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Modified O to T Advancement Flap for Temporal Reconstruction after Basal Cell Carcinoma Excision

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Abstract

Temporal defects after basal cell carcinoma (BCC) excision require reconstruction that balances tissue recruitment, adjacent facial landmarks, and oncological documentation. This report describes a modified O-to-T advancement flap in a 77-year-old woman with a left temporal pigmented lesion that had enlarged slowly over approximately 20 years. The patient reported itching, recurrent surface injury, bleeding, and crusting, with prolonged occupational sunlight exposure. Examination showed a well-demarcated hyperpigmented lesion measuring 2.5 × 3 cm. Dermoscopy demonstrated large blue-grey ovoid nests and multiple blue-grey globules with keratinous material, ulceration, and crusting. Histopathology confirmed nodular BCC. Under general anaesthesia, an ellipse measuring 2.5 × 4 cm and the flap incisions were marked. Following excision and undermining, adjacent tissue was advanced toward a central junction and closed using interrupted 5-0 polypropylene sutures. At the documented day-14 review, the scar remained erythematous with small crusts, but no wound dehiscence, distal flap necrosis, or active infection was described. These findings support early flap viability and wound continuity. They do not establish mature cosmetic quality or durable oncological control. The complete pathology report, surgical margin status, and rationale for the recorded stage were unavailable, and one-month outcomes mentioned in the original abstract were not described in detail. The case illustrates technical feasibility in an anatomically sensitive region while emphasizing the need to verify clearance, reconcile pathological staging, and obtain longer functional, cosmetic, and oncological follow-up.

Keywords: Basal Cell Carcinoma; Temporal Reconstruction; Advancement Flap; O-To-T Plasty; Case Report

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INTRODUCTION

Basal cell carcinoma (BCC) is a locally invasive keratinocyte malignancy whose management requires both oncological clearance and preservation of function. Its indolent course can conceal substantial cumulative morbidity, particularly when a facial lesion remains untreated for many years. Contemporary reviews emphasize the interaction of ultraviolet exposure, host susceptibility, tumour biology, and clinical presentation rather than a single uniform disease trajectory (Dika et al., 2020; Heath & Bar, 2023). The present report concerns an elderly woman with a longstanding pigmented temporal lesion and examines the reconstructive decisions following excision.

The temporal region is a demanding reconstructive site because the lateral eyebrow, lateral canthus, hairline, and preauricular skin impose competing boundaries on tissue movement. A closure that appears satisfactory at rest may create traction on an adjacent landmark. Local skin availability also varies across the forehead, temple, and cheek, making individual assessment more useful than assuming uniformly poor elasticity. Contemporary regional reviews describe advancement, rotation, transposition, grafting, and secondary healing as context-dependent options (Redondo, 2023; Krishna et al., 2023; Mohan et al., 2024).

Diagnosis and reconstruction should be considered together without allowing the preferred flap to determine the extent of tumour removal. European, British, and German guidance supports risk-adapted management based on site, size, histological features, and the ability to assess margins (Peris et al., 2023; Nasr et al., 2021; Lang et al., 2024). A temple lesion requires particular attention to recurrence risk. Histological confirmation of BCC establishes tumour identity, whereas documentation of peripheral and deep margins addresses whether excision was complete. These questions cannot be treated as interchangeable.

The appearance of pigmented BCC can overlap with other ulcerated or keratinizing lesions. Dermoscopy adds diagnostic information, but its interpretation must remain linked to clinical history and histopathology. Blue-grey ovoid nests and globules support BCC, while keratin and white structures can introduce diagnostic ambiguity. Recent dermoscopic literature addresses diagnosis, subtype assessment, differential diagnosis, and treatment monitoring (Ungureanu et al., 2021; Wojtowicz & Żychowska, 2025a; Wojtowicz & Żychowska, 2025b; Wojtowicz & Żychowska, 2025c). In a longstanding symptomatic lesion, these observations inform the differential diagnosis rather than remove the need for tissue examination.

Bilateral advancement techniques can redistribute closure forces and recruit adjacent tissue with a compatible colour and texture. Reports of rotation–advancement repair, eyebrow T-plasty, forehead advancement, and scalp A-to-T repair illustrate related principles in different anatomical settings (Djawad et al., 2021; Miccio & Gnesotto, 2023; Ramesh et al., 2025; Vasilev et al., 2025). An O-to-T repair has also been reported for an upper-lip BCC defect (Alfyanita et al., 2025). These reports support a repertoire of reconstructive options; they do not establish that one geometry is superior across sites or defect sizes.

This case report describes the clinical presentation, diagnostic assessment, operative sequence, and documented early outcome of a modified O-to-T advancement flap after excision of a left temporal nodular BCC. Its contribution is a clinically grounded account of tissue recruitment in an anatomically sensitive area. The discussion distinguishes technical feasibility from oncological adequacy and

early wound viability from mature cosmetic outcome. Particular attention is given to missing margin information, an unresolved staging discrepancy, and the short duration of evaluable follow-up.

METHOD

This descriptive single-patient report was prepared from the supplied case narrative, bilingual abstract, and original clinical photographs from Hermina Hospital, Purwokerto, Indonesia. Available material comprised the presenting history, clinical and dermoscopic descriptions, a summarized pathological diagnosis, operative details, and a postoperative assessment on day 14. No additional patient contact, prospective measurements, experimental intervention, or reconstructed clinical dataset was introduced. The report therefore describes documented care rather than a comparative evaluation of reconstructive efficacy.

Clinical information was arranged chronologically from symptom onset to postoperative review. Lesion dimensions, the planned excision design, and follow-up findings were retained as separately reported variables. The clinical lesion measured 2.5 × 3 cm, whereas the marked ellipse was reported as 2.5 × 4 cm; neither value was relabelled as the final defect size. The detailed narrative documented day-14 findings, while the abstract referred to one-month monitoring without providing corresponding examination results. Only the day-14 visit was used to characterize the postoperative outcome.

The pathological diagnosis was reported as nodular BCC. The source also recorded pT1 Nx Mx and mentioned a greatest tumour diameter of 3 cm, but the complete pathology report and staging rationale were unavailable. Consequently, a definitive pathological stage was not independently assigned. Similarly, clear surgical margins, the width of the intended clinical margin, depth of invasion, perineural invasion, and intraoperative margin assessment could not be verified from the supplied material. These omissions were treated as limits to interpretation rather than replaced by assumptions.

The literature discussion draws on the original bibliography and additional publications from 2020 onward concerning BCC diagnosis, management, reconstruction, and outcome assessment. Bibliographic metadata were checked against accessible publisher records and DOI registration metadata. Selection was thematic rather than systematic: no exhaustive database search, pooled analysis, or formal assessment of publication bias was undertaken. Evidence from other anatomical sites was used to explain surgical principles, with explicit recognition of differences in vascular supply, skin mobility, and adjacent functional structures.

Written consent for publication of the case and identifiable clinical photographs, institutional ethics requirements, author contributions, funding, and conflicts of interest require confirmation by the treating authors before submission. None of these declarations was supplied in a form that could be verified. The article does not assert that consent or ethics approval has already been obtained. The original photographs provide the clinical image documentation for this report.

RESULT AND DISCUSSION

Clinical presentation and diagnostic assessment

A 77-year-old woman presented to the dermatology clinic with a progressively enlarging blackish lesion on the left temple. She recalled a small wart-like lesion

approximately 20 years earlier, initially associated with itching and stinging. Enlargement was slow, with increasing pigmentation over time. Repeated scratching and picking were followed by recurrent surface injury, easy bleeding, purulent discharge, and central crusting. Symptoms and crusting had become more troublesome during the preceding year, prompting hospital attendance.

The patient had worked as an itinerant vegetable vendor for approximately 20 years before becoming a homemaker, providing a plausible history of prolonged occupational sunlight exposure. She had not previously received treatment for the lesion. The narrative recorded no known systemic disease or relevant drug or food allergy. A negative reported medical history does not establish the absence of every immunological or oncological risk factor, and no specific immunosuppression assessment was available. Occupational exposure was considered contextual information rather than proof of individual causation.

General condition was described as good. Height was 160 cm and weight 48 kg, giving a body mass index of 18.75 kg/m^2. Recorded blood pressure was 133/72 mmHg, pulse 59 beats/min, respiratory rate 20 breaths/min, and temperature 36.5 °C. Dermatological examination identified a well-demarcated hyperpigmented plaque or nodular lesion on the left temporal region, measuring 2.5 × 3 cm, with erosion and dark crusting (Figure 1). The source photographs show the distribution and surface changes; a total lesion count was not independently established.

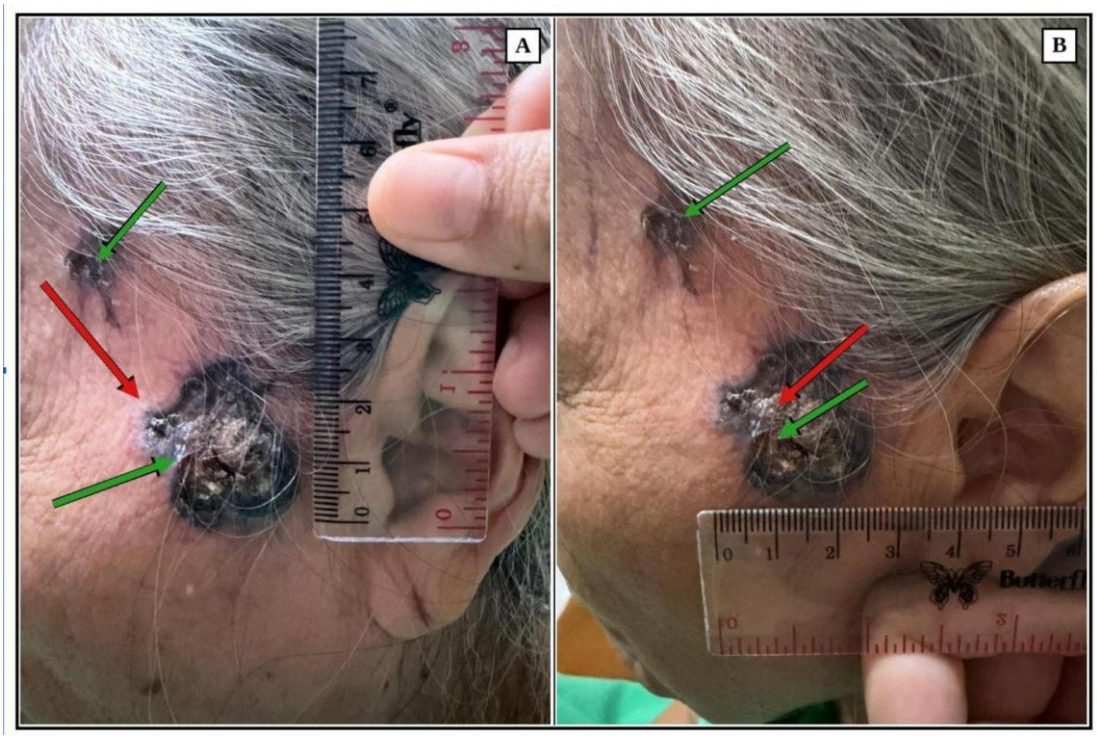


Figure 1. Clinical appearance of the left temporal lesion. Panels A and B show pigmentation, surface erosion (red arrows), and dark crusting (green arrows) in the original clinical photographs.

Dermoscopy demonstrated large blue-grey ovoid nests and multiple blue-grey globules, together with keratinous material, whitish areas, ulceration, brown-to-black crusts, and superficial scale (Figure 2). BCC, squamous cell carcinoma (SCC), and keratoacanthoma were considered. The slow evolution and blue-grey structures favoured pigmented BCC, while the keratinizing features required caution. Histopathological examination subsequently confirmed nodular BCC. No

histopathological slide or detailed microscopic description was supplied for reproduction.

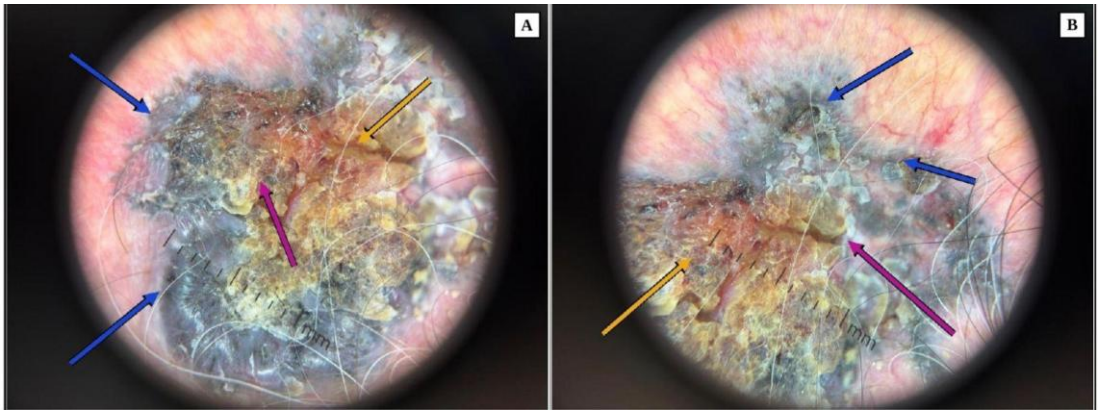


Figure 2. Dermoscopic appearance of the temporal lesion. Panels A and B show keratinous material (yellow arrows), blue-grey structures (blue arrows), and crusting (magenta arrows).

Excision and reconstruction

The procedure was performed under general anaesthesia. An elliptical design measuring 2.5 × 4 cm was marked with the planned flap incisions, followed by antiseptic preparation. Excision followed the marked ellipse. The operative narrative described completion of lesion removal but did not specify a measured peripheral margin, the deep excision plane, specimen orientation, or a margin-control method. The reported ellipse should therefore be interpreted as operative marking, not as evidence that a particular oncological margin was achieved.

After excision, incisions were made along the flap markings and the flap bases were undermined using an artery forceps as described in the source. Donor tissue mobility and closure tension were assessed, and adjacent skin was advanced toward the recipient defect. A central key suture established the meeting point of the mobilized tissue. Interrupted non-absorbable 5-0 polypropylene sutures completed closure, and gauze was applied. Operative duration, blood loss, antibiotic use, and postoperative analgesia were not documented and are not inferred here.

The repair was designated a modified O-to-T advancement flap by the treating team. Its stated principle was bilateral tissue advancement toward a central junction, producing an inverted T-like closure. The intraoperative image contains four panels showing marking, the excision defect, tissue mobilization, and final closure (Figure 3). It is presented as the operative documentation available for this patient, rather than as a geometric demonstration of a standardized flap with independently measured vectors, undermining distances, or flap dimensions.

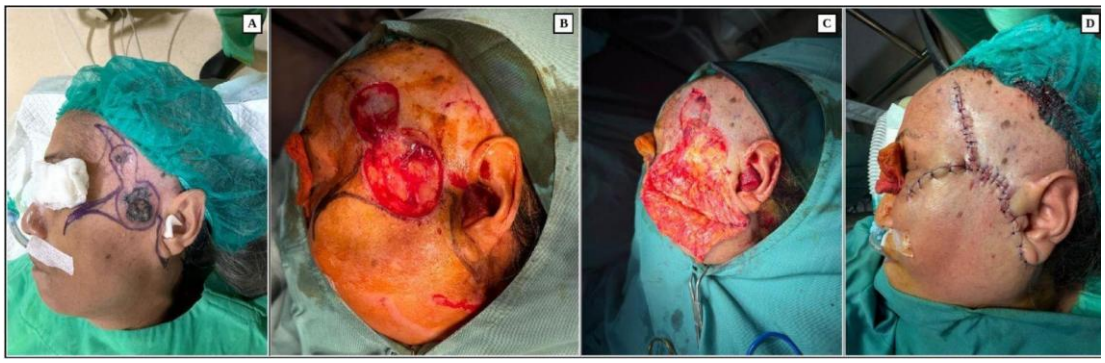


Figure 3. Operative sequence in the original four-panel photograph. A, preoperative marking; B, postexcision defect; C, mobilization of adjacent tissue; D, closure with interrupted sutures.

Early postoperative outcome

At the documented day-14 review, a linear scar extended across the temporal region toward hair-bearing skin. The scar remained erythematous, with small crusts along the suture line. No wound dehiscence, distal flap necrosis, or active infection was described. The postoperative photograph shows the early healing appearance after suture removal or loss, although the exact removal date was not recorded (Figure 4). These observations support early flap survival and wound continuity at that visit.


Figure 4. Day-14 postoperative appearance. The temporal scar extends toward hair-bearing skin and remains erythematous with small crusts. This image documents early healing rather than mature scar quality.

No validated scar score, patient-reported satisfaction measure, objective eyebrow position, facial nerve examination, sensory assessment, or independent photographic rating was available. The abstract mentioned one-month monitoring but did not provide a corresponding clinical assessment. Accordingly, absence of recurrence, preserved long-term facial movement, mature scar quality, and patient satisfaction cannot be concluded. Table 1 separates documented observations from measurements still needed to evaluate the repair more comprehensively.

Table 1. Documented findings and limits of outcome interpretation

Domain	Documented finding	Interpretive limit	Required verification	Timing
Presentation	77-year-old woman; left temple; 2.5 × 3 cm	Clinical dimensions only	Original clinical measurements	Baseline
Operation	2.5 × 4 cm marking; local advancement; 5-0 polypropylene	Final defect and flap size unavailable	Operative record and dissection plane	Surgery
Pathology	Nodular BCC	Margin status and stage unresolved	Complete pathology report	After excision
Wound	No described dehiscence, distal necrosis, or active infection	Early viability only	Standard complication assessment	Day 14
Function	No objective assessment supplied	No proven absence of distortion or nerve deficit	Brow, canthal and facial movement assessment	Later review
Durability	No detailed later assessment	No recurrence or mature cosmetic conclusion	Scar assessment, patient report, surveillance	Longer follow-up

Clinical interpretation and diagnostic concordance

The patient's age, exposure history, pigmentation, and very slow lesion growth are compatible with BCC, but none of these features is diagnostic in isolation. Foundational descriptions of BCC explain the range of clinical and histological subtypes, while contemporary epidemiological and pathological accounts emphasize heterogeneity (Cameron et al., 2019; Gangan, 2022; Balakrishnan, 2022). The clinical overview by Davis and the textbook edited by Kang and colleagues provide background to this interpretation (Davis, 2020; Kang et al., 2019). General-practice and clinicopathological teaching accounts reinforce the need to integrate presentation with tissue findings (Alexander Paterson, 2021; Palaniappan et al., 2025; O'Connell & Conran, 2021). It is more accurate to describe the lesion as clinically pigmented and histologically nodular than to assume that its pigmentation establishes a separate aggressive subtype.

Itching was clinically relevant because it contributed to repeated manipulation and surface disruption. Published work has examined itch in BCC, supporting recognition of symptoms beyond the appearance of a painless nodule (Chlebicka et al., 2020). In this patient, scratching may explain some bleeding and crusting, but it cannot establish why the malignancy developed or enlarged. Similarly, purulent discharge in the history does not by itself prove a persistent bacterial infection or justify retrospective assignment of an antimicrobial regimen.

Blue-grey nests and globules strengthened the clinical suspicion of BCC. Their interpretation was supported by the eventual pathological diagnosis, rather than treated as a stand-alone diagnostic test. Contemporary discussions of dermoscopy emphasize the relationship between visible structures, tumour subtype, and differential diagnosis (Ungureanu et al., 2021; Wojtowicz & Żychowska, 2025a; Wojtowicz & Żychowska, 2025b; Wojtowicz & Żychowska, 2025c). The lack of a supplied histological image prevents direct clinicopathological image correlation in

this report. It would be inappropriate to create or substitute a generic histological picture as though it originated from this specimen.

Keratin and white structures made SCC and keratoacanthoma reasonable alternatives. The original studies by Rosendahl and colleagues and Zalaudek and colleagues describe overlapping keratinizing patterns (Rosendahl et al., 2012; Zalaudek et al., 2012). Such overlap limits the specificity of isolated findings. A published example of BCC mistaken for trichoepithelioma further illustrates the need for tissue diagnosis when clinical categories overlap (Wee et al., 2020). The present report does not calculate sensitivity or specificity from a single observation, and it does not reproduce diagnostic-performance percentages from unrelated populations as patient-specific probabilities.

Oncological adequacy and pathological reporting

Histological confirmation of nodular BCC does not establish complete tumour removal. Contemporary management guidance prioritizes clearance and recurrence-risk assessment, including the implications of a high-risk facial location (Schmults et al., 2023; Peris et al., 2023; Nasr et al., 2021; Lang et al., 2024). The operative account describes excision followed by immediate reconstruction. However, the provided record does not establish whether margins were assessed before tissue rearrangement or found negative afterward. This distinction is essential because a viable flap can coexist with residual tumour, and satisfactory wound healing cannot be used as evidence of oncological cure.

Studies of dermoscopic margin delineation examine a different question from pathological confirmation of clearance (Litaiem et al., 2022; Litaiem et al., 2020; Shin et al., 2022). Research on adherence to complete peripheral and deep margin assessment further supports documenting the actual assessment method (Danesh et al., 2020).

The surgical-margin review by Quazi and colleagues and the Cochrane review of BCC interventions inform discussion of excision within a broader treatment strategy (Quazi et al., 2020; Thomson et al., 2020). A comparison of Mohs surgery and standard excision also addresses an oncological question rather than simply a closure technique (Alsaif et al., 2021). In this case, no claim can be made that standard excision was equivalent to margin-controlled surgery. The choice should be understood in relation to tumour risk, available expertise, patient factors, and documented margin assessment; the supplied narrative only partially records that decision process.

The recorded stage requires particular restraint. The original bibliography includes the AJCC staging manual (Amin et al., 2017), but the case summary's combination of pT1 and a greatest dimension of 3 cm cannot be reconciled without the original pathological measurements and applicable classification. Clinical size, specimen size, invasive tumour size, and final defect size must not be substituted for one another. This manuscript therefore reports nodular BCC without endorsing a definitive stage. The treating team should verify the original report and staging applicability before submission to ensure that the assigned category is supported by the applicable criteria.

The absence of reported lymph-node or distant-metastasis assessment is also interpreted cautiously. Regional or distant spread is uncommon in conventional BCC, but missing assessment is not evidence of a negative result. Nothing in the

supplied documentation establishes advanced disease or a need for systemic treatment. Conversely, a long lesion history does not establish low recurrence risk. The case supports a localized surgical narrative while leaving the pathological clearance status unresolved.

Anatomical rationale for the modified advancement flap

Reconstruction of the temple must balance tissue mobility against the position of nearby landmarks. Regional reconstructive reviews describe variation in the availability of forehead, temporal, and preauricular donor skin (Redondo, 2023; Krishna et al., 2023; Mohan et al., 2024). The rationale for this repair was to recruit neighbouring tissue and share the closure load across two advancing components. This is a plausible mechanical explanation, but it was not tested with force measurements, serial landmark analysis, or a comparison group. Claims that the method definitively prevented distortion would exceed the observations.

The frontal branch of the facial nerve is an additional concern. The anatomical study by Shin and colleagues emphasizes the clinical importance of its variable course in temporal surgery (Shin et al., 2023). The broader temporal-flap literature also highlights the complexity of tissue planes and reconstructive options (Gagliardi et al., 2022). In the present case, the narrative does not specify the exact dissection plane or document a formal postoperative motor examination. Neither absence of nerve injury nor a universally safe undermining plane can therefore be inferred from the wound photograph.

The principal practical attraction of a local flap is the use of nearby skin with a potentially favourable match in pigmentation, thickness, and texture. Chaudhary and colleagues examined local flap coverage of facial defects, while Djawad and colleagues reported rotation–advancement reconstruction after BCC excision (Chaudhary et al., 2020; Djawad et al., 2021). These publications help frame tissue selection, but the present case contains no measured comparison with a skin graft or secondary healing. Donor-site morbidity, procedure duration, and comparative cost were not recorded, so shorter surgery and greater efficiency are not claimed as demonstrated benefits.

Eyebrow T-plasty, forehead advancement, and scalp A-to-T repair provide useful technical parallels (Miccio & Gnesotto, 2023; Ramesh et al., 2025; Vasilev et al., 2025). Their anatomical settings differ from the temple: tissue laxity, vascular territories, hair-bearing boundaries, and the consequences of traction are not identical. The upper-lip O-to-T report further shows that similar nomenclature can describe repairs across facial subunits with very different functional priorities (Alfyanita et al., 2025). These comparisons support a shared advancement principle while requiring a site-specific explanation of flap choice.

The original reference concerning scalp-defect reconstruction provides additional context for reconstructive selection but should not be generalized into evidence specific to temporal BCC (Siddiqui et al., 2026). Primary closure, grafting, secondary healing, and other local flaps remain alternatives when tissue conditions and oncological planning favour them. The present documentation does not show that all alternatives were unsuitable. It shows that the selected local advancement repair achieved early closure in this patient, which is the appropriate level of inference for a single case.

Follow-up and outcome assessment

The day-14 assessment is clinically useful because it addresses wound continuity, infection, and flap viability. It cannot assess mature scar quality, which changes during remodelling, or provide an adequate interval to judge tumour recurrence. Contemporary studies of complications and surgical-site infection emphasize the need for defined outcome criteria rather than a global statement that healing was good (Lee et al., 2023; Schlager et al., 2023; Rutkowski et al., 2022). In this report, the absence of the three specifically documented early complications is retained without extending it to every possible adverse outcome.

Future assessment should distinguish oncological surveillance from reconstructive review. Oncological follow-up would require confirmation of margins and monitoring for local recurrence or new lesions. Reconstructive follow-up would examine eyebrow and canthal position, facial movement, scar contour, colour, symptoms, and the patient's own assessment. Work on patient-reported outcomes in skin cancer surgery supports including the patient's perspective rather than relying exclusively on clinician photographs (Garg et al., 2024). No retrospective satisfaction score is assigned to this patient.

The periocular BCC literature is relevant to functional caution near the lateral canthus, but this lesion was described as temporal and no ocular involvement was documented (Furdova et al., 2020). Functional questions should therefore be directed by the actual anatomy rather than by extrapolating complications from another site. A reproducible photographic protocol and consistent follow-up intervals would strengthen future reports. At least one later scar assessment and a documented oncological follow-up plan would be needed before making broader statements about durable success.

Strengths and limitations

The report's strengths are its chronological clinical history, documented dermoscopic findings, description of the key surgical steps, original operative photographs, and explicit early wound assessment. Its principal limitations are the single-patient design, incomplete pathology and margin information, uncertain staging, unmeasured final defect dimensions, and limited evaluable follow-up. There was no comparator, independent outcome assessor, validated scar scale, or recorded patient perspective. These limits prevent conclusions about superiority, recurrence reduction, cost savings, or general effectiveness.

The clinical lesson is the value of integrating diagnostic certainty, oncological documentation, anatomical planning, and proportionate outcome claims. The modified advancement design may be technically feasible when adjacent skin can be mobilized without excessive traction, but flap selection remains conditional on tumour clearance and tissue characteristics. Better documentation would make the case more reproducible: the original pathology report, exact flap dimensions and plane, margin-management sequence, neurological assessment, and later follow-up should accompany any future update. Clear reporting strengthens the value of the observed result without inflating its evidential weight.

CONCLUSION

A modified O-to-T advancement flap was used to reconstruct a left temporal defect after excision of histologically confirmed nodular BCC in a 77-year-old

woman. At the documented day-14 review, the flap remained viable and the wound showed no described dehiscence, distal necrosis, or active infection. The case illustrates the feasibility of recruiting adjacent tissue through bilateral advancement in an anatomically sensitive facial region. It does not establish comparative superiority or a mature cosmetic result.

Interpretation remains conditional on the missing oncological information. Margin status and the recorded pathological stage require verification, while longer follow-up is necessary to assess recurrence, scar maturation, adjacent landmark position, and patient-reported benefit. For clinical application, oncological clearance should guide reconstruction, and the success of wound closure should be evaluated separately from tumour control. Confirmed publication consent and completed author declarations are also required before journal submission.

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