Treatment of Recurrent Intractable Periauricular Fistula Using Temporoparietal Fascia

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Abstract: The temporoparietal fascia has been used extensively for vascularized tissue coverage, augmentation, and facial contouring. The temporoparietal fascial graft provides thin, broad, pliable, easily neovascularized, adequate coverage, contour, and bulk, as well as a hidden donor site.

A 19-year-old woman had periauricular fistulae since she was 2 years. Her condition was diagnosed as left preauricular fistula, and she has been operated on by otolaryngologists 8 times and by plastic surgeons 2 times. The temporoparietal fascia was tunneled through a postauricular pocket to fulfill the cavity under her left earlobe and preauricular area.

Facial fistulae were resolved without wound dehiscence, graft exposure, and recurred infection. Local preoperative tenderness was minimal.

The temporoparietal fascial graft offers the following advantages as a 1-stage procedure: ease of neovascularization, being in the same operative field, being soft and compliant to the pocket, having a minimal graft resorption, and having a minimal donor site discomfort and disfiguration.

Key Words: Periauricular fistula, temporoparietal fascia

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For the past decades, fascial grafts have been used in reconstructive surgery mainly because of their tensile strength. Although the fasciae latae and temporalis fascial grafts have been used in the past, they have their own shortcomings. The temporoparietal fascia has been used extensively for vascularized tissue coverage[1,2] to augment the nose[3] and the lip[4] and to fill-in the facial contour at the centripetal sunken-in areas of the face, as an ancillary procedure in the musculocutaneous facelift stretching.[5] The temporoparietal fascia, unlike fat, is richly vascularized. It is soft and it contours readily, making it compliant for filling-in small soft tissue defects in the head and neck. No inflammation or encapsulation has been observed clinically or histologically.[6]

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The unique properties of the temporoparietal fascial flap offer adaptability in the reconstruction of a variety of composite defects. The broad, thin sheet of the vascularized tissue may be transferred alone or as a carrier of subjacent bone or overlying skin and scalp. As a pedicled flap, it is ideal for defects of the orbital, malar, mandibular, and mastoid regions. These include ear and scalp avulsion, shotgun wound of the cheek and orbit, and posttraumatic jaw recontouring.[7] The authors have found this flap practical especially in providing neovascularity both as a recipient graft bed and as a control for acute or chronic infection.[2,8]

There are no reports in the English literature on the use of temporoparietal fascial grafts for healing recurrent intractable periauricular fistula. Most importantly, more complicated procedures such as a free flap may be avoided.

PATIENT AND METHODS

A 19-year-old woman had periauricular fistulae since she was 2 years old. Her condition was diagnosed as left preauricular fistula, and she has been operated on by otolaryngologists 8 times and by plastic surgeons 2 times for local advancement flaps. However, local red swelling and excruciating pain around her left ear recurred, and then she was transferred to our center (Fig. 1A). Complete examination was performed under general anesthesia, and left external canal fistula was noted (Fig. 1B) and was continually connected both to the preauricular and the postauricular areas (Fig. 1A). After debridement, the fistula was found beyond the earlobe from the preauricular to the postauricular areas as a cavity (tunneled by the instrument; Fig. 1C). The temporoparietal fascia was harvested through a zigzag incision in the temporal scalp (Fig. 1C). The temporoparietal fascial pedicled flap was turned down as 4 × 10 cm in size to be inserted into the postauricular pocket (Fig. 1D). The tied over rolls were placed to secure the fascia into the cavity beyond the earlobe (Fig. 1E). The pathogen *Enterobacter aerogenes* was treated with oral Augmentin tablet for 5 days.

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Surgical Procedures

We started a short and straight vertical incision 1 cm in length upward from the ant-point of the superior auricular sulcus line on the temporal skin parallel to the hair follicles. The flap was dissected in a subfollicular plane until an adequate size of tissue has been freed. Then we continued a 4- to 5-cm 60-degree zigzag incision. The skin was widely elevated to make a good exposure of the temporoparietal fascia flap. A temporoparietal fascial graft was then stripped off the temporalis muscle fascia. The graft tissue was then folded on itself to allow for an overcorrection of approximately 20%. The inferiorly based flap was lifted. We incised the cephalad part of the fascia at the border generally located on the upper edge of the temporal fossa. The anterior edge of the fascia was divided close and posterior to the superficial temporal artery and vein. The superficial temporal vessels were preserved to ensure the good blood supply for the flap we designed. The graft or flap was inserted into the pocket. Skin wound was closed with 5-0 absorbable sutures, and the bolster suture was removed 5 days after surgery. The results were evaluated on the basis of the aesthetic appearance and consistency of the free border of the lip at follow-up of at least 6 months after surgery and every 6 months

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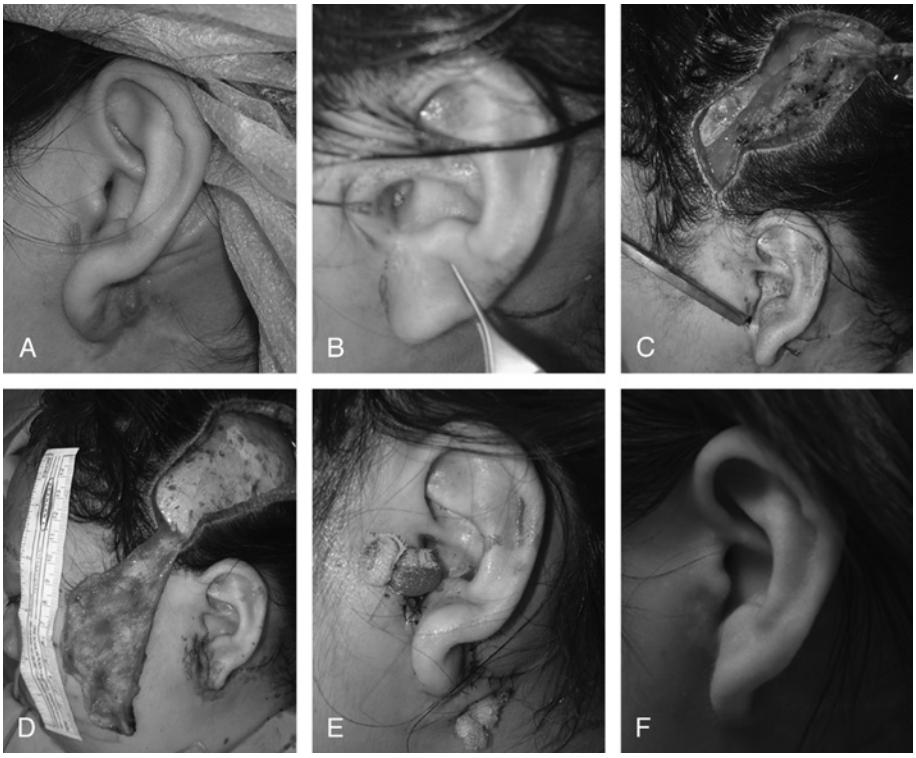

FIGURE 1. A 19-year-old woman with left periauricular fistula. A, Pus continually discharged from the preauricular and postauricular areas. B, The fistula was also noted in the left external ear canal. C, After debridement, the fistula was found beyond the earlobe from the preauricular to the postauricular areas as tunneled by the instrument. The temporoparietal fascia was harvested through a zigzag incision in the temporal scalp. D, The fascia was 4 × 10 cm in size. E, The tied over rolls were placed to secure the fascia in the cavity beyond the earlobe after the fascia was inserted into the postauricular pocket. F, Two years after surgery, there were no residual inflammatory changes.

thereafter. We put it into the intended retroauricular sulcus (Fig. 1E). The contour of the upper auricle could be designed while we adjusted the curvature of the bent plate and changed the traction force as well. We sutured and fixed it along with the superior auricular sulcus. The postoperative fixation and dressing were maintained by tied over rolls (Fig. 1E). Then we closed the temporal scalp wound with stapes. The dressings are to be removed 1 month later.

RESULTS

The infection subsided immediately after surgery. No more recurrence was noted. After 3 years, there were no residual inflammatory changes (Fig. 1F). There was neither graft exposure nor recurred infection. The donor site of temporoparietal fascia was inconspicuous.

DISCUSSION

The ease and the gratifying results of this technique to date have been encouraging. The rich capillary network offers ease of neovascularization of implanted grafts. The infection and fistulae were resolved by the grafts. It is easy to harvest, with the donor site in the same operative area. The donor site scar is inconspicuous and well disguised by hair growth. Postoperative discomfort is minimal, and oral medication may alleviate the pain.

The temporoparietal fascia graft can provide a smooth contour augmentation with minimal surrounding tissue reaction. The major technical challenge is posed by the soft consistency of the graft. Because of the potential for movement, postoperative fixation and dressing were maintained by tied over rolls around the ear (Fig. 1E) for 3 weeks or external nasal splints for 1 week to hold the shape of these grafts when they are placed in a localized portion of a more widely dissected pocket.

SUMMARY

The results of temporoparietal fascial grafts may eliminate fistula. In properly selected patients, the technique is quick and reliable and offers long-lasting correction of difficult problems. The procedure is a useful method to eliminate recurrent intractable fistulae.

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