ORIGINAL RESEARCH PAPER

Volume - 10 | Issue - 06 | June - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# COMBINED CERVICOFACIAL ADVANCEMENT AND COMPOSITE FOREHEAD FLAP RECONSTRUCTION OF THE CHEEK NOSE REGION FOLLOWING EXCISION OF BASAL CELL CARCINOMA – A CASE REPORT

Plastic Surgery

**Surya Rao Rao Venkata Mahipathy*** — Professor & Head, Dept. of Plastic & Reconstructive Surgery, Saveetha Medical College & Hospital, Thandalam, Kanchipuram Dist. 602105, Tamilnadu, India.*Corresponding Author

**Alagar Raja Durairaj** — Professor, Dept. of Plastic & Reconstructive Surgery, Saveetha Medical College & Hospital, Thandalam, Kanchipuram Dist. 602105, Tamilnadu, India

**Narayanamurthy Sundaramurthy** — Associate Professor, Dept. of Plastic & Reconstructive Surgery, Saveetha Medical College & Hospital, Thandalam, Kanchipuram Dist. 602105, Tamilnadu, India

**Anand Prasath Jayachandiran** — Assistant Professor & Head, Dept. of Plastic & Reconstructive Surgery, Saveetha Medical College & Hospital, Thandalam, Kanchipuram Dist. 602105, Tamilnadu, India

**Suresh Rajendran** — Senior Resident, Dept. of Plastic & Reconstructive Surgery, Saveetha Medical College & Hospital, Thandalam, Kanchipuram Dist. 602105, Tamilnadu, India

## ABSTRACT

Large facial defects are difficult to reconstruct especially of the cheek and nose. Varoius methods have been used to fill defects of the face. Here, we discuss about a large soft tissue defect of the cheek, nasolabial area and the right nasal sidewall and ala which occurred following excision of a basal cell carcinoma. The defect was reconstructed by a double flap, a cervicofacial advancement flap for the cheek and nasolabial area with a composite forehead flap for the nose. The cervicofacial flap gives good aesthetic results with minimal scar and good colour and texture match to the surrounding skin and is very helpful in the elderly due to their skin laxity and the scars hidden well in the wrinkles. It causes minimal morbidity. The forehead flap is a well known flap in the armamentarium for nasal reconstruction with excellent results.

## KEYWORDS

Cheek, Nose, Defect, Cervicofacial, Composite, Forehead Flap

## INTRODUCTION

The variable surgical defects that can result from head and neck operations necessitate a broad range of surgical reconstructions, ranging from primary closures and pedicle flaps to free tissue transfers. According the distribution of blood supply, the pedicle flap can include random flaps and axial flaps. A random blood supply pattern is needed to maintain a wide pedicle.[1] Many random flaps, such as cheek advancement-rotation flaps and forehead flaps, are used but have limited mobility and are only suitable for reconstructing small defects, whereas axial flaps can overcome these limitations but are bulky, result in a poor colour match with the recipient site, and sometimes impair the function of donor muscle groups. A local skin flap is considered as a first choice treatment as it gives a good color and texture match for the face. Juri, in 1979, reported that a cervicofacial flap is a highly useful option compared to other skin reconstruction methods because it allows the simultaneous use of the skin from the neck and the cheek.[2,3] Jackson in 1985, reported the use of a similar skin flap as a lateral cheek rotation flap.[4] Forehead flap is a traditional workhorse used for facial reconstruction, particularly nasal defects, following infection, trauma and oncologic resections.[5] Sometimes, reconstruction requires the addition of lining with cartilage lamination to replace all elements as a preliminary procedure.[6,7]

### Case Report

A 50 year old elderly female presented to the Department of Plastic & Reconstructive Surgery with an ulcer in the region of the nasolabial region since 9 months. It started as a small ulcer and gradually progressed to the present size. The onset was insidious with no previous history of trauma in the same site. On examination, an ulceroproliferative growth of size 6 x 3cm was present in the right nasolabial region extending onto the right nasal sidewall and ala. The margins were well defined with minimal induration. The growth was friable but not tender. The edges of the ulcer are raised and the floor had unhealthy tissue. **(Fig. 1)** There was no regional lymphadenopathy. Right sided facial edema was present. A provisional diagnosis of a basal cell carcinoma was made. We planned for wide local excision and flap cover of the ensuing defect. Under general anaesthesia, wide local excision was done by the surgical oncology team and the specimen was sent for histopathology. The defect created was 8 x 6 x 1.5cm involving the right side of the nasal sidewall exposing the intact septum, extending onto the cheek and exposing the maxilla. **(Fig. 2)** A cervicofacial advancement flap was planned and executed to cover the defect in the cheek and nasolabial region (75% of the defect). The incision was made from the lateral aspect of the defect, along the area below the sideburn toward the earlobe. The skin flap was elevated above the superficial musculoaponeurotic system (SMAS) for the cheek and below the platysma in the neck area. The marginal mandibular branch of the facial nerve must be safeguarded while elevating the skin flap. The flap covered the cheek defect and was fixed to the periosteum of maxilla to prevent sagging. Inset was given with 3-0 ploy glactin and 5-0 nylon over a closed suction drain. **(Fig. 3)** For the nasal defect, a composite forehead flap with nasal cartilage graft for support and split skin graft was placed undersurface of the flap for nasal lining was done. Inset was given with 5-0 nylon sutures after securing haemostasis. **(Fig. 4)** The secondary defect was closed primarily. Post-operative was uneventful. Sutures were removed on the 10th post-operative day and the patient was discharged. Histopathological examination confirmed as a basal cell carcinoma of the nodular type with all margins free from tumour. After 3 weeks the pedicle of the forehead flap was divided under local anaesthesia and inset was given with 4-0 nylon sutures. **(Fig. 5)**


**Fig. 1 – Clinical photographs showing BCC Rt. Nasolabial Region – Frontal (a) and Lateral (b) Views**

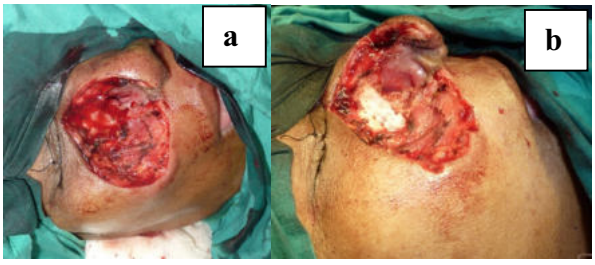


**Fig. 2 – Defect after excision of the tumour – frontal (a) and lateral (b) views**


**Fig. 3 – Cervicofacial flap marking (a) and after flap advancement and inset (b)**


**Fig. 4 – Forehead flap marking (a) and composite flap with cartilage & SSG (lining) (b)**

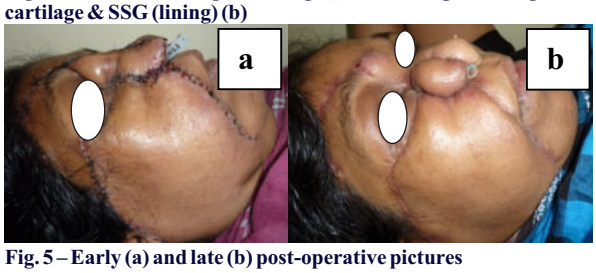


**Fig. 5 – Early (a) and late (b) post-operative pictures**

## DISCUSSION

Soft tissue defects of the head and neck region pose a challenge to the reconstructive surgeon. Many options are available from primary closure to microvascular methods, but all these techniques have their limitations. The rotation advancement of locoregional tissue remains a mainstay of reconstruction in these anatomic regions as it provides an excellent skin colour and texture match, requires no donor region and reduces the surgical risk to high-risk patients, especially in small defects. In larger defects, cervicofacial flaps have been used. Conley, in 1960, used laterally-based cervical and thoracic rotation flaps to reconstruct wounds of the lateral neck.[8] The closure of skin defects of the face with cervicopectoral rotation flaps was originally reported by Garrett et al. in 1966.[9] The name "cervicofacial flap" was first used by Kaplan in 1978 in a report of the versatility of this flap for the coverage of defects following the removal of cancers of the head and neck.[10] It requires no delay procedures and yields excellent results in terms of both function and appearance. Mustarde was the one who implemented cervicofacial flaps to reconstruct soft tissue defects on the cheek.[11] These flaps can be separated into the anterior-based flaps introduced by Juri and Juri, which receive blood flow from facial or submental arteries, and the posterior-based flaps introduced by Stark and Kaplan, which receive blood flow from the superficial temporal or the preauricular arteries.[3,12] These flaps utilize the lax skin and tissue on the neck or the cheek allowing easy manipulation. These flaps have been used for the reconstruction of defects of the lower eyelid, medial and lateral canthal areas due to their great flexibility.[13] Cook et al. mentioned that when a midface or cheek reconstruction is done, careful attention must be paid to the skin contours, texture and flexibility of the tissue.[14] Cervicofacial flap surgery can be performed using an anterior-based flap or a posterior-based flap, depending on where the flap is based. The sideburns are anatomical structures that define the facial boundary and so changes in the arrangement of the sideburns can lead to significant changes in an individual's appearance.[15] Tann shows, division of facial suspensory ligaments as a key to achieve great flap mobility.[1]

The goal of the treatment with respect to the nose is to restore the skin cover as well as lining and cartilage support, restoring nose while avoiding the deformity. Forehead flap was prelaminated on forehead before the transfer to have all the three layers of nasal covering. Next the flap was transferred, customizing to recipient site. Finally pedicle was divided retaining the supratrochlear vessels, ensuring the vascularity of the reconstruction and retaining the ability to debulk or manipulate the flap later. The supratrochlear vessels were preserved to ensure vascular supply.[16] Preservation of the pedicle allows for the ability to manipulate the flap any time after flap division which is advised to be done before flap transfer, on forehead, in two-stage reconstruction.[17] Forehead raw area could have been closed partially and remaining could have been left to heal by secondary intention with better outcome.[17]

## CONCLUSION

Cervicofacial flap is a simple flap to perform quickly and is also reliable, reproducible with minimal complications useful in high risk patients. Cervicofacial flap gives good skin colour and texture match with the cheek skin than other tissues. Forehead flap is a robust vehicle to carry skin with cartilage and lining grafts to nose. Prelamination of flap on forehead allows time for improving nasal wound and able to reconstruct the cover, support and lining of the nose.

## REFERENCES

1. Tan ST, MacKinnon CA: Deep plane cervicofacial flap: a useful and versatile technique in head and neck surgery. Head Neck. 2006, 28: 46-55.
2. Juri J, Juri C. Cheek Reconstruction. The Artistry of Reconstructive Surgery. St. Loius: The C.V. Mosby Co; 1987: 383-387.
3. Juri J, Juri C. Advancement and rotation of a large cervicofacial flap for cheek repairs. Plast Reconstr Surg. 1979; 64: 692. 696.
4. Jackson IT. Local Flaps in Head and Neck Reconstruction. St. Louis: The C.V. Mosby Co; 1985: 218. 225.
5. Menick FJ. A 10-year experience in nasal reconstruction with the three-stage forehead flap. Plast Reconstr Surg. 2002;109:1839–55.
6. Menick FJ. Lining options in nasal reconstruction. Plast Reconstr Surg. 1998;5:65–75.
7. Adigun IA, Oladele AO, Olabanji JK. The Naso-labial and lateral forehead flaps as a single stage: A case report and review of literature. Indian J Plast Surg. 2008;41:171–4.
8. Conley JJ: The use of regional flaps in head and neck surgery. Ann Otol Rhinol Laryngol. 1960, 69: 1223-1234.
9. Garrett WS, Giblin TR, Hoffman GW: Closure of skin defects of the face and neck by rotation and advancement of cervicopectoral flaps. Plast Reconstr Surg. 1966, 38: 342-346.
10. Kaplan I, Goldwyn RM: The versatility of the laterally based cervicofacial flap for cheek repairs. Plast Reconstr Surg. 1978, 61: 390-393.
11. Mustarde JC. The use of flaps in the orbital region. Plast Reconstr Surg 1970;45:146–150.
12. Stark RB, Kaplan JM. Rotation flaps, neck to cheek. Plast Reconstr Surg 1972;50:230–233.
13. Bokhari WA, Wang SJ. Modified approach to the cervicofacial rotation flap in head and neck reconstruction. Open Otolaryngol J 2011;5:18–24.
14. Cook TA, Israel JM, Wang TD, Murakami CS, Brownrigg PJ. Cervical rotation flaps for midface resurfacing. Arch Otolaryngol Head Neck Surg 1991;117:77–82.
15. Yang Z, Fan J, Tian J, Liu L, Gan C, Chen W, et al. Aesthetic sideburn reconstruction with an expanded reversed temporoparieto-occipital scalp flap. J Craniofac Surg 2014;25:1168–1170.
16. Barton FE, Jr, Byrd HS. Plastic Surgery. 3rd ed. Ch. 37. Philadelphia, PA19106: W.B. Saunders Company; 1990. Acquired deformities of nose; pp. 1945–87.
17. Menick FJ. Nasal reconstruction with a forehead flap. Clin Plast Surg. 2009;36:443–59.