Lip switch flaps: A versatile option for lip reconstruction.

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Aim: To show the versatility of the lip switch flap in the reconstruction of various sizes of lip defects.

Abstract: We present three patients who had secondary cleft lip defect, excision of pleomorphic adenoma and squamous cell carcinoma respectively. The first patient had cleft lip repair as a baby and the other two had tumour excision of the upper and lower lips. The lower lip was used to reconstruct the upper lip in the first two cases; this is the classical Abbe flap, while the upper lip was used to reconstruct the defect on the lower lip in the last case[1]. All the patients were satisfied with the result of surgery. There was no recurrence of tumour in the last two cases after 5 years of follow up.

Key words: lip switch, flap, defect, tumour.

Introduction: The lips are a pair of organs that form part of the face. They are composed of the skin, subcutaneous tissue, muscles and the oral mucosa. The preservation of some anatomic structures, maintenance of oral continence and cosmesis of the face are important in lip reconstruction. These

structures include (a) the filthral columns on the upper lip. These two slight elevations extend from the root of the columella to the white roll (b) the white rolls extend from the right to left oral commissures. (c) the oral commissures are the angles of the mouth (d) distal to the upper lip white roll and proximal to the lower lip white roll is the vermilion of the two lips (e) the normal upper and the lower lips meet along the red line. (f) the red line separate the vermilion from the oral mucosa. The philthral columns meet the upper lip white roll at the cupid bow peak. The distance between these peaks form the cupid bow. On the central part of the upper lip vermilion is the tubercle. The lower lip is convex and has neither a cupid bow, cupid bow peak nor a tubercle. In reconstructive surgery of the lip, an attempt is made to preserve and align these anatomic structures. A maximum of one quarter and one third of the upper and lower lip respectively are available as lip switch flaps for reconstruction without deformity.

1. Case one.

This is the case of a 22-year-old male Nigerian university undergraduate student who had cleft lip repair as a baby and grew up to find a central defect on his upper lip; the two incisor teeth being always exposed. He endured a lot of embarrassment from his peers in the nursery, primary and secondary schools and presented to us

for treatment as a university undergraduate because he could neither attend lectures nor social gatherings because of the lip deformity.

On examination his general condition was satisfactory. The lower lip was grossly normal. The upper lip was short centrally with exposure of the entire central upper incisor teeth and part of the lateral incisor teeth.

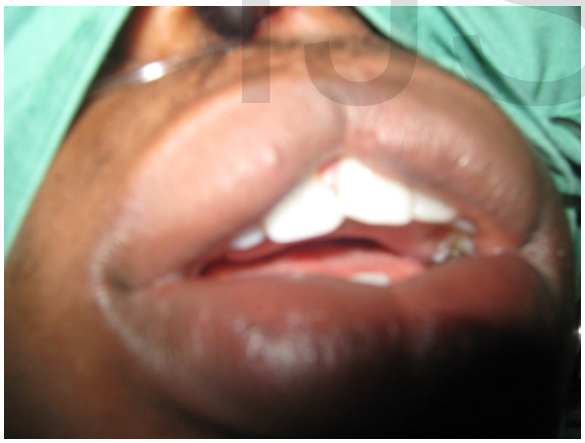

Fig.1. preoperative picture.

The results of laboratory investigations conducted were within normal range. The patient was given consent for surgery. A lip switch flap (Abbe flap) was raised from the lower lip to cover the defect on the upper lip. The flap was divided and inset on the 14th post operative day. These two surgeries were done under general anaesthesia with endotrachial intubation. The patient had two additional minor procedures-- mucosal excision and white roll alignment—at 4 weeks and 7 weeks respectively to enhance the aesthetic outcome.

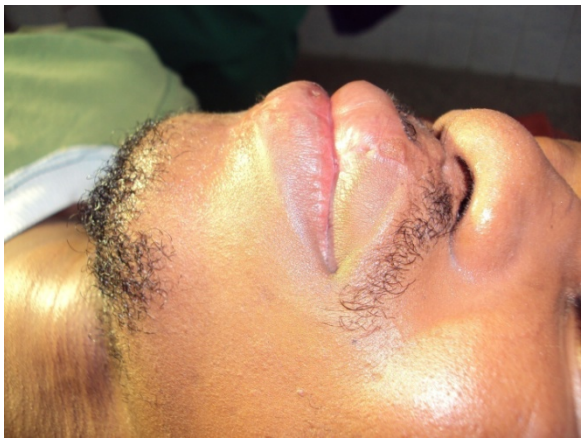

Fig.2. Postoperative picture—lateral view.

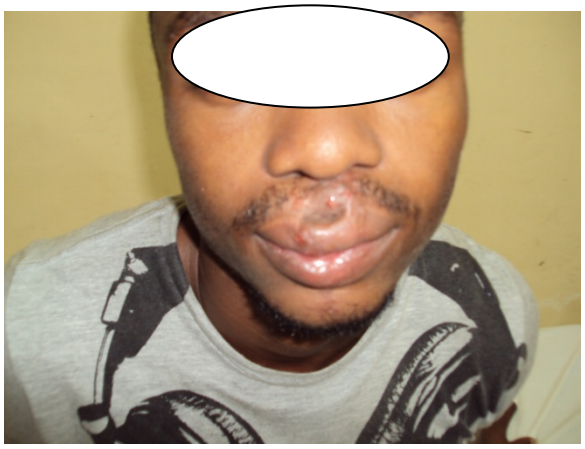

Fig.3. Postoperative picture—anterior view.

Case 2.

We present a 60-year-old farmer who had a progressive swelling of the upper lip of two years duration. The swelling was painless initially but became associated with dull pain and dragging sensation six months prior to presentation. There was no history of trauma, no swelling in other parts of the body and no significant weight loss, no difficulty in swallowing but there was occasional mild bleeding from the mouth.

On examination the patient was chronically ill looking. There was moderate pallor, no jaundice; the temperature was 37.2^0c , the respiratory rate was 20 cycles per minute and the pulse rate was 78 beats per minute. The entire upper lip and part of the face was taken over by a multinodular mass that measured about 16cm by 8cm in its widest dimensions. There was ectropion of the oral mucosa with small, multiple , superficial ulcers.

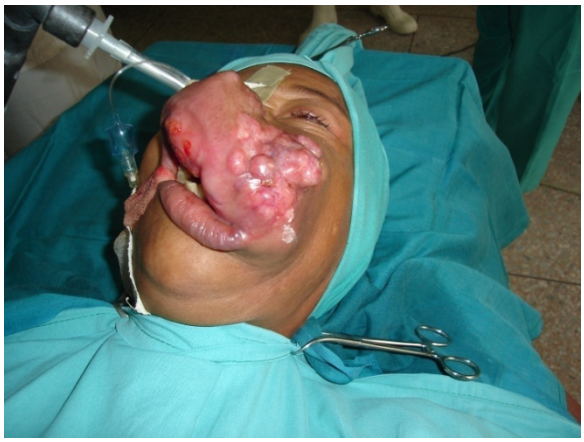

Fig.4. Preoperative picture.

The patient was prepared for excision biopsy. Informed consent was taken and the following investigations were done: the complete blood count gave a heamoglobin of 10g/dl, total white blood cell count was $4.5x10^6$/dl. There was normal white blood cell differential and platelet count. Urinalysis, ECG and plane chest radiograph were unremarkable. The patient had excision biopsy under nasotracheal general anaesthesia. Only a small part of the upper lip—about one sixth—remained after excision. A left cheek advancement flap and a lip switch flap (Abbe flap) were used to reconstruct the upper lip in two stages. Flap division and inset was done on the 14^{th} postoperative day. Before flap division and inset the patient used a straw to take fluid diet because the oral opening was too small. Even after flap division and inset it was small and had the shape of a 'fish mouth' but the patient was able to feed satisfactorily postoperatively.

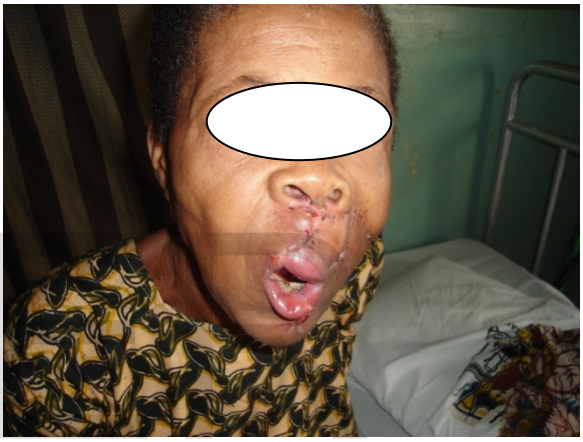

Fig.5. Postoperative picture.

Case 3.

This is the case of a 52-year-old petty trader who presented with ulcer on the lower lip of one year duration. The ulcer started as a small nodule which ulcerated and occasionally bled spontaneously. No ulcers in other parts of the

body and no weight loss. Wound dressing, treatment with antibiotics and heamatinics did not heal the ulcer.

On examination the patient was mildly pale, anicteric and afebrile. The significant findings were in the head and neck; there was an ulcer on the lower lip that measured 4cm by 4cm with raised edges and nodular granulation tissue. The ucer extended to the right oral commissure. The ulcer, with 0.5cm normal margin, and full lip thickness was excised. In this case a lip switch flap from the upper lip, a reverse Abbe flap, was used to cover the tumourectomy defect. Flap division and inset was done on the 14th postoperative day. Before the second stage of surgery the patient used straw to take fluid diet because the oral opening was too small for ingestion of large bolus of food.

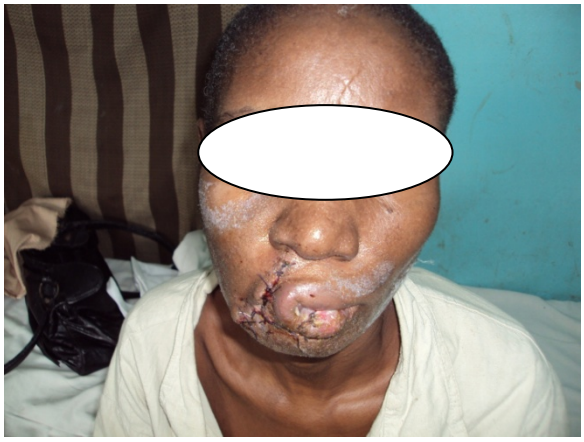

Fig.6. Before division and inset of reverse Abbe flap.

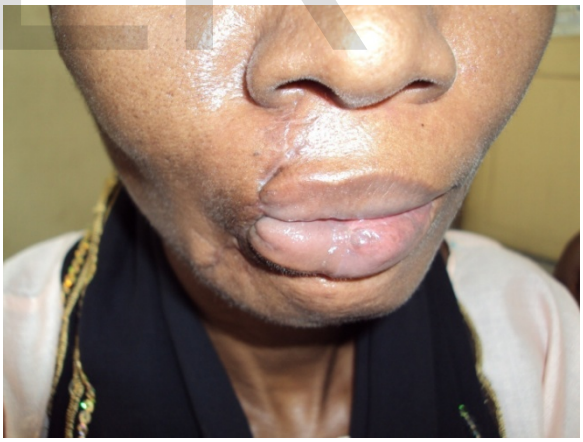

Fig.7. After division and inset of reverse Abbe flap.

Discussion.

In lip reconstruction attention should be paid to

anatomic landmarks if good aesthetic results is to be achieved. In the male, the central part of the lower lip and most of the upper lip are hair bearing; the philthral columns, the white roll and the red line should all be taken into consideration during reconstruction. About one quarter of the upper lip and one third of the lower lip can be used for reconstruction without deformity of the lip. Our first patient had repair of bilateral cleft lip as a baby and as an adult the permanent exposure of the upper central incisor teeth caused him a lot of embarrassment. He endured this stigma throughout his primary and secondary school period but presented for reconstruction as a university undergraduate.

The surgical treatment of our second patient was very challenging because only about one sixth of the upper lip remained after excision of the pleomorphic adenoma. This patient would benefit from free flap reconstruction in which tissue is obtained from a distant site and used for reconstruction by microvascular anastosis. This facility is not available in our centre. An advancement flap from the left cheek was used to augment the Abbe flap. The result was a 'fish mouth' deformity but the patient was happy that a grotesque tumour has been removed from her lip.

Our last patient had an ulcer on the lower lip that involved the right oral commissure. A lip switch flap from the upper lip, a 'reverse Abbe flap', was used in this case.

The oral commissure has some deformity. However, the patient was satisfied with the result of surgery.

Conclusion:

Despite modern microvascular free flap surgery, pedicle lip switch flaps remain an important source of tissue for reconstruction of full thickness lip defects that are too large for direct closure.

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