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CERVICOFACIAL FLAP FOR COVERAGE OF FACIAL DEFECTS AFTER ONCOLOGIC RESECTION: CASE REPORT AND SURGICAL APPROACH

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ABSTRACT

Background: Reconstruction of moderate and large facial soft-tissue defects after oncologic resection remains one of the most challenging scenarios in reconstructive facial surgery due to the need to preserve facial symmetry, restore contour, minimize donor-site morbidity, and maintain functional integrity. The cervicofacial flap remains a reliable regional option due to its excellent color and texture match, broad arc of rotation, and favorable aesthetic outcomes. **Objective:** To describe the surgical utility of the cervicofacial flap for reconstruction of post-oncologic facial defects and to present its functional and aesthetic outcomes in a clinical case. **Methods:** A retrospective descriptive case report was conducted on a patient presenting with a facial skin malignancy requiring wide oncologic excision with safety margins. Immediate reconstruction was performed using a cervicofacial rotational advancement flap designed according to facial aesthetic subunits and vascular reliability principles. **Results:** Complete defect coverage was achieved in a single-stage procedure without flap necrosis, infection, or wound dehiscence. Functional preservation of adjacent facial structures was maintained. Postoperative follow-up demonstrated excellent contour restoration, acceptable scar concealment, and high patient satisfaction. **Conclusion:** The cervicofacial flap remains a robust reconstructive option for facial oncologic defects, particularly in moderate-to-large cheek and perinasal defects, offering excellent vascular reliability, superior aesthetic integration, and low complication rates when properly designed.

KEYWORDS : Cervicofacial Flap; Facial Reconstruction; Skin Cancer; Oncologic Resection; Local Flap.

INTRODUCTION

Facial reconstruction after oncologic resection requires restoration of both structural integrity and aesthetic harmony. Unlike reconstruction in other body regions, facial defects demand restoration of contour, color match, skin thickness, texture, and preservation of dynamic function.

Among regional reconstructive options, the cervicofacial flap has remained a cornerstone for reconstruction of moderate and large cutaneous defects involving the cheek, infraorbital region, zygomatic area, lateral nasal wall, and perioral units.

Originally described as a rotational advancement flap based on subdermal plexus vascularity, technical refinements including sub-SMAS dissection and deep-plane elevation have significantly improved vascular reliability and distal flap survival while reducing tension-related complications. Contemporary literature reports high success rates and low partial necrosis incidence when flap design respects relaxed skin tension lines and vascular perforator preservation.

This report presents the successful use of a cervicofacial flap for reconstruction of a facial defect after oncologic excision, highlighting technical pearls and aesthetic outcomes.

Case Presentation

A male patient presented with a progressively enlarging ulcerated facial lesion involving the malar and infraorbital region, clinically suspicious for cutaneous malignancy. Incisional biopsy confirmed basal cell carcinoma.

Preoperative assessment demonstrated localized disease without deep tissue invasion.

Following multidisciplinary evaluation, surgical excision with oncologic safety margins was indicated.

Wide local excision was performed including involved

cutaneous and subcutaneous tissue until healthy margins were achieved.

The resulting defect involved the central facial subunit with exposure of underlying muscular plane, precluding primary closure and making skin grafting aesthetically suboptimal.

Given defect size, contour requirements, and the need for superior color-texture match, immediate reconstruction with a cervicofacial rotational advancement flap was selected.

Surgical Technique

Under general anesthesia, flap design was marked extending from the lateral facial defect margin toward the preauricular crease and inferior cervical skin laxity zones.

Dissection proceeded in the sub-SMAS plane over the cheek, transitioning to subplatysmal cervical elevation, preserving perforator reliability and maximizing advancement.

Wide undermining permitted tension-free mobilization.

The flap was advanced superomedially with rotational inset into the primary defect.

Layered closure was performed using deep absorbable fixation sutures followed by fine epidermal approximation.

A closed-suction drain was not required.

The donor site was closed primarily along natural cervicofacial creases.

Postoperative Evolution

No vascular compromise was observed.

There was no evidence of:

- venous congestion
- distal epidermolysis
- wound dehiscence
- infection
- hematoma
- contour irregularity

At postoperative follow-up, scar maturation was favorable with excellent camouflage along natural facial junction lines.

Facial symmetry and lower eyelid support were preserved without ectropion or distortion.

Patient satisfaction was high.

DISCUSSION

The reconstructive ladder has evolved into a reconstructive algorithm favoring "replace like with like," especially in facial surgery.

While free tissue transfer offers versatility, local and regional flaps frequently provide superior aesthetic integration due to color, thickness, adnexal match, and preservation of facial dynamics.

The cervicofacial flap offers several advantages:

- excellent color-texture match
- wide arc of rotation
- single-stage reconstruction
- hidden donor scar placement
- preservation of facial contour
- low donor-site morbidity

Modern sub-SMAS and deep-plane modifications have significantly improved flap vascularity compared to classical subcutaneous elevation.

Recent evidence demonstrates lower ischemic complications and improved distal reach with deep-plane variants, particularly for infraorbital and medial cheek defects.

Compared with skin grafting, cervicofacial flaps avoid patch-like appearance and secondary contraction.

Compared with free flaps, they reduce operative time, hospitalization, microsurgical morbidity, and complexity.

The principal limitation remains insufficient reach for extensive composite defects or irradiated fields requiring vascularized free tissue.

In this case, the flap provided immediate aesthetic restoration with preservation of regional harmony and excellent postoperative contour.

CONCLUSION

The cervicofacial flap remains a highly reliable and elegant reconstructive option for post-oncologic facial defects.

When properly designed with respect for vascular anatomy and facial aesthetic units, it provides:

- excellent tissue match
- durable vascular reliability
- low complication rates
- single-stage reconstruction
- highly satisfactory cosmetic outcomes

Its continued relevance in modern reconstructive surgery reflects the enduring value of regional flap mastery despite advances in microsurgical reconstruction.

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