

Versatility of the cervicofacial flap for complex infraauricular defects. A case report

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Background: Basal cell carcinoma (BCC) is the most common malignancy seen in skin and it mostly occurs in sun-exposed regions. We present the case of an 85-year-old man with multiple serious comorbidities—such as type 2 diabetes, atrial fibrillation, and dementia—who presented to our clinic with a neglected, large ulcerative lesion in the right infraauricular area present for eight years. The biopsies showed nodular, sclerodermiform, and adenoid BCC subtypes with perineural invasion. The patient was to undergo wide surgical resection and immediate reconstruction. The resection showed a 3x3 cm full thickness defect extending to the subcutaneous tissue where it contacted the tail of the parotid gland. A large cervicofacial rotation-advancement flap was designed at such a difficult area to accomplish functional and aesthetic adjustments. The flap offered excellent coverage and consistent skin texture and color without ectropion or a facial nerve complication. Postoperatively, was successful and JP drainage was removed at 1 week, which indicated the viable well-healed flap. Histopathology revealed aggressive nodular and adenoid BCC types, however all surgical margins, profound and lateral, were involved (R1 resection) suggesting remaining actinic solar damage and the presence of residual tumor. We made a complete oncological resection; successfully performing the use of the cervicofacial flap within the high-risk geriatric patient, this reconstruction is highly advantageous and may allow for a quicker progression of healing with consideration for adjuvant therapy. This case highlights the difficulty of managing aggressive skin cancer in the elderly and the versatility afforded by the cervicofacial flap.

Keywords: Cervicofacial flap, basal cell carcinoma.

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Case Report

Plastic Surgery



Basal cell carcinoma (BCC) constitutes about 80% of non-melanoma skin cancers (NMSC) with a specific focus on sun-exposed head and neck area [1]. Though metastases are generally distant, some histological subtypes, including those represented in sclerodermiform, micronodular, and infiltrating BCC, present high local aggressiveness, prominent subclinical sprawl, and high recurrence risk [2]. The dominant approach to treating these aggressive subtypes is surgical excision with pathological margin control, including Mohs micrographic surgery (MMS) or wide excision [3]. Infraauricular aspect is difficult area to reconstruct as it has nearby critical structures (facial nerve, external ear), and little surrounding skin laxity. The reconstruction of significant defects in this region will generally require methods that limit distorting the face and enhance the esthetic outcome to match skin color, thickness, and texture [4]. Cervicofacial rotation-advancement flap is a strong random pattern or neck pattern flap that uses the skin of the face and neck to cover the large defects of the cheek, temporal, and pre- and infraauricular regions [5].

Using a cervicofacial flap to reconstruct a major defect with a wide resection of an aggressive neglected BCC in an 85-year-old male with myriad of comorbid conditions is described in this case report.

Case report

An 85-year-old male patient from Mexico City had an eight-year history of right infraauricular pruritic lesion. The patient was an outdoor construction worker with many years of experience demonstrating considerable long-term actinic exposure. He described progressive and increasing growth in the last year, a new onset of ulceration and bleeding producing a honey-colored crust. We had a very long and detailed medical history. He has a 20-year history of Type 2 Diabetes (now also treated using Insulin Glargine and Linagliptin, glucose level average 100-130 mg/dL). He suffered from Atrial Fibrillation (2024 diagnosis, managed on Amiodarone and Apixaban). He was later diagnosed in 2022 with unspecified dementia (quetiapine management).



Figure 1. Pre-operative Assessment and Surgical Planning. (Upper) Lateral view of the right infraauricular region showing a large, central, ulcerative lesion with distinct pearly borders, consistent with aggressive basal cell carcinoma. Significant solar actinic damage is visible in the surrounding skin. (Lower) Surgical markings defining the planned wide local excision with 1 cm clinical margins and the design of the cervicofacial rotation-advancement flap needed for reconstruction.

Then, he had arterial insufficiency and needed a right supracondylar amputation in 2025 (on Cilostazol and Atorvastatin). Surgical history included prior inguinal hernioplasty and amputation. He was receiving Clopidogrel 75 mg daily. His ECOG was 2. Physical examination showed a large pearly-bordered ulcerative plaque, which was solitary and 2.5 x 2.6 cm in the right infraauricular region (Figure 1). The center was covered with a hemorrhagic crust. Dermoscopy revealed typical arborescent vessels and pigment globules at the periphery, and a homogeneous



Figure 2. Immediate Post-operative Outcome. Anterior-lateral view showing the successful execution of the cervicofacial rotation-advancement flap. The large defect has been covered with tension-free closure. The surgical lines adhere to natural facial contours to minimize noticeability. Insertion of a Jackson-Pratt closed-suction drain through a separate stab incision to minimize hematoma risk, given the patient's anticoagulation therapy. The flap appears viable with good perfusion immediately after surgery.

central crust. Complex Findings in Pre-operative Skin Biopsies in Pathology (Diagram B-13966-25) The first was BCC with a mix of solid and sclerodermiform types, mucinous areas, and focal perineural permeations. The second (RL25-06698) characterized aggressive nodular and adenoid BCC configurations with tumor involvement at deep and lateral surgical borders. Solar actinic damage was also extensive.

The pathology report of the surgical specimen established aggressive nodular and adenoid BCC types and actinic solar damage. Nonetheless the report showed residual tumor involving profound and lateral (R1 resection) surgical margins. However, the patient had a good postoperative recovery (Figure 2). The cervicofacial flap demonstrates excellent viability and no signs of congestion or ischemia. JP drainage was discontinued after one week (as per protocol). The flap heals nicely within one week postoperatively, as evidenced by excellent



Figure 3. Follow-up at One Week. Close-up lateral view of the pre- and infraauricular region. The flap shows excellent viability with no signs of marginal ischemia or venous congestion. Wound healing is progressing as expected. Detail of the final, tension-free suture line extending into the neck. Minimal ecchymosis is present, and the skin color and texture match is seamless, validating the selection of the cervicofacial flap for defects in this region. The drain has been removed.

aesthetic and functional results and minimal facial distortion and good skin match. (Figure 3).

Discussion

Large, neglected skin cancers in geriatric patients with multiple comorbidities are complex to manage. Although BCCs are usually indolent, BCCs can be aggressive and exhibit aggressive subclinical extension (e.g., extensive extension) in an untreated patient. Excess long term exposure to the occupational sun in the patient probably correlated to the elevated tumor burden and aggressive features that were observed on pathology, as well as mixed histological subtypes (sclerodermiform, nodular, adenoid) and focal perineural invasion that are often associated with enhanced risk for recurrence and local damage [2].

Pre-operative pathology had already made clear that there would be complete resection challenges by showing positive margins. This R1 resection ("microscopically positive") underscores the challenge of achieving oncological clearance from tumors as a result of extensive subclinical spread or deep invasion and is a feature especially absent Mohs surgery. Considering the positive margins, this warrants close observation and consideration of adjuvant therapy (e.g., radiotherapy) [3]. The infraauricular zone is difficult to reconstruct. Large defects here cannot be closed, if not without distorting the ear or face. The effective application of the cervicofacial flap demonstrates its robustness as well as the fact that in the elderly neck skin laxity is a common feature.

The flap is able to provide great volume of tissue that closely resembles the overall structure and color of facial skin and can be dissected extensively, minimizing tension on the closure, being a much better result [4, 5]. In this patient with a history of diseases that might compromise healing (diabetes, cardiovascular disease) and at high risk of hematoma (on anticoagulants and antiplatelets), the well vascularized cervicofacial flap provided a reproducible reconstructive device with significant initial esthetics (even though complete surgical control wasn't possible).

Conclusion

The present case demonstrates the effective implementation of the cervicofacial rotation-advancement flap for reconstruction of a large infraauricular defect after resection of an aggressive BCC. The flap has excellent coverage and very good aesthetic and functional results in a high-risk geriatric patient with multiple comorbidities. Such a technique remains an extremely useful technique in plastic and reconstructive surgery despite the significant challenges in the removal of challenging defects of the lower face and infraauricular area when it is not possible to perform full oncological resection.

Conflicts of interests

The authors declare that there are no financial, personal, or institutional conflicts of interest that could have influenced the work reported in this manuscript.

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