

Bilobed Flap in Nasal Reconstruction: An Effective and Versatile Surgical Option

Turcu E.G.^{1,2,3}, Mirela Loreta Turcu³

¹Senior Lecturer Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

²MD PhD, plastic surgeon, Department of Plastic Surgery, Bagdasar Arseni Clinical Emergency Hospital, 12 Berceni Road, 041915, Bucharest, Romania, ORCID 0009-0002-4698-807X

³MD, ENT specialist, Zone Medical Estet, Clinic of Plastic@ENT Surgery, Bucharest, Romania

ABSTRACT

Nasal reconstruction is a challenging surgical procedure that necessitates careful planning to ensure the integration of functional restoration and aesthetic equilibrium. The bilobed flap is a very good choice for small to medium-sized nasal defects that can be fixed with local flap procedures because it is flexible and reliable.

This study aimed to evaluate the effectiveness of the bilobed flap as a reconstructive method for nasal defects after basal cell carcinoma resection.

This study sought to assess the efficacy of the bilobed flap as a reconstructive technique for nasal abnormalities, focusing on functional outcomes and aesthetic satisfaction. The bilobed flap covered the defect in all cases and the aesthetic results were very good. The color and texture matched well, and the shapes of the nasal subunit stayed the same.

Our conclusion is that bilobed flap is a reliable and flexible choice for nasal medium sized defects after basal carcinoma surgery. It is very often used in nose reconstruction because it can achieve good functional and cosmetic results.

KEYWORDS: nasal reconstruction, bilobed flap, basal cell carcinoma, facial reconstruction

ARTICLE DETAILS

Published On:
04 February 2026

Available on:
<https://ijpbms.com/>

INTRODUCTION

The bilobed flap plasty is an important nasal reconstructive surgery technique. In the early 1800's, Dr. John A. C. von Langenbeck wrote about the bilobed flap for the first time. It becomes more well-known in surgical literature during the 20th century. It is important not only because it can fix specific nasal problems, but also because it can do both functional and aesthetic restoration. This shows how complete current reconstructive surgery is.

In the past, the search for better ways to do nasal reconstruction came from the problems that tumor excisions, trauma, and congenital defects caused, which often led to complicated nasal deformities. Before the bilobed flap plasty, skin grafts and traditional flap methods often didn't cover enough area or didn't have good aesthetic results (1).

The bilobed flap, characterized by its unique design, incorporates two lobes that are rotated into place to cover a nasal defect; this allows for a more seamless integration of the surrounding tissue compared to its predecessors. The

innovation of utilizing a flap with two lobes, which can provide greater flexibility in contouring and tension release, significantly improved reconstructive outcomes, paving the way for a new standard in aesthetic restoration (2).

As a result of bilobed flap plasty, patients benefit from shorter surgery times, faster healing times, and less visible scarring. This shows how important the bilobed flap is in modern reconstructive surgery. Also, the growing body of evidence that supports the bilobed flap's ability to protect blood vessels and ensure good blood flow shows how important it has always been in surgical methods.

In the current landscape of nasal reconstruction, the bilobed flap technique remains instrumental in addressing the ever-evolving aesthetic expectations of patients. Techniques have been refined to enhance usability, accommodating diverse nasal defects while preserving the intricate architecture of nasal contouring. Surgeons have increasingly integrated advanced imaging and surgical planning techniques to optimize the outcomes associated with the bilobed flap,

Bilobed Flap in Nasal Reconstruction: An Effective and Versatile Surgical Option

allowing for greater customization based on individual patient anatomy (2).

The technique's ability to restore both the form and function of the nose makes it a cornerstone of modern reconstructive practices, embodying an essential nexus between historical development and contemporary surgical artistry. The bilobed flap technique has become an essential modality in nasal reconstruction, yielding numerous advantages that underpin its continued relevance in contemporary surgical practice.

The bilobed plasty is very flexible, which lets the surgeon modify the flap to match different defect sizes and shapes while also improving the look of the results. The bilobed flap is made up of two lobes that move tissue from healthy areas next to the defect. This design successfully hides the defect while keeping the surrounding anatomical structures intact.

A plethora of studies corroborate the aesthetic superiority of the bilobed flap over alternative reconstruction methods.

Peters et al. (2021) affirm this by demonstrating consistent positive outcomes in visual assessments of healed scars and overall patient satisfaction across numerous cases utilizing this technique. The bilobed flap's design makes it easier to get the best contouring, which is very important for the face, especially the very noticeable nose area. Also, the cuts are made along relaxed skin tension lines, which helps to get better cosmetic outcomes and less noticeable scars (3).

The bilobed flap preserves the nose's function after reconstruction. Veldhuizen et al. (2021) did a systematic review that gives strong evidence that the technique is reliable for fixing nasal skin defects while keeping both its appearance and its function intact. This feature is especially important when it comes to the nasal valve area, where not remodeling properly can lead to problems with obstruction. The bilobed flap is crucial in reconstructive surgery because it allows air to flow freely and provides enough structural support (4).

Moreover, contemporary advancements in surgical technique, such as the superiorly based bilobed flap, further optimize aesthetic and functional outcomes. Kelly-Sell et al.

(2018) investigate the implications of this particular flap design in aesthetic sensitive regions, noting enhanced perfusion and tissue viability that result in improved healing and minimal complications. This innovation within the bilobed framework demonstrates the versatility of the technique, allowing surgeons to adapt to varying clinical scenarios while delivering high standards of care (5).

Bennett et al. (2024) discussed about a number of things that surgeons must think when planning reconstruction. The location, size, and individual anatomy of the patient are some of the issues that need to be addressed about (2).

The bilobed flap is also very useful for both surgeons and patients because it leaves very little scarring. The ability to hide surgical scars in natural skin folds and the trauma of the original defect improves the overall appearance of the face, which is very important for patient satisfaction and quality of life after surgery.

The bilobed flap is a local transposition flap made up of two lobes that are next to each other and share a common pedicle. Most often, it is used to fix small to medium-sized defects on the tip and ala of the nose, where skin laxity is limited and aesthetic subunits must be respected.

The main lobe is made next to the defect and is usually the same size or a little smaller than the defect. The second lobe is smaller than the first and takes tissue from an area of the skin that is more flexible, usually the proximal nasal dorsum or sidewall. Both lobes are raised to the same level, usually at the level of the subcutaneous tissue, which keeps the vascular plexus intact.

The flap is turned in a series of steps: the primary lobe fills the gap, and the secondary lobe closes the donor site of the first lobe. Maintaining an interlobar angle of about 45–50 degrees is part of good design. This reduces tension, makes the trapdoor deformity less noticeable, and improves contour alignment. To get the best functional and aesthetic results, you need to be very careful with thinning, precise inset, and layered closure.

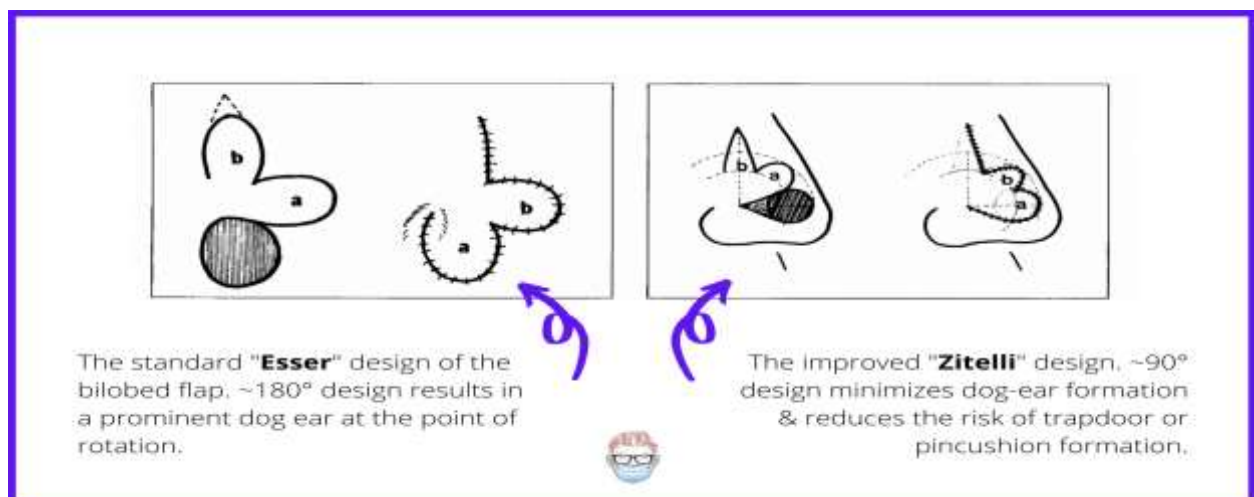


Fig 1. The Bilobed Flap (standard Esser and improved Zitelli)

Bilobed Flap in Nasal Reconstruction: An Effective and Versatile Surgical Option

MATERIALS AND METHODS

A retrospective study was conducted between January 2021 and December 2023 on 8 patients undergoing nasal reconstruction using a bilobed flap. Inclusion criteria included defects ≤ 2 cm located on the nasal tip, supratip, or ala. A total of 8 patients (5 males, 3 females) underwent nasal reconstruction using a bilobed flap following excision of basal cell carcinoma. Patients with prior radiotherapy or extensive nasal defects were excluded.

All patients underwent preoperative biopsy, with the diagnosis of basal cell carcinoma confirmed by histopathological examination.

Five procedures were performed under local anesthesia and 3 under general anesthesia. After tumor excision with

histologically clear margins, the bilobed flap was designed following Zitelli's modification, maintaining an arc of rotation between 90° and 110° . Flap elevation was carried out in the subcutaneous plane, preserving the subdermal vascular plexus. The primary lobe was transposed into the defect, followed by rotation of the secondary lobe to close the donor site. Layered closure was performed using non-absorbable sutures for skin closure.

Patients were followed for a minimum of 12 months. Outcomes were evaluated based on flap viability, contour, scar quality, nasal symmetry, and patient satisfaction. Demographic data, tumor characteristics, anesthetic technique, flap viability, postoperative complications, and aesthetic outcomes were recorded.



Fig. 2, Case 1. Bilobed plasty for nodular basal cell carcinoma of the nasal tip (a- preoperative markings, b-postoperative aspect at 7 days, c- postoperative aspect at 6 month)



Fig. 3, Case 2. Bilobed plasty for basal cell carcinoma of the nasal supratip (a-preoperative, b-intraoperative aspect, c- postoperative at 7 days)

RESULTS

The study group consisted of 5 men (62.5%) and 3 women (37.5%), with ages ranging from 46 to 80 years. Age distribution showed 3 patients (37.5%) aged 45–55 years, 2 patients (25.0%) aged 55–65 years, and 3 patients (37.5%) aged 65–75 years.

All tumors were confirmed as nasal basal cell carcinoma, with 5 cases (62.5%) presenting the nodular subtype and 3 cases (37.5%) the ulcerovegetative subtype. Reconstruction was performed under local anesthesia in 5 cases (62.5%) and general anesthesia in 3 cases (37.5%).

At the two-year follow-up, no local recurrences were observed. One patient (12.5%) developed a partial marginal flap necrosis, which healed secondarily with conservative wound care. No major complications or total flap losses were recorded.

Patient-reported aesthetic satisfaction was high: 6 patients (75.0%) were very satisfied, and 2 patients (25.0%) were satisfied with the final reconstructive outcome.

All flaps survived completely. Minor complications included transient edema (22%) and mild trapdoor deformity (11%), which resolved with conservative management. Patient satisfaction was high, particularly regarding color match and nasal contour. No recurrences of the operated basal cell carcinomas were identified at the postoperative follow-up evaluations conducted at 6 months and one year.

DISCUSSIONS

The bilobed flap redistributes tension and keeps the shape of the nose. To get the best results, you need to plan ahead. The bilobed flap is still a key method for fixing small nasal defects, especially in areas where the skin doesn't stretch much. It lets you redistribute tension more carefully than advancement or rotation flaps, which keeps the nasal tip and alar margin from getting distorted.

Successful results depend on careful flap sizing and geometric planning. Too much rotation and too much flap bulk are still the most common reasons for bad aesthetic

Bilobed Flap in Nasal Reconstruction: An Effective and Versatile Surgical Option

results. We confirm the dependability of the bilobed flap when we adhere to contemporary design principles, as our results align with the current literature.

The bilobed flap is the most common method for reconstructing small and moderate defects of the nose, especially after removing basal cell carcinomas (BCC). This article presents the bilobed flap plasty technique, as well as its historical importance, benefits over traditional methods, and how happy patients are with it in the context of nasal reconstructions.

In the past, many new ways to repair noses have been tried, but the bilobed flap has become popular because it can be used in many ways and gives good cosmetic results. Kelly-Sell et al. (2018) say that different surgeons improved and made the technique more popular by pointing out how it can use nearby skin in a way that keeps the local blood supply while recreating the natural shapes of the nasal subunits (5).

Traditional techniques such as direct closure or grafting often result in tension scars and suboptimal aesthetic results. In contrast, the bilobed flap's dual-lobed structure accommodates defects that are not perfectly congruent, providing a dynamic reconstruction that conforms to the underlying anatomical architecture of the nose (Bennett et al., 2024). This method not only facilitates effective scalp integration but also the nuanced shading and texture match vital for natural appearance. Importantly, the bilobed flap is well-suited for the excision sites of BCCs, which are common in the facial area due to sun exposure (2).

A study examining the aesthetic outcomes of nasal reconstructions indicated that patients reported positive results regarding perceived appearance and satisfaction with functional outcomes (Peters et al., 2021). The study showed that most of the patients liked how the nasal contours were kept and the scarring was kept to a minimum. This can greatly improve overall satisfaction after BCC treatment. The psychological advantage derived from an aesthetically pleasing result is significant, influencing both physical appearance and self-esteem, as well as societal perceptions (3).

Traditional methods often don't take into account how the nose changes over time, which can lead to problems like distortion, asymmetry, and misalignment. The design of the bilobed flap naturally helps restore function while keeping the shape of the nose intact. Marinho et al. (2021) conducted a comprehensive assessment and determined that this method consistently presents fewer challenges than its predecessors.

The flap design can be changed to fit the needs of each patient based on the size and location of the defect. This is very important when doing complex reconstructions after taking out a tumor (Bennett et al., 2024). The bilobed flap technique can be used in many different ways, which improves care in facial plastic and reconstructive surgery. This is possible when it is combined with careful planning and skilled surgery (2).

The bilobed plasty not only helps restore function, but it also helps define the patient's identity. The author Peters et al. (2021) emphasizes that the aesthetic results obtained with the bilobed flap frequently result in more advantageous comparisons with the paramedian forehead flap, another prevalent technique. The bilobed flap plasty usually leaves less visible scars and matches the texture of the skin better, which makes it a great choice for people who are worried about how their surgery will look (3).

The surgical results and patient satisfaction related to the bilobed flap technique after BCC removal are significant. Patients exhibit a distinct preference for this method compared to alternatives that may result in more significant donor site scarring or reduced flexibility in flap design (Kelly-Sell et al., 2018). This is further corroborated by research demonstrating elevated patient-reported outcomes regarding satisfaction attributable to the maintenance of facial aesthetics (Marinho et al., 2021). Patient feedback emphasizes the significance of aesthetic integrity following surgery, correlating outcomes with their expectations of nasal reconstruction (6).

After surgery for basal cell carcinoma, the bilobed flap plasty is a good option to reconstruct the nose. There are many benefits, such as good cosmetic results, fewer problems, and happier patients. Because of its historical significance, it is a big step forward in reconstructive surgery and a great alternative to more traditional methods. The success of nasal restorative surgeries hinges on both technical precision and aesthetic considerations, as evidenced by the outcomes of current patients. So, the bilobed flap is still the best choice for surgeons who want to give their patients the best possible reconstructive results and make their lives better. The bilobed flap will probably still be an important part of nose reconstruction in minor and moderate size defects of the nose. In the broader context of head and neck oncologic management, as illustrated by complex tumor presentations in anatomically sensitive facial regions, post-tumoral nasal reconstruction following complete tumor excision relies heavily on the judicious use of local and regional flaps, which remain essential for restoring both function and aesthetic subunit integrity, particularly in defects where tissue availability and contour preservation are critical (7).

The growing body of evidence highlighting the context-dependent performance of medical artificial intelligence, particularly the critical role of prompt quality and structured input, may have important implications for plastic and reconstructive surgery. In post-tumoral facial reconstruction, including bilobed plasty in nasal defects, future AI-based decision-support systems could contribute to surgical planning and outcome optimization only if trained and applied within carefully defined clinical and anatomical frameworks (8).

CONCLUSIONS

1. The bilobed plasty is a good option to reconstruct small to medium-sized defects of the nose after basal cell carcinoma surgery. It always provides stable coverage and good healing results.
2. After the bilobed plasty, both the functional integrity and aesthetic harmony of the nasal subunits were preserved, the color and texture matched well and the nasal contour was not distorted.
3. Long-term follow-up showed that this method was effective because no recidivas of the basal cell carcinoma were found during evaluations done 6 months and 1 year after surgery.
4. The complication rates were very low and mostly minor, which shows that the bilobed flap is safe when used with careful planning before surgery and a refined surgical technique.
5. The results show that the bilobed flap should continue to be used for minor and medium sized defects of the nose. It is important for plastic surgeons to be skilled and to design flaps that are unique to each patient in order to get the best results for both the patient and the reconstruction.

CONFLICT OF INTEREST

There is no conflict of interest in this paper.

REFERENCES

- I. Mureau MA, Moolenburgh SE, Levendag PC, Hofer SO. Aesthetic and functional outcome following nasal reconstruction. *Plastic and reconstructive surgery*. 2007 Oct 1;120(5):1217-27.
- II. https://journals.lww.com/plasreconsurg/fulltext/2007/10000/The_Facial_Artery_Perforator_Flap_for.13.aspx
- III. Bennett A, Peters V, Meade A, Thornton J. A Comprehensive Review of Bilobed Flaps in Nasal Reconstruction: Technique, Outcomes, and Considerations. *Journal of Craniofacial Surgery*. 2024 Oct 1;35(7):2146-9. <https://journals.lww.com/39212386.pmid>
- IV. Peters F, Mücke M, Möhlhenrich SC, Bock A, Stromps JP, Kniha K, Hölzle F, Modabber A. Esthetic outcome after nasal reconstruction with paramedian forehead flap and bilobed flap. *Journal of Plastic, Reconstructive & Aesthetic Surgery*. 2021 Apr 1;74(4):740-6. <https://www.sciencedirect.com/science/article/pii/S1748681520305064>
- V. Veldhuizen IJ, Budo J, Kallen EJ, Sijben I, Hölscher MC, van der Hulst RR, Hoogbergen MM, Ottenhof MJ, Lee EH. A systematic review and overview of flap reconstructive techniques for nasal skin defects. *Facial Plastic Surgery & Aesthetic Medicine*. 2021 Nov 1;23(6):476-81. <https://www.liebertpub.com/doi/abs/10.1089/fpsam.2020.0533>
- VI. Kelly-Sell M, Hollmig ST, Cook J. The superiorly based bilobed flap for nasal reconstruction. *Journal of the American Academy of Dermatology*. 2018 Feb 1;78(2):370-6. <https://www.sciencedirect.com/science/article/pii/S0190962217323381>
- VII. MARINHO CC, MIRANDA ML, LIMA RC, RODRIGUES CJ, PEGO KV, REIS CF, GUIMARÃES SD, RODRIGUES HL. Reconstruction of the nasal subunits after tumor resection. *Revista Brasileira de Cirurgia Plástica*. 2021;36:156-63. <https://www.scielo.br/j/rbcp/a/cmMm3MpSpJtvSHh4kcVhy3t/?format=html&lang=en>
- VIII. Violeta Ioana Prună, Diana Mihaela Ciuc, Valeriu Gabi Dincă, Viorel Mihai Prună. Bilateral Lacrimal Gland Lymphoma - Case Presentation. *Romanian Journal of Ophthalmology*, Volume 68, Issue 2, April-June 2024. pp:191-197 CASE REPORT, DOI:10.22336/rjo.2024.36
- IX. Florian Berghea, Elena Camelia Berghea, Cristina Octaviana Daia, Diana Ciuc, Gabi Valeriu Dinca. In the search for the perfect prompt in medical AI queries. *Frontiers in Artificial Intelligence*, 2025, Sec. Medicine and Public Health Volume 8 - 2025 | <https://doi.org/10.3389/frai.2025.1689178>