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RESEARCH ARTICLE

THE LATERAL FOREHEAD FLAP STILL A WORKHORSE FLAP IN MAXILLOFACIAL RECONSTRUCTION.

Fiqhi Mohammed Kamal, N'diaye Abibou and El Khatib Karim.

Plastic and oral Surgery, Mohammed V Teaching Armed Forces Hospital; Rabat – Morocco.

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Abstract

Background: The lateral forehead flap (LFF) less and less used in current practice is a very reliable flap, using the entire frontal aesthetic unit focused on the superficial temporal pedicle. We present our surgical technique, and three clinical examples that illustrate the different indications in our service; we will discuss advantages and disadvantages.

Methods: Three cases of squamous cell carcinoma of cheek and nose were resected and reconstructed using the lateral forehead flap, the secondary defect was split-skin grafted.

Results: All flaps survived and functional outcomes are attained in all patients, with acceptable aesthetic results.

Conclusions: The LFF is a robust tool in the arsenal of the reconstructive surgeon. The flap can cover several facial and intraoral defects, which would otherwise require distant flaps or free flaps. It should be mastered by all facial reconstructive surgeons.

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Introduction:-

Was first introduced as temporal flap by Ian McGregor in 1963 to patch for an intraoral defect[1], The lateral forehead flap is an axial myocutaneous flap, based on either the right or left superficial temporal artery transversely across the forehead. The LFF provides a reconstructive surgeon with a robust pedicle and large amount of tissue to reconstruct almost any defect.

The flap is usually designed as an esthetic unit and comprises the hairless skin of the forehead between the scalp and the eyebrows and extends laterally to the preauricular and temporal hair-bearing skin (Fig 1a,b). The flap is elevated just above the pericranium layer (Fig 2). For intra oral reconstruction, LFF is tunneled on the loose connective tissue plane beneath the base of pedicle; the remaining tunnel is bluntly dissected in the general direction of the upper buccal sulcus to reduce the chance of injury to the facial nerve[1] (Fig 3). Area of the flap which will lie within the tunnel must be deepithelialized (Fig 4). The secondary defect of forehead is split-skin grafted as a forehead esthetic unit (Fig 5).

Patients and methods:-

Case 1:

58-year-old man with squamous cell carcinoma on the nose, the excision of the tumor left a full thickness of the right half of the nose extended to the cheek. Defect was reconstructed using a left pedicled forehead flap. The base of the pedicle was divided three weeks after. Flap and grafted donor area healed satisfactorily (Fig 6a,b,c,d,e).

Corresponding Author:- Fiqhi Mohammed Kamal.

Address:- Plastic and oral Surgery, Mohammed V Teaching Armed Forces Hospital; Rabat – Morocco.

Case 2:

52-year-old man with squamous cell carcinoma on buccal mucosa invading skin of left cheek. Removal of the tumor entailed a full thickness of cheek excision. A left pedicled forehead flap was tunneled and folded on the distal side to form both the inner and outer lining of cheek. Temporary external parotid fistulae was developed but cleared in one month (Fig 7a,b,c,d)

Case 3:

55-year-old women with large squamous cell carcinoma on cheek, pectoralis major myocutaneous was used first; the patient developed major flap necrosis required surgical debridement, followed by a lateral forehead flap how permits immediate repair of the defect and saves the patient from a salivary fistula (Fig 8a,b,c,d).

Results:-

All LFF flaps in the case examples survived with no partial compromise. The aesthetic result was satisfactory. One patient has developed a parotid fistula as minor and temporary phenomenon.

Discussion:-

Currently free flap reconstruction is undoubtedly the first choice for head and neck reconstruction, providing one stage restoration with lower morbidity and better cosmetic and functional results [2]. However, LFF continues to be an important tool in the armamentarium of head and neck surgeon. As illustrated in the three cases above, the LFF holds a great promise not only as a method of primary reconstruction but also as a salvage procedure after flap necrosis (Case: 3).

The LFF has the advantage of being locally available; in addition the flap is thin and has a long reach extends to the middle and lower third of the face and the oral cavity.

Technically the flap is simple and accessible to young surgeons, unlike free flaps the duration of the intervention is short and only one team is sufficient.

The lateral forehead flap is a good alternative in cases bearing contraindication for free flap reconstruction such as medical conditions making patient unfit for long surgery and in cases with inadequate recipient vessel jeopardizing the feasibility of microvascular anastomosis.

The main disadvantage of the flaps is the Loss of forehead sensation and eyebrow-raise expression.

Despite its versatility, nowadays it is rarely used because of the donor site deformity but the cases presented and some cases reported in the literature show acceptable aesthetic results [3,4,5].

Conflicts of interest:-

The authors declare that they have no conflicts of interest in relation to this article.



Fig 1a:- design of the lateral forehead flap



Fig 1b:- design of the lateral forehead flap



Fig 2:- flap elevated



Figure 3:- flap tunneled



Fig 4:- the intermediate area deepithelialized



Fig 5:- donor area grafted as a forehead esthetic unit.



Fig 6a:- squamous cell carcinoma of nose



Fig 6b:- excised.



Fig 6c:- defect reconstructed using LFF.



Fig 6d:- after 6 months.



Fig 6e: after 1 year



Fig 7a:- squamous cell carcinoma of cheek excised



Fig 7b:- immediate result



Fig 7c:- intra oral.



Fig 7d:- forehead donor one week after grafting.



Fig 8a:- 55-year-old women with large squamous cell carcinoma of cheek



Fig 8b:- major pectoralis flap necrosis.



Figure 8c:- result of donor and LFF.



Figure 8d:- result of donor and LFF

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