

# TRILOBED FLAP INCORPORATED INTO NECK INCISION FOR PERFORMING NECK DISSECTION AS WELL AS RECONSTRUCTING FULL THICKNESS BUCCAL DEFECT

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## ABSTRACT

We present a novel method in which the access granted by a trilobed flap was used to perform level I to IV neck dissection. Following this, the flap was rotated to reconstruct a full thickness buccal defect that was created following resection of a locally advanced squamous cell carcinoma. Patient made excellent recovery with good cosmetic result.

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## INTRODUCTION

Reconstructing buccal defects is an exceptionally hard challenge for Oral and Maxillofacial Surgeons, especially when oral commissure is also resected. The ideal reconstruction should not only achieve acceptable cosmetic result but also reasonable function, most notably competent oral sphincter and normal mouth opening. In recent times, free flaps, particularly Radial forearm and Anteriolateral thigh free flaps have gained popularity in reconstructing such defects due to their excellent pliability, fine texture and long pedicle. These flaps, however, carry inherent disadvantage of second operative site morbidity and prolong operative time.<sup>1,2</sup> Various pedicled flaps, like double paddled submental flap,<sup>3</sup> folded forehead flap<sup>4</sup> and extended Pectoralis flap<sup>5</sup> have also been described in literature to reconstruct such defects.

## Case report

A 37 years old patient presented to the Maxillofacial Surgery Department of Rehman

Medical Institute with a T4 N0M0 squamous cell carcinoma of the left buccal mucosa. After necessary investigations and MDT discussion, local excision and ipsilateral selective neck dissection from level I to IV was planned. Under general Anaesthesia, lesion was excised with 1 cm margin. This resulted in a large defect measuring 8 by 8 cm that included left commissure of the lip. In order to reconstruct the defect a trilobed flap was marked, extending into the neck.



**Figure 1: Marking of skin incision**

The flap was raised along with platysma, lining its deeper surface. The access granted by the flap was used to perform selective neck dissection from level I to IV. Flap was then rotated in order to reconstruct the surgical defect. Skin of the flap was sutured to the skin of the defect and the platysma was used as an inner lining to reconstruct the mucosal defect. Patient made excellent recovery with excellent cosmetic result and no wound dehiscence.



**Figure 2: Resection**



**Figure 3: Neck Dissection**



**Figure 4: Reconstruction**

## DISCUSSION

Since the first reported neck dissection by Crile in 1906,<sup>6</sup> various neck incisions have been described in literature. Crile himself used triradiate incision to gain access to the neck.

Even before him, Kocher and Kuettner in 1880 and 1898 respectively had described unique incision for neck adenopathy.<sup>7</sup> Martin in 1951 advocated a double Y incision for thorough access to the neck. Schoebinger modified classic neck incision in 1957 to place the vertical component of incision away from the carotid artery.<sup>8</sup> McFee in 1960 described single and double transverse incision for access to the neck that maintained the maximum blood supply to the flaps.<sup>9</sup> This incision was given slight curvature in upward direction anteriorly and down direction posteriorly in order to provide a better access by Shaw in 1988.<sup>10</sup> Apron flap was devised by King in 1965 that decreased the risk of avascular necrosis at the junction of incisions of the neck.<sup>11</sup> Becker was the first one to publish in 1979 and 1984, various extensions of transverse neck incision to incorporate the resection of primary lesion into it.<sup>12,13</sup>

Over the century, the neck dissection has come a long way in terms of various modifications that are described to suit it for every particular patient. Similarly neck incisions are also modified in every individual patient to suit his particular scenario. Very often, in advance neck disease that is infiltrating into the skin of the neck, the incisions are modified in such a way that lesion is removed and primary closure is achieved. In our patient, the neck incision was designed in form of a trilobed flap that achieved resection of the primary tumor, provided access for the elective neck dissection and also after its rotation achieved reconstruction of the primary defect.

Trilobed flap is a modification of bilobed flap that was first described by Esser in 1918 for reconstruction of nasal tip deformity.<sup>14</sup> The original design of Esser included double transposition flaps at angle of 90 degree to each other. This design maximized the distance skin moved but produced prominent standing cutaneous deformity and increased the

likelihood of developing trap door deformity. In 1981 McGregor and Soutar noted that the degree of the angle between the flaps could be varied greatly from original 90 degree.<sup>15</sup> Zitelli in 1989 suggested the use of narrow angle between the flaps in order to avoid pivotal angle greater than 90 to 100 degree, 45 to 50 degree per lobe.<sup>16</sup> This approach eliminated the risk of standing cutaneous deformity and decreased the chances of trap door deformity. These finding were supported by other authors.<sup>17-19</sup>

Modern Bilobed flap involves two transposition flaps that are designed in such a way that they are adjacent and slightly smaller than the defect that it is supposed to cover. The size discrepancy between the wound and the flap is overcome by

undermining the defect edges. The first lobe is used to cover the defect caused by removal of the lesion. The second flap is used to repair the defect caused by the movement of first flap while the defect left by the second flap is repaired primarily.

Trilobed flap was first described by Harashina 1977.<sup>20</sup> In this flap, there are three lobes designed instead of two and the size of each lobe is gradually decreased. This design gives flap 135 to 150 degree arc of rotation, 45 to 50 degree per lobe. With trilobed flap, even more distant skin can be rotated to cover the surgical defect. It reduces even further the risk of trap door and standing cutaneous deformities.

## REFERENCES

1. Fang QG, Li ZN, Zhang X, Liu FY, Xu ZF, Sun CF. Clinical reliability of radial forearm free flap in repair of buccal defects. *World J Surg Oncol*. 2013 Jan 30;11:26-9.
2. Castaneda SS, Alonzo DM, Ramos RMH. Anterolateral thigh flap reconstruction of full thickness buccal defect. *Philippine Journal of Otolaryngology Head and Neck Surgery*. 2008 Jan-Jun;23(1):28-30.
3. Chow TL, Choi CY, Ho LI, Fung SC. The Use of Bipaddled Submental Flap for reconstructing composite buccal Defect. *J Maxillofac Oral Surg*. 2014 Jan-Mar;13(1):75-7.
4. Shah JP. Folded forehead flap for reconstruction of full-thickness defects of the cheek. *Head Neck Surg*. 1980 Jan-Feb;2(3):248-52.
5. Dhiwakar M, Nambi GI. Extended pectoralis major myocutaneous flap in head and neck reconstruction. *World Journal of Otorhinolaryngology*. 2013 Aug 28;3(3):108-13.
6. Crile GW. Excision of cancer of the head and neck with special reference to the plan of dissection based on 132 operations. *JAMA*. 1906;47:1780-6.
7. Appiani E, Delfino MC. Plastic incisions for facial and neck tumors. *Ann Plast Surg*. 1984 Oct;13(4):335-51.
8. Schobinger R. The use of a long anterior skin flap in radical neck dissections. *Ann Surg*. 1957;146(2):221-3.
9. MacFee WF. Transverse incisions for neck dissection. *Ann Surg*. 1960 Feb;151:279-84.
10. Shaw HJ. A modification of the MacFee incisions for neck dissection. *J Laryngol Otol*. 1988 Dec;102(12):1124-6.
11. King GD. Radical head and neck surgery in irradiated patients: Complications and safeguards. *Surg Clin North Am*. 1965;45:567-72.
12. Becker GD. The extended single transverse neck incision for composite resections. *Surg Gynecol Obstet*. 1979 Jan;148(1):90-2.
13. Becker GD. Extended single transverse neck incision for composite resections: an update of technique and results. *Laryngoscope*. 1984 May;94(5 Pt 1):605-7.
14. Esser JFS. Gestielte loakle Nasenplastik mit zweizipfligen Lappen, Deckung des sekundaren Defektes vom ersten Zipfel durch den Zweiten. *Deutsche Zeitschrift für Chirurgie*. 1918;143:335-9.
15. McGregor JC, Soutar DS. A critical assessment of the bilobed flap. *Br J Plast Surg*. 1981;34:197-205.
16. Zitelli JA. The bilobed flap for nasal reconstruction. *Arch Dermatol*. 1989;125:957-9.



17. Burger G. Creating a nasal form with flaps and grafts. In: Bardach J (ed.). Local Flaps and Free skin Grafts. Philadelphia: Mosby-Year Book. 1992.
18. Marschall MA. Bilobed flap in head and neck reconstruction. In: Bardach J(ed.). Local flaps and free skin grafts. Philadelphia: Mosby-Year Book. 1992.
19. Burget GC, Menick FJ. Repair of small surface defects. In: Burget GC, Menick FJ (eds.). Aesthetic Reconstruction of the Nose, St. Louis: Mosby-Year Book. 1994. pp 117-156.
20. Ohtsuka H, Miki Y, Shioyan. Trilobed flap in facial reconstruction Br J Plast Surg. 1982 Oct;35(4):493-7.

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