

Galeo-Pericranial Flap—A Rich Pedicle Flap for Temporisation of Large Maxillofacial Defect: A Case Report

Abstract

Reconstruction of large facial defects is quite a challenging and difficult task. Various surgical options are available, each with its challenges and complications. Galeo-pericranial flap has provided a suitable technique for reconstruction of radical parotidectomy defects with satisfactory outcomes. A 50-year-old farmer with a histologically diagnosed mucoepidermoid carcinoma of the right parotid gland of 15 years duration had radical parotidectomy and reconstruction of the defect with galeo-pericranial flap. The patient was followed up for 2 years, and the flap was completely taken with no donor site morbidity.

Keywords: Galeo-pericranial flap, mucoepidermoid carcinoma, parotidectomy, reconstruction

Introduction

Ablative oncological surgery of the maxillofacial and oral region usually results in composite defects that are quite challenging and difficult to reconstruct.^[1] Reconstructive procedures for such defects differ depending on the size and position of the defect, as well as the quality of the adjacent healthy tumour margin.^[2] The patients age, comorbidity and motivation also play an important role.^[3] Although the gold standard for both soft tissue and bony reconstruction of large head and neck surgical defects is the microvascular free flap,^[4] with a success rate as high as 97%–99% in developed countries.^[5] However, this option is still completely unavailable or rudimentary in many developing countries.^[4,5] Hence, distance pedicle flaps are still the cornerstone in reconstruction of large maxillofacial tumour ablative defects in underdeveloped countries.^[6]

Recent studies have demonstrated versatility of galeo-pericranial flap as loco-regional alternative in the reconstruction of large intraoral and pharyngeal defects.^[4,7] To the best of our knowledge, no study was found to use galeo-pericranial flap to reconstruct parotidectomy defect in the literature. Therefore, we present a case of a middle-aged man with large malignant parotid tumour who had radical parotidectomy and

reconstruction of the surgical defect with galeo-pericranial flap.

Case Report

A 50-year-old man referred to our facility with 4 days history of bleeding from an ulcerative swelling on the right parotid region of 15 years duration. The swelling was initially painless and slow growing, the swelling got ulcerated about 3 years later, discharging clear fluid and occasionally bleeds. On general physical examination, the patient was pale, anicteric, acynosed not dehydrated. Clinical examination revealed a right facial ulcerative swelling in the parotid region well circumscribed multinodular, extending superiorly from zygomatic region to the angle of the mandible inferiorly, anteriorly from about 5 cm short of the right commissure of the mouth to the retromandibular region posteriorly. The ulcer was circular measuring about 6 × 6 cm in widest diameter, edge was irregular raised in some areas and sloppy in other areas, the floor was multinodular, haemorrhagic and areas of necrosis were noticed. The base was indurating and tender [Figure 1]. The facial nerve function was intact, and no lymphadenopathy. Computed tomography scan showed a circumscribed soft tissue swelling with no bony involvement. Incisional biopsy for histopathological examination revealed features of mucoepidermoid carcinoma-intermediate grade.

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**Mukhtar Modibbo Ahmad¹,
Abdurrazaq Olanrewaju Taiwo²,
Ibrahim Kayode Suleiman^{1,3},
Mujtaba Bala⁴,
Braitham Ramat Oyeunmi⁴,
Abdulmajeed Sajo⁴**

¹Department of Oral and Maxillofacial Surgery, University of Maiduguri Teaching Hospital, Maiduguri, ²Oral and Maxillofacial Surgery, Faculty of Dental Sciences, Usman Danfodiyo University Teaching Hospital, Sokoto, ³Department of Oral and Maxillofacial Surgery and Pathology, Faculty of Dentistry, College of Medical Sciences, University of Maiduguri, ⁴Oral and Maxillofacial Surgery, Faculty of Dental Sciences, Usman Danfodiyo University Teaching Hospital, Sokoto, Nigeria

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Address for correspondence:

Dr. Mukhtar Modibbo Ahmad,
Department of Oral and Maxillofacial Surgery, University of Maiduguri Teaching Hospital, Maiduguri 600230: P.M.B 1414 Bama Road, Maiduguri, Borno State, Nigeria.
E-mail: dentmamodibbo@gmail.com

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The patient was counselled and optimised for radical parotidectomy and reconstruction with deltopectoral flap, however, the patient declined this reconstructive option due to socio-cultural reason. Subsequently, right radical parotidectomy and temporisation of the tumour bed with galeo-pericranial flap was done [Figures 2 and 3], and the wound was dressed with Sofra-Tulle gauze covered with iodine soaked gauze and light pressure crepe bandage. Immediate postoperatively, the patient was placed on intravenous (IV) ceftriaxone, metronidazole,

dexamethasone and (IM) ketonal. Two days later following wound inspection, alternate day wound dressing with Sofra-Tulle gauze was commenced and continued until healthy granulation tissue was observed at two weeks. Afterwards, the dressing was changed to open wound dressing.

The surgical specimen confirmed the preoperative histopathological diagnosis, and we referred the patient to radio-oncology unit of the hospital where chemotherapy was commenced before the discharge; the patient was followed up at 2 weeks immediately after having discharged from the hospital and then monthly for next three consecutive months then at 3 and 6 monthly until 2 years and the patient expressed satisfaction with the treatment [Figures 4 and 5].



Figure 1: Preoperative presentation



Figure 2: Intraoperative tumour ablation and galeo-pericranial flap exposed



Figure 3: Intraoperative picture immediately after reconstruction



Figure 4: One week postop



Figure 5: Two years postop

Surgical Technique

Coronal surgical approach was used to expose the parietal and temporal regions to obtain a craniocaudally based flap supplied by superficial temporal vessels. Incision was made through skin to the subcutaneous tissue extending from preauricular area (connecting parotidectomy defect) to the upper parietotemporal skin to raise the cutaneous flap and exposes the galea in the parietal region; this provides a plane of dissection further inferiorly into temporoparietal region to expose the temporoparietal fascia. Dissection was carried out carefully not to traumatise superficial temporal vessels in this region. After achieving required wide exposure, the pericranium was incised to the cranial bone to raise a galeo-pericranial flap. The flap was then rotated downward to cover the exposed radical parotidectomy defect and sutured to the subjacent connective tissue layer.

Discussion

Reconstruction of composite defect in the oral and maxillofacial region is challenging. This is because functional, aesthetic and, psychological issues are always involved and they must be addressed. While addressing these concerns, surgeon's expertise, availability of necessary professional support, equipment and, patient selection are also of utmost importance. In sub-Saharan Africa where there are inadequate facilities and expertise, use of loco-regional flap might be the only possible option in the reconstruction of composite maxillofacial defect. Several options of these loco-regional flaps are available including galeo-pericranial flap.

The galeo-pericranial flap harvested from temporoparietal region in this report was a composite flap made up of

galea and pericranium that is being supplied by superficial temporal vessels.^[4] The flap is a highly vascular, versatile, easily harvested with low morbidity and pleasing cosmetic outcome.^[8] The utility of this flap has been reported in the literature in reconstruction of various head and neck defects, including sino-orbital reconstruction,^[8] skull base defect,^[9] ear reconstruction,^[10] fronto-temporal cranioplasty,^[11] oral cavity and pharyngeal reconstructions.^[7]

We explore the possibility of harvesting the galeo-pericranial flap to temporise the parotidectomy defect and allow smooth epithelisation with minimal fibrosis. Careful patient selection is essential for successful reconstructive outcome using this technique; hence, the evaluation of patients' psychological and psychosocial factors is crucial in decision making. Patients with similar scenario like this case report and are in rejection of distance pedicle flap reconstruction could benefit from this procedure. This flap provides some unique advantages including satisfactory temporisation of an exceptionally large lateral facial defect and where clear safety margin is uncertain in craniofacial tumour ablative surgeries. It also serves as an alternative for permanent closure of orofacial defect in case of poorly motivated patient who might not accept any reconstructive option or due to comorbid condition contraindicating prolong surgery. Although despite all these advantages, a conspicuous scar resulted in this patient which is the major disadvantage using this flap for facial reconstruction.

Conclusion

Galeo-pericranial flap is highly vascularised loco-regional flap for temporisation of a radical parotidectomy defect with fascinating satisfactory outcome and low donor site morbidity. Recommended in elderly, with comorbid condition, and ill motivated patients whom resultant facial scar is of less concern to them.

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Conflicts of interest

There are no conflicts of interest.

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