

Lip Reconstruction using Karapandzic Flap

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ABSTRACT

The peroral region which consists of the upper and lower lip plays a vital role functionally, esthetically as well as anatomically. The post-surgical defects of peroral structures, especially the midline defects of the lower lip, present a considerable challenge for reconstruction. Currently, reconstruction of peroral structures are done by using local, distant and free flaps. In our case, we have reconstructed a large midline defect of more than two thirds of the lower lip by using a karapandzic flap.

Keywords: Karapandzic flap, Lower lip reconstruction, Midline defect.

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INTRODUCTION

Midline defects of lower lip are always a challenging task for reconstruction to the surgeon. Malignant lesions involving the midline of the lower lip warrant a wide excision in order to ensure a disease-free margin. The resultant defects are usually large and often involve two thirds or more of the lower lip. The options available for reconstruction of such defects are free flaps, distant flaps and local flaps. Distant and free flaps are usually bulky, involve a secondary procedure, seldom match the color of the facial skin and often fail to establish a proper vermilion border and lip competence. An ideal reconstruction technique would involve a single stage procedure that replaces the defect with similar tissue, restores esthetic, function and it is reliable.¹ There are various techniques proposed for reconstruction of peroral defects by using Abbe, Estlander, Bernard, Zisser, Gillies, Karapandzic, etc.²⁻⁸

In 1974, Karapandzic described a neurovascular myocutaneous flap that offers a very satisfactory result. Karapandzic flap has proven to have a clear advantage because of the resultant function preservation of orbicularis oris muscle, facial artery, sensory and motor nerves which result in a sensate and mobile lip with lip competence.⁴

CASE REPORT

A 70 years old male patient was referred to us for treatment with diagnosed squamous cell carcinoma of lower lip in the mid line region. Lesion measured about 2 × 1.5 cm in the mid line involving the mucous membrane, vermilion border and skin of the lower lip (Fig. 1).

Wide excision of the lesion was planned and executed which resulted in a large defect measuring more than 2/3rd of the lower lip. The incision was marked from the lower end of the defect bilaterally curving upward along the nasolabial fold. The defect was large and primary closure was not feasible and Karapandzic flap was planned (Fig. 2). The incision was carried along the marking through the skin and subcutaneous tissue till the muscle. The fibers of orbicularis oris were separated from the zygomaticus major, depressor anguli oris preserving nerves and vessels (Fig. 3). The flap mobilized and rotated medially into the defect and were joined in the center by tension free suture (Fig. 4).

Postoperatively, at the end of 5 months, it was observed that the size of the commissure of the lip was reduced. However, the continuity and functions of the lower lip were maintained with minimal scarring (Figs 5 and 6).

DISCUSSION

When cancer involves the peroral tissue, its treatment requires resection by following the oncological principles and an anticipation of functional and esthetic outcome. However, preference is for disease-free margins followed by preservation of function and restoration of esthetics.

The upper and lower lip has an undoubted esthetic appeal and plays an important role in maintaining oral competence which in turn depends on normal morphology with intact sensory and motor nerve supply.¹ The reconstruction option depends on the size and location of the defect. Small defects up to one thirds of the lip can be closed by direct opposition of the wound edges when full thickness excisions are done. Defects up to 80% of the

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Fig. 1: Squamous cell carcinoma involving the midline region of the lower lip



Fig. 2: Large defect measuring more than two-third of the lower lip



Fig. 3: Nerve and blood vessels preserved



Fig. 4: Flaps mobilized and rotated medially into the defect



Fig. 5: Flaps joined in the center by tension free suture



Fig. 6: Size of the oral commissure reduced and minimal scarring observed at the end of 5 months

lips can be reconstructed by redistribution of lip tissue and larger defects with associated loss of mucosa, chin, cheek, etc. or when there is paucity of available adjacent soft tissue due to previous radiotherapy or surgery then the reconstruction of such defects require the use of

additional tissue.^{1,3-5} A free flap reconstruction can be considered. A radial forearm flap,^{9,10} parascapular flap¹¹ and anterolateral thigh flap, lateral arm flap, internal mammary artery perforator flap¹² are all used commonly because of their excellent color match with the facial skin,

pliability and thin tissue mass; however, the lack of motor innervations and voluntary tightening of the lip, however, offset these advantages.

A reconstruction with redistribution of the remaining lip tissue provides a superior result in terms of esthetic and function in a smaller defect. Free flaps are more suited for large defects which provides static support to the lip.¹³ Karapandzic flap and cross lip flaps of Abbe, Gillies fan flap with modification, Webster Bernard flap are the most well known of the flaps that redistribute the lip tissue.^{1,2,5}

Cross lip Abbe flap is a staged flap based on the labial artery. It is more commonly used as a lower lip flap transferred to the upper lip. Full thickness defects without involving the commissure are best suited for this flap.¹⁴ The advantage of this flap is the ability to replace a vertical segment of both vermilion and cutaneous lip tissue. However, diet, speech and socialization are altered during the staged reconstruction and the need for a secondary surgery requires a compliant patient.¹³

Webster Bernard flap which advances the cheek tissue and the remaining lip tissue medially is also used to reconstruct the lower lip.¹⁵ This flap provides a reliable resurfacing of the large lip defects with skin from cheek. A major disadvantage of this flap is the shortening of the gingivobuccal sulcus and notching of the central lip incision.¹⁶ Previous ligation of the facial artery during neck dissection or any facial surgery can alter the reliability of cutaneous circulation.

Karapandzic flap is the neurovascular myocutaneous flap⁴ which has the advantage of preservation of motor and sensory nerve supply with intact orbicularis oris muscle fibers which minimizes the atrophy of the sphincter with enhancing the movement and sensation.¹ Preservation of vascular supply also enhances the survival of the flap. Lip circumference reduction with microstomia and rounding and distortion of commissures are some of the disadvantages.¹⁷ In a prospective series of nine patients with central defects of 50 to 80%, 1 year follow-up revealed an overall 70% satisfaction rate with three patients who experienced postoperative microstomia that had functional compromise.¹⁸ These patients went on to have commissuroplasty to correct the microstomia. Cases with previous history of radiotherapy might have interference with vascular supply. Any preirradiated area may not be ideal for reconstruction. However, its use has been reported in patients who had previous radiotherapy.⁴

In our case, we have used the Karapandzic flap to reconstruct a midline lower lip defect of about 2/3rd of the lower lip which resulted from an excision of the cancerous lesion in the mid line of lower lip in a 70 years old male patient without any previous radiotherapy and neck dissection.

The appearance of reconstruction was considered to be satisfactory for the patient except for the presence of microstomia. Speech, facial expressions and oral competence were restored. In summary, use of the Karapandzic flap in a midline lower lip defect of about 2/3rd of the lower lip as a choice for reconstruction resulted in a good functional and esthetic outcome.

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