

RADIAL FOREARM FREE FLAP FOR RECONSTRUCTION OF HUGE VERRUCOUS CARCINOMA OF FACE

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Summary

Verrucous carcinoma is a well differentiated papillary squamous cell carcinoma that may invade locally but rarely metastasizes. A 65 years old farmer presented with a huge ugly looking verrucous carcinoma on left angle of mouth involving cheek and zygoma at Chittagong Medical College Hospital in July 2010. Clinical examination and CT scan revealed neither bony nor regional lymph node involvement. The enormous growth was excised and reconstructed by Radial Forearm Free Flap. Standard microvascular techniques were followed. Patient had uneventful postoperative recovery. Radial forearm free flap was taken & well matched with the facial tissue leaving no donor site morbidity. Follow up was done monthly for the first 6 months and 3 monthly onward. No recurrence is noticed yet, even after 18 months.

Key words

Radial forearm free flap; cancer reconstruction; facial defect; verrucous carcinoma

Introduction

Reconstruction of huge defects due to malignant lesion of face is a real challenge for plastic surgeons. Tridimensional complex defect causes anatomic and functional impairment that complicates the reconstructive procedure. Free flaps are the great opportunity for the plastic surgeons to cover the defects with good anatomic, aesthetic and functional outcome. The variable size and design of radial forearm free flap (RFFF) makes it a versatile one for reconstruction of large facial defects. The skin colour and texture of RFFF well matches with the facial skin. The subcutaneous fat of the flap is also similar in consistency with that of face helping in maintenance of normal facial expressions.

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Here we are presenting a case of huge verrucous carcinoma involving left cheek, both lip and angle of mouth. The lesion was excised with 2 cm tissue margin and reconstructed successfully by RFFF with no recurrence even after 18 months. The excellent restoration of function and aesthesis gave the patient a new lease on life.

Case Report

A 65 years old man hailing from Noakhali got admitted in Chittagong Medical College in July 2010 with a huge ulcerated cauliflower-like growth on the left angle of mouth involving cheek, zygoma and two-third of both lips. The irregularly oval shaped growth with everted edge measured about 16cmx15cmx6cm. Oral mucosa along with the lower gingiva was involved. Regional lymph nodes were not enlarged. The large growth caused impairment of articulation and mastication. The frightening look of the ulcerated growth hampered patient's social life.



Fig 1: Huge Verrucous carcinoma of the face involving left cheek, both lip & angle of mouth

The growth was diagnosed as verrucous carcinoma on histopathological examination. CT scan revealed neither bony nor regional lymph node involvement. After thorough preoperative and preanesthetic check up, microvascular free tissue transfer was planned to reconstruct the defect with fasciocutaneous RFFF after wide excision of the growth.

Microsurgical Procedure

Under general anesthesia marking was done 2cm away from the margin of the lesion both skin and oral mucosal site. Incision was gradually deepened and the lesion was excised securing the facial vessels.

Then the left facial vessels were prepared for microvascular anastomosis using high magnification loupe. For reconstruction, a RFFF of 22cmx12cm size was designed on right forearm after measuring the defect on the left cheek & angle of mouth. Dissection of the fasciocutaneous RFFF was started from the distal side after application of a mid-arm tourniquet. Distal end of radial vessels were identified and ligated. Superficial branch of radial nerve was preserved and was not included within the flap. At the end of flap harvesting the tourniquet was released before ligation of the proximal end of radial artery and concomitant veins. After proper hemostasis, radial artery followed by concomitant veins were ligated and divided. The RFFF was harvested and in hand for transferring to the recipient site. Distal part of the flap was sutured first with the oral mucosa up to the lip margin keeping the skin surface inward. Vessels (radial) of the flap were prepared for anastomosis. An end-to-end arterial anastomosis was performed between facial artery (2.5 mm) and radial artery (3 mm), while end-to-end anastomosis of two concomitant facial & radial veins was done (2.5 mm). Finally, the flap was folded to cover the outer defect and sutured with the skin margin. Donor site was resurfaced with STSG. The total duration of operation was 6 hours with ischemic time of 80 minutes.



Fig 2: Extensive defect after excision of the verrucous carcinoma



Fig 3: Harvested RFFF showing radial vessels (before division)



Fig 4: Radial Forearm Free Flap (RFFF) with pedicle (after division)



Fig 5: Microvascular anastomosis between facial-radial vessels



Fig 6: Immediate postoperative view after reconstruction with RFFF



Fig 7: STSG taken well on donor site (3 months postoperative)

A bolus dose of injectable heparin (1000 IU) was infused intravenously immediately after establishment of flap circulation. The same amount was mixed in 1000 cc of normal saline and administered daily in IV drip at 10 drops per minute for consecutive 5 postoperative days. The color, temperature and turgor of the flap were observed every 6 hourly. Patient's blood pressure, urine output and other vital signs were monitored routinely. Antimicrobials used were Ceftriaxone, Flucloxacillin and Amikacin.



Fig 8 : After 18 months of surgery patient regained well formed cheek, lip & commissure.

Results

The patient had uneventful postoperative recovery. The RFFF forms the oral mucosa and skin of the cheek with good function and aesthesis. Patient's articulation and mastication functions were almost restored. Skin graft was well taken on the donor site with no donor site morbidity. Patient was back to his normal life after 6 weeks of operation. No recurrence was noticed even after 18 months as the patient is on regular follow up.

Discussion

Verrucous carcinoma is a less aggressive squamous cell carcinoma which usually appears as wart-like lesion. It progresses to polypoid mass and may become locally invasive but rarely metastasizes. Wide excision of the lesion produces defects sometimes complex, tri-dimensional especially when involving the maxillofacial region. Reconstruction of large defects in this region is a surgical challenge. Microvascular free tissue transfer is an opportunity for the surgeons to reconstruct the large defect allowing the patient to lead a near normal social life¹.

RFFF is a versatile flap for head and neck reconstruction and first introduced by Yang et al in China in 1981². Hence it is known as 'Chinese Flap'. Several factors make the flap a superior one. It offers relatively easier technique of flap harvesting along with long vascular pedicle and large caliber vessels. It usually provides reinnervation without neural anastomosis.

Large amount of thin pliable skin matches well with the color and texture of the recipient site and offers minimum donor site morbidity.

The factors which have got crucial role on flap survival are proper choice of recipient vessels, execution of standard microvascular techniques, measure to prevent microvascular thrombosis & systemic problems such as arterial hypotension or hypercoagulation state³⁻⁷.

In our reported case the huge verrucous carcinoma was confined to the left cheek, zygoma and two-third of both lips. No regional lymph node or distant metastasis was evident. After excision the cheek, oral mucosa, both lip and the commissure was reconstructed successfully with RFFF. Standard microvascular techniques were followed. Flap was taken excellently with restoration of almost normal function and anatomy, leaving minimum donor site morbidity. No recurrence was noticed even after 18 months of regular follow up.

Conclusion

Microvascular free tissue transfer is the choice for less invasive tumour in the head neck region. A single RFFF is adequate for reconstruction of both oral mucosa and outer skin of a large defect. Its thin flexible skin matches excellently with the color & texture of the face as well as facilitates functional restoration. Simpler technique of harvesting RFFF and minimum donor site morbidity make RFFF a better option for reconstruction of cancer defect on the face. It offers early return to normal life with least chance of recurrence.

Disclosure

All the authors declared no competing interest.

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