's stitch, see figure 7.

Histopathology revealed seborrheic keratosis. Sutures were removed after 12 days. The patient had uneventful recovery and both of the graft and donor sites healed completely.

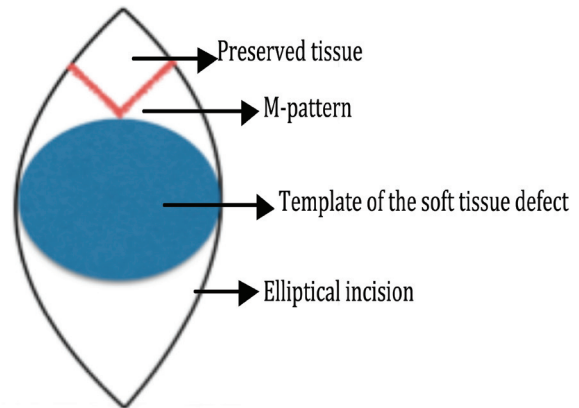


Figure 5: Modification of Elliptical Incision of M-plasty

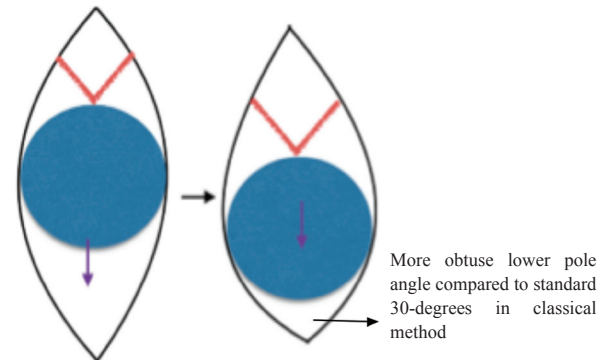


Figure 6: Defect Has Been Moved to the Inferior Pole of the Ellipse and Adjusted with M-Plasty

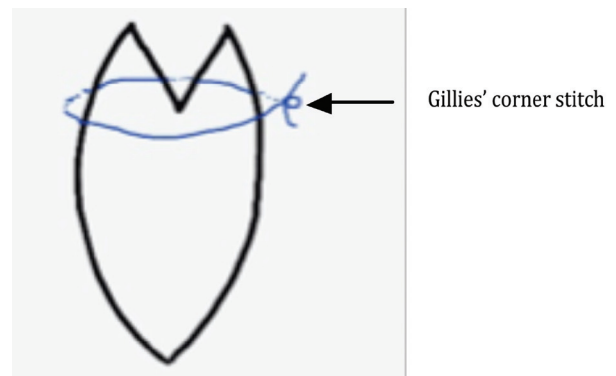


Figure 7: Gillie's Stitch Used to Secure the Central Flap

DISCUSSION

Webster introduced the technique of M-plasty in 1976⁵. Webster excised M-shaped area on both angles to preserve the healthy tissue. The technique prevents apical protrusion (dog ears), which might be due to the classical elliptical incision technique. Salache in 1984, used the same technique after the emergence of dog ears during the process of closure rather than a pre-planned M plasty⁶.

The convex part of the auricle provides the plastic surgeon with an option for harvesting a full thickness skin graft from the postauricular groove. In addition, the exposed part of the auricle is susceptible to the effects of ultraviolet rays and may present with some preneoplastic and neoplastic conditions.

A study found that 86% of melanomas in the UK are linked to excessive exposure to sunlight and sunbathing⁷. Our case did not have sun exposure due to the use of the Islamic Hijab.

Various reconstruction procedures, such as wedge excision, local/regional flap, full thickness skin graft are used as options to cover small to medium sized skin defects following excision of auricular lesions⁸. The technique used depends on the site and size of the defect, the injured or preset soft tissue component of the defect, patient preference and the surgeon's comfort level with the technique being used; each case of auricular reconstruction is unique⁸. In our case, the site and size of the defect encouraged the use of the full thickness skin graft as a modality of the definitive closure of the defect. Composite grafts from the contralateral ear could be used to cover medium sized defects (1.5 cm to 2 cm). To allow symmetry between the ears, the graft should be half the size of the defect⁹.

Full thickness skin graft is usually used for wounds that could not be closed primarily, for a resultant defect after tumor resection, and release of scar contracture. The graft is usually harvested after designing the template over the recipient site of the skin defect. Ideally, the wound of the donor site should be closed without tension to promote healing with pleasant aesthetic result¹⁰.

The advantage of utilizing the M-plasty technique for harvesting full thickness skin grafting in post auricular region includes 1) spares healthy tissue excision in donor area 2) central flap reduces tension at closure site 3) less likely to develop hypertrophic scar due to decreased tension at donor closure site 4) avoid formation of apical protrusion when compared to classical elliptical closure technique 5) technically simple if compared to other modified elliptical incision techniques^{11,12}.

CONCLUSION

Modified elliptical incision technique in terms of M plasty for harvesting full thickness skin grafting should be always considered when there is a need of preservation of valuable healthy donor tissue.

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