

Archives of Plastic Surgery

A LIFEBOAT FOR FAILED NASAL RECONSTRUCTIONS: THE SUPRACLAVICULAR-SUBMENTAL SANDWICH FLAP

Michel L Vaena, Kevin Sicalo, Caterina G Alessio, Eduardo P Bastos.

Affiliations below.

DOI: 10.1055/a-2337-2131

Please cite this article as: Vaena M L, Sicalo K, Alessio C G et al. A LIFEBOAT FOR FAILED NASAL RECONSTRUCTIONS: THE SUPRACLAVICULAR-SUBMENTAL SANDWICH FLAP. Archives of Plastic Surgery 2024. doi: 10.1055/a-2337-2131

Conflict of Interest: The authors declare that they have no conflict of interest.

Abstract:

Many failures in total or subtotal nasal reconstructions result from an underestimation of the amount of skin required for an adequate result, especially for sufficient lining. Such planning errors usually lead to poor results, with exposure of structural grafts, infection, scar retraction, airway obstruction and finally loss of projection and shape of the reconstructed nose. Reconstruction options for cases in which previous attempts have failed are always limited, as well as in cases of trauma or burns affecting the soft tissues of the forehead and face. In such complex situations, one may employ free flaps or tissue expansion, but such resources may not be always available. We describe a technique indicated for salvage surgeries in patients whose previous nasal reconstruction have failed, allowing a generous amount of tissue transfer for the nasal region. The technique combines the use of supraclavicular and submental flaps, with simple execution, not requiring microsurgical skills or devices such as tissue expanders. Done in three stages, the described technique provides enough skin for a total nasal reconstruction. The final result is obtained after subsequent refinements, and the total number of procedures is equivalent to when more sophisticated techniques are employed, such as tissue expansion or microsurgery.

Corresponding Author:

Prof. Michel L Vaena, Universidade do Estado do Rio de Janeiro, Faculdade de Ciências Médicas, Rio de Janeiro, Brazil, michel.vaena@gmail.com, michel.vaena@hotmail.com

Affiliations:

Michel L Vaena, Universidade do Estado do Rio de Janeiro, Faculdade de Ciências Médicas, Rio de Janeiro, Brazil
Kevin Sicalo, Hospital Universitario Pedro Ernesto, Plastic Surgery, Rio de Janeiro, Brazil
Caterina G Alessio, Hospital Universitario Pedro Ernesto, Plastic Surgery, Rio de Janeiro, Brazil
Eduardo P Bastos, Hospital Universitario Pedro Ernesto, Plastic Surgery, Rio de Janeiro, Brazil

A LIFEBOAT FOR FAILED NASAL RECONSTRUCTIONS: THE SUPRACLAVICULAR-SUBMENTAL SANDWICH FLAP

Michel L. H. T. **Vaena**, MD, PhD¹ (ORCID 000-0001-8499-2016)

Kevin Sicalo, MD² (ORCID 0009-0005-1826-7410)

Caterina Goulart Alessio, MD² (ORCID 0009-0000-8343-6114)

Eduardo Pantoja Bastos, MD³ (ORCID 0009-0004-8128-4849)

¹Professor of Plastic Surgery, Rio de Janeiro State University - UERJ, Faculdade de Ciências Médicas – FCM/UERJ - Av. Prof. Manuel de Abreu, 444 - 2º andar – Vila Isabel - 20.550-170 – Rio de Janeiro – RJ – Brazil

Contributions: conceptualization, project administration, writing original draft, reviewing and editing.

²Plastic Surgery Resident. Hospital Universitario Pedro Ernesto – UERJ – Boulevard 28 de setembro 77, Vila Isabel - 20.551-030 - Rio de Janeiro, Brazil.

Contributions: visualization, data curation and writing original draft.

²Plastic Surgeon. Hospital Universitario Pedro Ernesto – UERJ – Boulevard 28 de setembro 77, Vila Isabel - 20.551-030 - Rio de Janeiro, Brazil.

Contributions: visualization, data curation and project administration.

Corresponding author: Michel L. H. T. Vaena, MD, PhD

Faculdade de Ciências Médicas – FCM/UERJ
Av. Prof. Manuel de Abreu, 444 - 2º andar – Vila Isabel
20.550-170 – Rio de Janeiro – RJ – Brazil
e-mail address: michel.vaena@gmail.com

ABSTRACT

Many failures in total or subtotal nasal reconstructions result from an underestimation of the amount of skin required for an adequate result, especially for sufficient lining. Such planning errors usually lead to poor results, with exposure of structural grafts, infection, scar retraction, airway obstruction and finally loss of projection and shape of the reconstructed nose. Reconstruction options for cases in which previous attempts have failed are always limited, as well as in cases of trauma or burns affecting the soft tissues of the forehead and face. In such complex situations, one may employ free flaps or tissue expansion, but such resources may not be always available. We describe a technique indicated for salvage surgeries in patients whose previous nasal reconstruction have failed, allowing a generous amount of tissue transfer for the nasal region. The technique combines the use of supraclavicular and submental flaps, with simple execution, not requiring microsurgical

skills or devices such as tissue expanders. Done in three stages, the described technique provides enough skin for a total nasal reconstruction. The final result is obtained after subsequent refinements, and the total number of procedures is equivalent to when more sophisticated techniques are employed, such as tissue expansion or microsurgery.

Keywords:

Surgical flaps; Reconstructive surgical procedures; Nose deformities, acquired.

INTRODUCTION

Most failures in total or subtotal reconstruction of the nose come from an underestimation of the amount of tissue required for an adequate result. Such planning errors usually lead to poor results, with exposure of structural grafts and consequent infection, scar retraction, airway obstruction and finally loss of projection and shape of the reconstructed nose. It is not uncommon for plastic surgeons to deal with unsuccessful reconstruction cases, or even well-done reconstructed noses with local cancer recurrence. In these secondary or tertiary cases, as well as in cases of sequelae of trauma or burns which affect the entire face, the alternatives for reconstruction are limited and difficult. We present below a technique for salvage nasal reconstructions.

IDEA

Considering the repair of major nasal defects, the position of the nose in the midline of the face limits the reach of adjacent flaps, as these rely on terminal vascularization and therefore have limited arcs of rotation. In primary nasal reconstructions, the frontal region is the main donor area, but in larger defects of the nose (total or subtotal nasal loss) the frontal skin is insufficient to provide both coverage and lining. To address the lining defect, hinge flaps are unreliable, and septal or buccal mucosa flaps are friable and do not show the same resistance as skin flaps. In addition, factors such as previous surgeries or infections, radiation therapy, scarring, and fibrosis limit the use of local flaps. For all these reasons, in total or subtotal full-thickness nasal defects, tissue expanders or microsurgical flaps should be considered. There are some situations however, mostly in secondary or tertiary cases, in which the skin of the frontal region is no longer available for expansion, or there is

no possibility for microvascular repair, either because of patient comorbidities, surgeon's inexperience or due to health system limitations.

In such adverse situations, the "supraclavicular-submental sandwich flap" (3SF) tissue transfer technique may be used as a "lifeboat" procedure. Essentially, *it increases the coverage area and reach of the submental flap by adding an extra amount of skin from the supraclavicular flap*. Unlike old techniques such as the Tagliacozzi's method or Gillies-Filatov's pedicled tubes, the 3SF technique makes use of two well described axial flaps with robust vascularization, thus enhancing its reliability [1,2]. Besides, the main advantage of the 3SF transfer technique is that it allows full mobility of the patient's head and limbs, sparing the patient from restrictive bandages, a major drawback in the older techniques. For the reasons above, it is a useful technique for total or subtotal nasal defects, to be used as a salvage procedure when previous reconstruction attempts have failed.

CASE 1

A 35-year-old man presented with a total nasal defect. Three years earlier, the patient was involved in a motorcycle accident with major facial trauma. He underwent two previous attempts of total nasal reconstruction, having used the right paramedian forehead flap (first attempt) and a pre-expanded left paramedian forehead flap (second attempt), which in turn complicated with exposure and extrusion of the costal cartilage grafts, leading to soft tissue infection and jeopardizing the entire reconstruction (Fig.1 – A). The patient refused a microsurgical attempt (he was afraid that a radial forearm free flap would affect the functionality of his hand), so it was decided to perform a supraclavicular-submental sandwich flap (3SF) transfer technique.

Surgical technique:

With the patient in the supine position and under general anesthesia, first the supraclavicular flap is dissected as described by Lamberty [3]. The dissection must be carried out from lateral to medial, in a subfascial plane. The easily identifiable anatomical landmarks - a triangle between the dorsal edge of the sternocleidomastoid muscle, the clavicle, and the external jugular vein - allow safety in preserving the pedicle, which does not necessarily need to be visualized if such landmarks are respected (Fig 2 – below) [4]. It is important to emphasize that it is the most medial portion of the supraclavicular flap that will provide the glabrous skin for the nose, therefore it is recommended that the flap have a minimum width of 7 to 8 cm in its medial (proximal) portion (Fig 3 – A). The elevated supraclavicular flap may be up to 30 cm in length, but 22 to 24 cm is generally enough. Secondly, we proceed to the dissection of the submental flap. We perform the technical variation described by Patel, sectioning the mylohyoid muscle, which remains connected to the anterior

belly of the digastric muscle, which is mobilized along with the subcutaneous tissue and skin of the submental flap [5]. This simple maneuver avoids inadvertent injuries to the submental perforating vessels, which can be thin and difficult to dissect (Fig 2 – above and Fig.4 - B). We prefer to maintain the skin connection between the flap and the submandibular area, to enhance the mechanical resistance of the flap - thus increasing the safeness of its transfer in the next stage - although the submental flap is described originally as an island flap [6]. Finally, the raw sides of both flaps are faced one to another, with the skin portions facing outwards, forming a "sandwich". The skin segments are sutured together and both donor areas (supraclavicular and submental) are closed primarily, leaving penrose drains (Fig. 3 – C and Fig.4 - C). After 1 month, the supraclavicular-submental sandwich flap (3SF) is healed and ready to be transferred (Fig. 1 - B). During the second stage, the supraclavicular extremity is sectioned in the donor area and attached to the nasal area, with the skin tip now pointing upwards (Fig. 3 – D and E). In total nasal defects, this attachment should be done above the piriform aperture, like the technique described by Krauss for pedicled tubes [7]. The supraclavicular donor area can be closed primarily if there is no tension, other ways it is grafted or left to heal secondarily. Another month is waited until neovascularization of the supraclavicular extremity occurs (Fig. 1 - C). During a third stage, the submental extremity is finally sectioned and there is enough viable skin attached to the nasal area. The transferred supraclavicular skin is thin, glabrous, and well vascularized. The excess skin length hanging over the piriform aperture, resembling an elephant's trunk, can then be used to build the entire nose. Further surgeries are required to insert structural grafts and perform refinements, which will require a minimum of 4 to 6 additional surgical stages. The patient shown in case 1 received parietal bone grafts and conchal cartilage grafts, with subsequent refinements, adding 5 more surgeries until the final result (Fig. 1 – D and **Video 1**).

CASE 2

A 66-year-old male patient presented with a subtotal nasal loss. The patient suffered major facial trauma years before, and a reconstruction attempt was performed using both left and right paramedian flaps. Both flaps presented circulatory distress and evolved with necrosis of their distal portions, leaving an incomplete nasal reconstruction, missing the nasal lobe, although some of the transferred frontal skin was left remaining in the region of the radix and nasal dorsum (Fig. 5 - A). Due to the impossibility of microsurgical treatment (patient comorbidities carried a high risk of flap failure), the 3SF technique was performed, using the right supraclavicular and submental flaps (Fig. 5 - B). As the patient didn't need skin on the radix or dorsum, during the second stage, the supraclavicular extremity was connected to the recipient area with the skin tip pointing laterally, in order to replace the missing nasal lobe. One week later, vascular compromise of the supraclavicular

skin tip was evident (Fig. 5 - C). The flap was then detached, and the compromised segment removed. However, the redundancy of the length of the flap allowed its reinsertion into the recipient bed and thus it was possible to proceed with the reconstruction. As seen in case 1, after neovascularization of the supraclavicular skin in the recipient region, the submental extremity was sectioned. The patient underwent 4 subsequent surgeries for structuring and refinements until the final result (Fig. 5 – D, E, F).

DISCUSSION

The nose occupies a unique, central position in the human face, consequently nasal reconstruction is the archetype of all reconstructive surgeries. Because of its historical importance, and due to its impact on the patient's self-image and quality of life, nasal reconstruction has been a matter of devotion for generations of plastic surgeons [1]. Many failures in total or subtotal nasal reconstructions come from an underestimation of the amount of skin required for an adequate result, especially for sufficient lining. Such planning errors usually lead to poor results, with exposure of structural grafts and consequent infection, scar retraction, airway obstruction and finally loss of projection and shape of the reconstructed nose. Due to such failures, the patient's situation becomes more dramatic. Because of the nose's central position, permanent social exposure of the face makes it impossible for the patient to hide the nasal deformity. At the same time, being the nose is situated the midline of the face, the terminal vascularization reduces the options of flaps for large nasal defects.

In those complex cases whose previous reconstruction attempts have failed, the fundamentals of nasal reconstruction are the same: establishing adequate lining, structure, and coverage. Structuring is usually done using costal cartilaginous grafts or bone grafts, as much in the same way as primary cases. The biggest challenge in these secondary or tertiary cases of total nasal reconstruction remains in providing the necessary lining and coverage for a satisfactory result.

If the condition of the local tissues allows it, an adequate lining can be obtained using a combination of septal and buccal mucosal flaps, along with hinged skin flaps or a folded frontal flap. When local conditions are inadequate, microsurgical flaps become necessary for adequate lining, and the radial forearm free flap should be the first choice in such circumstances, providing a generous amount of thin, pliable skin for nasal lining. However, microsurgical flaps require a team with expertise, which may not be always available, especially in developing countries. Gasteratos presented a literature review that shows that the number of works published in the world is still limited and therefore microsurgical nasal reconstruction is still under development, with results dependent on experienced hands [8]. Also, comorbidities such as high blood pressure, diabetes and smoking may limit the indication of flaps (as described above in case 2). Furthermore, it must be emphasized that

microsurgical flaps may fail due to circulatory events (arterial spasm, venous thrombosis, etc.) that are independent of the surgeon's skills. Even after successful microsurgical lining, subsequent surgeries are necessary to refine the flap, adding time, cost, and emotional distress. Menick describes a series of 38 cases using five-stage microsurgical reconstruction, of which 40% required more additional surgeries [9].

To address the coverage problem, in general, a patient with a failed total nasal reconstruction should be approached using tissue expanders in the frontal region, if there is frontal skin left available for such expansion. The frontal skin has the best texture and color match for nasal reconstruction, and most forehead flaps are pedicled in the supratrochlear arteries, but one may use secondary pedicles as well (the supraorbital arteries or the frontal branch of the superficial temporal artery) according to the needs of each case. In both cases presented above, previous scarring precluded the use these secondary pedicles. Skin expansion also brings delay and cost to the treatment, which may demand too much from a patient who is already emotionally fragile. Rezaeian reports a successful case in which salvage surgery used 3 expanders concomitantly in a patient who had already been operated on 37 times before [10]. However, often the patient with a failed previous nasal reconstruction has multiple scars in the frontal region, with unavailability of healthy, unscarred forehead skin to be expanded. As seen in the cases presented above, the use of supraclavicular skin to cover nasal reconstruction has the disadvantage of color mismatch, which may be more apparent in dark-skinned patients. This discrepancy can be alleviated with the use of topical treatment (for example, topical hydroquinone cream) and tends to attenuate over time.

In such complex secondary or tertiary nasal reconstruction cases, where previous attempts have failed, microsurgical reconstruction may be impossible due to several reasons - lack of microsurgical team; contraindication due to patient comorbidities, poor quality recipient vessels, patient refusal, or health system limitations - such a situation may be the rule rather than the exception in developing countries. At the same time, the use of expanders may be impossible due to cost or unavailability of adequate skin for expansion. In these very adverse circumstances, the surgeon is faced with a scenario like that of the early days of plastic surgery, when both microvascular techniques and tissue expansion were not available. Surgeons at that time solved their cases using pedicled flaps. When local or regional flaps were insufficient, the amount of tissue needed for a total or subtotal nasal reconstruction was generally transferred using the so-called "Italian method", in honor of Gaspare Tagliacozzi's technique in the 15th century [1]. Pioneer surgeons who already mastered the use of frontal flaps also transferred skin using this iconic technique, both in the second half of the 19th century and in the beginning of the 20th century [11]. Naturally, the necessary immobilization to perform the Italian method

(described by Nelaton as “a torture”) made this method fall into disuse with the development of the more versatile pedicled tubes by Gillies and Filatov [2,12]. Nevertheless, it should be noted that pedicled tubes also required immobilization and discomfort, but to a lesser extent. Gillies advocated the use of the acromio-pectoral pedicled tube for nasal reconstruction [13]. All these older distant tissue transfers made use of random flaps, which required considerable time for their autonomization. Albeit these older techniques fell into disuse after the advent of microsurgical free flaps, medical literature shows that they are still occasionally employed [14,15].

Although the 3SF transfer technique may resemble a pedicled tube, there are three main differences that must be pointed out. First, the 3SF transfer uses two well-established axial flaps, thus providing greater reliability and reproducibility. Second, the contact surface between the two flaps is much greater than when a tube is applied, with a shorter time for autonomization and transfer, reducing the need for delays. Besides, in patients with unfavorable circulatory conditions, a delay may be added to increase flap safety. As shown in case 2 above, albeit vascular compromise, the long reach of the arc of rotation of the flap allowed the discard of compromised part and the reinsertion of the viable part in the recipient area. Third, the main advantage of the described technique is that it does not impose movement limitations or restrictive bracings, with more comfort during treatment.

As described, our technique does not require microsurgical skill for its execution, being done with relatively easy dissection, and making use of flaps whose anatomy is well described and known. It does not involve the costs and time required when using tissue expanders. The 3SF technique is best suited for salvage nasal reconstruction in those patients whose previous attempts have failed, but it may be as well indicated to provide adequate lining in primary cases of total nasal reconstructions (as an option when microsurgical lining is not possible), followed by a frontal flap for coverage, when the forehead skin is available.

CONCLUSION

We have presented a technique indicated for salvage surgeries in patients whose previous nasal reconstructions have failed. Unlike methods of the past (Tagliacozzi flap or Gillies-Filatov tubes), the technique does not require immobilization of the patient. Its execution is easily reproducible and does not require microsurgical skills or tissue expanders. The technique involves tissue transfer done in three stages with subsequent refinements, and the result being obtained in several surgeries equivalent to when more sophisticated techniques such as tissue expansion or microsurgery are employed.

Conflict of interest statement:

The authors declare that they have no conflicts of interest to disclose.

Ethical Approval

This study was conducted in accordance with the Declaration of Helsinki (as revised in 2013) and approved by the Institutional Review Board of Pedro Ernesto University Hospital (No. 5.746.423: the registration number of the ethics board).

Patient Consent

The patients' consent was obtained for their clinical photographs and videos for academic purposes.

REFERENCES

1. Whitaker, I. S., Karoo, R. O., Spyrou, G., & Fenton, O. M. The birth of plastic surgery: the story of nasal reconstruction from the Edwin Smith Papyrus to the twenty-first century. *Plast Reconstr Surg.* 2007; 120(1), 327-336.
2. Marck, K. W., Palyvoda, R., Bamji, A., & van Wingerden, J. J. The tubed pedicle flap centennial: its concept, origin, rise and fall. *Eur J Plast Surg.* 2017; 40, 473-478.
3. Lamberty, B. G. H. "The supra-clavicular axial patterned flap." *Br J Plast Surg.* 1974; 32:3, 207-212.
4. Pallua, N., & Noah, E. M. The tunneled supraclavicular island flap: an optimized technique for head and neck reconstruction. *Plast Reconstr Surg.* 2000;105(3), 842-851.
5. Patel, U. A., Bayles, S. W., & Hayden, R. E. The submental flap: a modified technique for resident training. *Laryngoscope.* 2007; 117(1), 186-189.
6. Martin, D., Pascal, J. F., Baudet, J., Mondie, J. M., Farhat, B. J., Athoum, A., ... & Peri, G. The submental island flap: a new donor site. Anatomy and clinical applications as a free or pedicled flap. *Plast Reconstr Surg* 1993; 92(5), 867-873.
7. Krauss, M. Reconstruction of subtotal defects of the nose by abdominal tube flap. *Br J Plast Surg.* 1964; 17, 70-75.
8. Gasteratos, K., Spyropoulou, G. A., & Chaiyasate, K. Microvascular reconstruction of complex nasal defects: case reports and review of the literature. *Plast Reconstr Surg Glob Open.* 2020; 8(7).
9. Menick, F. J., & Salibian, A. Outcomes, Concepts, Technical Refinements, and Challenges in the Microvascular Repair of Full-Thickness Nasal Defects. *Plast Reconstr Surg.* 2023; 151(6), 1002e-1014e.

10. Rezaeian, F., Corsten, M., Haack, S., Gubisch, W. M., & Fischer, H. Nasal reconstruction: extending the limits. *Plast Reconstr Surg Glob Open*. 2016; 4(7).
11. Joseph, J. *Rhinoplasty and Facial Plastic Surgery: With a Supplement on Mammoplasty and Other Operations in the Field of Plastic Surgery of the Body: An Atlas and Textbook*. Phoenix: Columella Press; 1987. p 249-276.
12. Nelaton, C. Ombredanne, L. *La Rhinoplastie*. Paris: Steinheil; 1904. p. 96-120.
13. Gillies, H., & Millard, D. R. *The principles and art of plastic surgery*. Boston: Little, Brown; 1957. p. 152-171.
14. Xu, Y., You, J., Wang, H., & Fan, F. Repairing Nasal Defect and Lower Eyelid Defect with a Tube Flap. *J Craniofac Surg*. 2020; 31(8), 2376-2377.
15. de Roche, R., Hammer, B., Rometsch, M., & Lüscher, N. J. Immobilisation for a Tagliacozzi nasal reconstruction using an ASIF external craniofacial fixation apparatus. *Eur J Plast Surg*. 1993; 16, 310-312.

FIGURE LEGENDS:

Figure 1 – A 35-year-old man with a total nasal defect.

(A) The extensive scars on the forehead denote that both paramedian flaps (right and left) were used in the previous surgeries. (B) One month after the first stage, the left supraclavicular-submental-sandwich (3S) is healed and ready to be transferred. The length redundancy of the 3S transfer ensures no restrictions to the patients' movements. (C) After the second stage, supraclavicular extremity was sectioned in the donor area and attached to the recipient nasal area. This attachment is done above the piriform aperture, where neovascularization will occur. (D) - Final aspect after insertion of structural grafts and subsequent refinements. Both left supraclavicular and submental scars are inconspicuous.

Figure 2 – Schematic drawing of subplatysmal surgical anatomy

Above - The right submental flap is elevated together with the main portion of the right mylohyoid muscle (M). After blunt dissection of the right mylohyoid muscle (M), it can be mobilized laterally, exposing the deeper geniohyoid (G) and hyoglossus (H) muscles. The left mylohyoid muscle (M) and left anterior belly of the digastric muscle (D) remain in their anatomic positions. Below - The supraclavicular flap is raised from lateral to medial. The pedicle area is marked with an asterisk, whose anatomical landmarks can be easily identified pre-operatively: the posterior edge of the sternocleidomastoid muscle (ECM), the clavicle (C) and the external jugular vein (EJV).

Figure 3 – Schematic drawing of surgical stages

Above – First stage: (A) The skin paddle of right submental flap is marked in green, and the right supraclavicular flap is marked in blue and purple. The area in purple corresponds to the skin that will cover the nose; therefore, it is important that it has a minimum width of 7 to 8 cm. The pedicle area is marked with an asterisk. (B) Both flaps are elevated with their raw surfaces facing each other. (C) The flaps are sutured to each other, forming the “sandwich”. Notice that the proximal redundant portion of the supraclavicular flap (blue area) has its raw edges sutured together forming a tube. No raw areas are left exposed. Below – Second stage: (D) After one month, the supraclavicular extremity is sectioned in the donor area. (E) The supraclavicular skin paddle (purple) is positioned in the recipient nasal area. The supraclavicular donor area is closed primarily.

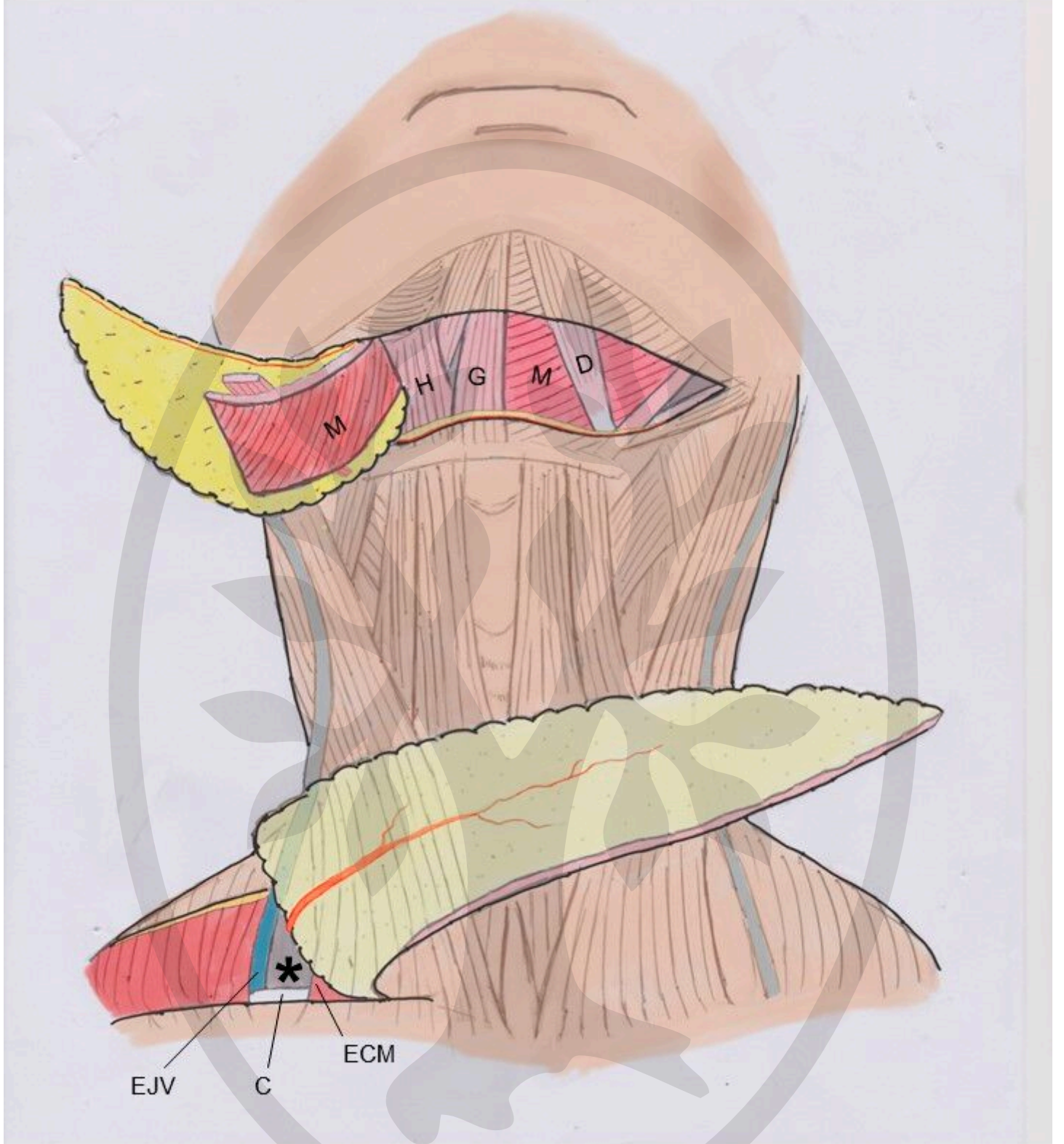
Figure 4 – Surgical technique of the first stage in Case 1.

(A) Marking for the dissection of supraclavicular and submental flaps. (B) The supraclavicular flap is raised from lateral to medial. The submental flap is dissected from medial to lateral leaving its skin portion connected to the submandibular area of the neck. The sectioned portion of the left mylohyoid muscle remains connected to the skin pad, to avoid inadvertent injury to the submental perforating vessels (white arrow). (C) The raw sides of both flaps are faced one to another, with the skin paddles being sutured to each other, forming a "sandwich". Both donor areas (supraclavicular and submental) are closed primarily.

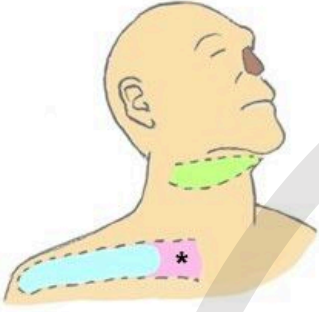
Figure 5 – A 66-year-old man with a subtotal nasal defect.

(A) Preoperative right oblique view. Previous reconstruction attempt has failed but left some frontal skin in the nasal radix and dorsum. (B) The right supraclavicular-submental sandwich (3SF) after the first stage. (C) Supraclavicular extremity demonstrating distal necrosis one week after its insertion in the nasal region. Note the length redundancy that allowed the flap to be detached, debrided and re-advanced. The wound in the right supraclavicular donor area (resulting from the second stage) can be observed. (D) Postoperative right oblique view. Supraclavicular and submental scars are unremarkable. (E) Postoperative left oblique view. (F) Postoperative frontal view. Notice the scarring on the forehead, demonstrating that both paramedian flaps (right and left) were used in the failed previous nasal reconstruction attempt.





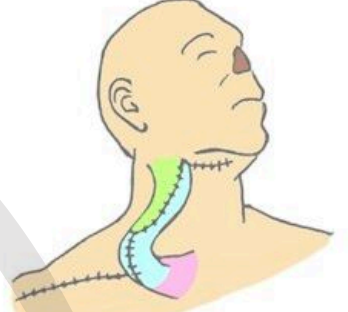
A



B



C



D



E

