

EXPOSED TITANIUM RECONSTRUCTION PLATE RECONSTRUCTION USING HAIR-BEARING TEMPOROPARIETAL FASCIAL FLAP

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Abstract

Background: The temporoparietal flap is one of the most versatile flaps in the head and neck region. It may be used for coverage of the ear, orbit, anterior cranial base, and upper two thirds of the face. Use of Hair-Bearing Temporalis Myocutaneous Flap for Reconstruction of Exposed Titanium Plate After Mandibular Reconstruction has not been done in our country yet.

Case Description: In this article we reviewed 2 patients who were undergone to the procedures of using Hair-Bearing Temporalis Myocutaneous Flap for Reconstruction of Exposed Titanium Plate After Mandibular Reconstruction.

Conclusion: This clinical study describes our experience in one-stage reconstruction of soft tissue with TPF. The flap is reliable as long as its vascular supply is preserved and the operative time is short. IT should be taken into consideration before deciding on more extensive re-constructive.

Keywords: Hair-Bearing, Reconstruction, Temporoparietal fascial flap.

Introduction

Fasciocutaneous flaps are tissue flaps that include skin, subcutaneous tissue and the underlying fascia. Including the deep fascia with its prefascial and subfascial plexus enhances the circulation of these flaps. They can be raised without skin and are then referred to as fascial flaps.¹ Use fasciocutaneous flaps to provide coverage when a skin graft or random skin flap is insufficient for coverage (eg, in coverage over tendon or bones). Orient the flap along the direction of the supplying vessel; knowledge of the direction or orientation of the fascial plexus, the fasciocutaneous perforators, and the fascial septum is required. They are simple to elevate, quick, and fairly reliable in healthy patients.^{2,3}

The temporoparietal flap is one of the most versatile flaps in the head and neck region. The superficial temporal artery & vein supplies this flap. It may be used for coverage of the ear, orbit, anterior cranial base, and upper two thirds of the face.⁴ Often, it is used as a free flap when vascularized tissue is needed with minimal bulk. The flap can be used with or without the skin. In addition, it can be raised with the auriculotemporal nerve when sensation is required. Vascularized bone may be obtained by including a strip of parietal bone.⁵



Figure 1: - A] 58 years old man; B] 65 years old man

Use of Hair-Bearing Temporalis Myocutaneous Flap for Reconstruction of Exposed Titanium Plate After

Mandibular Reconstruction has not been done in our country yet. In this article we review 2 patients that undergo to this procedure. Patients and methods Patients: Both of the patients are known cases of oral SCC that one year after mandible reconstruction and subsequent radiotherapy come with complain of plate dehiscence. Both of them are male with age 58 and 65 years old. [Figure 1 A and B]

Surgical technique

A template of the defect is outlined on the scalp. The distance from the point of rotation at the level of the tragus to the proximal extent of the defect is measured. Then, if needed, the flap can cross the midline for 2 to 3 cm without vascular compromise. The skin incision is placed anterior to the ear, in the preauricular crease if desired and elevated just deep to the dermis. In the scalp, the skin is elevated just at the level of the junction of the hair follicles and the superficial temporal fascia. After the anterior and posterior flaps are developed, and the pedicle (superficial temporal artery & vein) is identified anterior to the ear, the skin paddle is incised along its superior periphery. [Figure 2 A and B] The paddle is elevated in the loose areolar layer between the deep and superficial temporalis fascia with temporal vessels to the pedicle, and isolated on the artery and vein. The pedicled flap is sutured into the defect where it remains for a minimum of 2 weeks. [Figure 3A and B]



Figure 2: A pattern of scalp defect has been identified, which is related to A] For 58 year old person; B] For 65 year old person



Figure 3: A pattern of scalp defect has been identified at the end of the initial surgical procedure, which is related to A] 58 year old person; B] 65 year old person

Results

The myocutaneous temporalis flap was used to close mandibular defect in 2 patients. In 2 cases, recovery was uneventful, with no infection, hemorrhage, partial or total flap loss. [Figure 4 A and B]



Figure 4: A] Post operation after 4 week of 58 year old person; B] Post operation after 2 week of 60 year old person

Discussion

Radiation therapy damages small vessels by reducing smooth muscle density and progressively thickening the sub-endothelial components of vessel wall, leading to progressive occlusion and fibrosis of the vessels. On top of threatening the perfusion of the flap, radiation induces changes of skin and subcutaneous tissues that lead skin atrophy and firability. These changes arise from decreased mitotic activity of the epidermis that leads to the loss of keratinized layers as well as depletion of stem cells within the stratum basalis.^{7,8} This concept is demonstrated in the above case report plate extrusion is so common in the setting mandibular reconstruction with reconstruction plates. Because of this, both of patient candidate for flap reconstruction instead of primary closure. Today, the temporoparietal flaps remain the only single-layered fascia flap that can be used as a pedicled vascular flap in the head and neck. The flap is thin and pliable, and it readily accepts a skin graft. Temporoparietal flaps can drape into concavities and over convexities and they are highly vascular and resistant to infection.

The skin of the scalp can survive as a random local flap, or it can be carried with some or all of the underlying tissue layers. Similarly, the temporoparietal fascia can be used as a random local fascial flap or as an axial flap based on the superficial temporal vessels. Its rich vascularity, proximity, and similar texture offer distinct advantages in the reconstruction of complex head and neck defects. This versatile flap has been used as a pedicled, free, or composite flap with calvarium or hair-bearing skin to reconstruct defects of the extremities, auricle, orbit, cheek, and oral cavity. Its dimensions and arc of rotation may be increased by using temporalis muscle and deep temporal fascia myofascial unit. The temporoparietal fascial flap (TPFF) has also been used to address Frey syndrome, osteoradionecrosis, nasal septal perforations, and temporal bone pathology.⁸

Hair-bearing TPFFs provide an ideal reconstructive option for Exposed Titanium Reconstruction Plate After Mandibular Reconstruction given their high vascularity, anatomical proximity, minimal associated donor site morbidity, and overlying hair.

Conclusion

This clinical study describes our experience in one-stage reconstruction of soft tissue with TPFF. The flap is reliable as long as its vascular supply is preserved and the operative time is short. IT should be taken into consideration before deciding on more extensive reconstructive.

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