SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Plastic

Frontal Flaps for Reconstruction of Nasal Defects

Dehhaze Adil[1], Diher Issam[2*], Taybi Otmane[2], Daghouri Nada-Imane[2], Laabaci Rim[2], Echmili Mouad[2], Tita Sara[2], Tazi Hanae[2], Mimoun Mahioui[2], Mai Aisha[2], Barij Hamza[2], Bouazza Omar[2]

[1]Assistant Professor and Head of the Department of Plastic, Reconstructive and Aesthetic Surgery, Center for Burned Patients, CHU Tangier-Tetouan-Al Hoceima, Morocco
[2]Resident, Department of Plastic, Reconstructive and Aesthetic Surgery, Center for Burned Patients, CHU Tangier-Tetouan-Al Hoceima, Morocco

DOI: 10.36347/sasjs.2023.v09i11.012 | **Received:** 09.10.2023 | **Accepted:** 14.11.2023 | **Published:** 23.11.2023

***Corresponding author:** Diher Issam
Resident, Department of Plastic, Reconstructive and Aesthetic Surgery, Center for Burned Patients, CHU Tangier-Tetouan-Al Hoceima, Morocco

Abstract **Original Research Article**

Nasal reconstruction is no longer just about filling in a nasal defect, it aims for an aesthetic and functional results. It is a three-dimensional reconstruction, restoring the mucosal plane, the osteo-cartilaginous architecture and the skin coverage to which Burget added a fourth dimension, the aesthetic result. Frontal flaps have been used for a very long time to repair nasal defects. Their popularity is mainly linked to their proximity to the recipient site, their good vascularization and especially the color and texture of the frontal skin which are significantly similar to those of the nasal skin. The frontal flap is the technique of choice in the reconstruction of full-thickness nasal tissue defects. We adopted the reconstruction by frontal flaps for the repair of multiple nasal defects, concerning multiple patients all treated at the plastic and aesthetic surgery department of the Mohammed VI University Hospital of Tangier over a period of 2 years going from March 2021 to March 2023. The goal of this study is to evaluate its contribution and answer the following question; What are the indications of using frontal flaps, its advantages and limitations in rhinopoiesis? and to draw practical recommendations regarding its use.

Keywords: Nasal defects, reconstruction of nasal defects, frontal flaps, paramedian frontal flap, oblique frontal flaps, converse flaps.

I. INTRODUCTION

Nasal defect mainly results from trauma and tumor pathology and more rarely from infections or congenital malformations. The reconstruction of the nasal pyramid is relatively complex due to the difficulty of recreating this structure in three dimensions, respecting the fineness of the contours and the color of the skin, essential to obtain a natural and aesthetically acceptable appearance.

Frontal flaps have been used for a very long time to repair nasal defects. Their popularity is mainly linked to their proximity to the recipient site, their good vascularization and especially the color and texture of the frontal skin which are significantly similar to those of the nasal skin.

The refinement of surgical techniques and the development of its basic principles have made it possible to considerably raise the aesthetic and functional standards of nasal reconstruction.

II. MATERIALS AND METHODS

This is a retrospective study, analyzing 27 nasal reconstructions concerning 27 patients collected at the plastic and aesthetic surgery department of the Mohamed VI University Hospital of Tangier over a period of 2 years from March 2021 to March 2023.

We included in our study all nasal defect whatever the etiology.

We adopted the Burget classification to topographically classify the defects within the nasal subunits.

We recorded the information contained in each file on a sheet. The latter includes different variables concerning the patients, the defect, the repair process and the morphological and functional results.

The analysis used EXCEL software which allowed us to establish the frequency of certain variables and to correlate some variables between them.

III. RESULTS

1. Patients distribution

1.1. Age

The average age of our patients was 59 years with extremes ranging from 45 years to 80 years. 4 patients in our study, or 57%, were over 60 years old.

1.2. Gender

We identified 12 women and 15 men, giving a sex ratio of 1.25.

1.3. Patients medical history

Among the 27 patients, we noted: 11 patients had precancerous lesions, notably actinic keratoses.

1.4. The etiologies of nasal defects

The tumor etiology in the nasal region was the main etiology of nasal defects in all the patients in our study, one of whom had nasal three-layer defect.

2. Repair of nasal defect

2.1. Repair of the skin plane using frontal regional flaps

The paramedian frontal flap was used trilobed in 14 cases. The oblique frontal flap was used in 12 cases. The lateral pedicle frontal flap was used in one case.

A flap severing was obligatory in the 2nd operating stage. Severing of the flap took place after 4 weeks on average with extremes of 3 to 8 weeks.

The frontal region was repaired by:

- Direct suture in 23 cases.
- Skin graft (Supraclavicular region) in 4 cases.

The characteristics of the defects which were repaired by the frontal flap:

- The tip and wing of the nose represented the two subunits most repaired by the frontal flap
- The size of the defect was greater than 30 mm in our study.
- Three-layered defect in only 8 case.
- Involvement of the upper two thirds of the nose was observed in 10 cases and the lower third in 13 cases.

2.2. Repair of the osteo-cartilaginous defect

The osseocartilaginous defect was repaired in 8 cases who had a three-layered defect.

Chondral graft was the only method used in our study to reconstruct the osseocartilaginous defect. This chondral graft provided support to: the wing of the nose, the tip and the columella and it acts like a median support.

2.3. Repair of the mucosal plane.

Repair of the mucosal plane was carried out in 8 cases by a folded frontal flap.

3. POST-OPERATIVE FOLLOW-UP

3.1. Hospitalization

The average days of hospitalization was 10 days with extremes ranging from 7 days to 60 days.

3.2. POST-OPERATIVE TREATMENT

Prophylactic antibiotic therapy was systematic.
Nasal conformator was used to reshape the nostril wing

3.3. IMMEDIATE POSTOPERATIVE COMPLICATIONS

We noted no immediate postoperative complications and the outcome was simple in all patients in our study.

4. APPRECIATION of the results

4.1. Functional results

a) Narrowing of the nasal orifice: It caused respiratory discomfort in 9 cases:
b) Tearing: was observed in a 4 cases who had nasopalpebral defect substance associated with the canaliculi defect

4.2. Morphological results

Nasal reconstruction was judged in patients:

- Acceptable in 21 cases.
- Average in 6 cases.

On the morphological level, we noticed:

- Thick flap in 15 cases. Second surgical time for degreasing was necessary.
- Retraction of the nasal wing in 5 cases.
- Approaching of the heads of the eyebrows was observed following direct suture of the donor site.

IV. DISCUSSION

1. Surgical anatomy of the nasal pyramid

Occupying the middle third of the face, the nose is a demanding tri-tissue structure which requires anatomical restitution for better functional recovery.

It has a triangular pyramid shape with a summit corresponding to the root of the nose and a base where the nasal orifices open.

1.1. Plans

a) Skin

We recognize two portions:

- On the upper two thirds it is a thin mobile malleable skin which offers more possibility of local plasty at this level.
- On the lower third the skin is thicker, more adherent, difficult to move close to the frontal in terms of its texture due to the unity of their embryological origin, hence the interest of the frontal flap for the reconstruction of defects in this region.

b) Subcutaneous tissue

Poorly developed, it only forms a clear layer at the mobile level [16].

c) Muscles

Innervated by the facial nerve, they are connected together by a fibro-aponeurotic system called nasal SMAS. Elevator, depressor, compressor or dilator muscles of the nostrils are described. Their role is modest apart from the septal depressor muscles [16].

d) Perichondroperiosteal envelope

It is made up of perichondral and periosteal fibers which interconnect and hold together the constituent elements of the nasal pyramid [16].

1.2. Osteo-cartilaginous skeleton

a) Bony nose

The proper bones of the nose are quadrangular lamellae of variable symmetry which fuse above with the nasal process of the frontal bone and which fuse together

in the midline. The perpendicular blade of the ethmoid inserts in the midline under the nasal bones. This median bony septum rests on the vomer to constitute the bony septum.

The ascending branches of the upper mandible are articulated above with the internal orbital process of the frontal and in front with the corresponding bone of the nose.

The meeting of the free edges of the nasal bones and the frontal processes of the maxillae limits a bony orifice: the piriform orifice [16].

b) Cartilaginous septum (quadrangular cartilages)

It is oriented sagittally and represents the anterior pillar of the nose. It is the thickest element of the partition. Measuring 4 mm at the rear, it becomes thinner towards the front to reach 2 mm. It is classically described as having four edges and a free antero-inferior angle. It comes into contact above and behind with the vomer. These posterior bony attachments are very strong [16].

In front, the septum is inserted intimately on the incisor crest, which provides a channel up to the anterior nasal spine.

The septal free edge responds more anteriorly to the mesial crura of the alar cartilages and largely determines the nasolabial angle.

c) Upper lateral cartilages (triangular)

Classically described in the fixed portion of the nose, the triangular cartilages play a fundamental role in nasal dynamics.

We recognize 4 edges [17]:

- An upper edge that attaches intimately to the lower part of the corresponding nasal bone.
- An inner border that fuses with the dorsal border of the septal cartilage in this upper 3/4 and diverges in its distal part.
- An outer edge, which attaches to the anterior edge of the pyriform orifice via fibrous expansions.
- A lower edge which enters into relation with the cephalic edge of the ipsilateral alar cartilage by flexing and insinuating itself under it. This lower edge (which is mobile) appears in the nasal cavity and forms the plica nasi.

d) Lower lateral cartilages (wings)

Pairs more often symmetrical, they have the shape of an arch or a ((horseshoe)) made up of 3 portions

- The mesial crura appear as a thin, narrow blade of cartilage 10 to 20 mm long and 4 to 10 mm wide. They are attached for about 2/3 of their length then diverge backwards where they meet the nasal spine and forwards at the birth of the wing dome [17].
- The intermediate crura are located between the mesial and lateral crura. They are classically described as having a posterior lobular segment and an anterior dome segment, separated by a small notch. Each intermediate crura constitutes half of the nasal lobule [17].
- The lateral crura follow above and outside the intermediate growths. Their width varies from 17 to 30 mm with an average of 22 mm. The height of the lateral crus varies from 7 to 15 mm with an average of 11 mm. The upper edge articulates with the triangular cartilage that it overhangs, to constitute the plica nasi, frequently accompanied by small sesamoid cartilages [17].

1.3. Internal plane: mucous

It has a respiratory type, it lines the entire nasal cavity from the vestibule. It is fine and richly vascularized [18].

1.4. Vascularization

Very rich, it is provided by the arterial branches of the internal carotid (ophthalmic artery) and external carotid (facial artery) networks.

The veins drain mainly towards the angular vein but also towards the facial vein [18].

1.5. Innervation

The motor branches arise from the facial nerve and the sensory branches arise from the trigeminal nerve via the external nasal nerve, the infra-orbital nerve and the nasolobial nerve [18].

2. Artistic anatomy of the nasal pyramid

2.1. Surface anatomy

The nose is one of the aesthetic units of the face initially described by Gonzales-Ulloa then by Millard. The nose is subdivided according to points of light, shadows and lines accentuated by light, into aesthetic subunits described by Burget: The dorsum, the lateral walls, the tip, the nostril wings, the soft triangles of Converse, the columella. Shadow areas exist above and outside the domes, on the lateral surfaces of the nose, the lateral weak triangles, the alogenal furrows, the cheeks and the upper lip. Light highlights are sharp on the domes and dorsal ridge from the root to the Converse medial low triangle.

2.2. Nasal harmony

The units and subunits must be in harmony with each other to result in an "aesthetic" nose that fits into the patient's face. If most measurements are taken in profile, the surface anatomy can also be analyzed from the front and in three-quarter view through the play of shadows and light reflections. A certain number of geometric

criteria (angles, curves, dimensions) determine the shape and beauty of the nose.

Beauty is not that subjective. Illife in 1960, found elements defined as beautiful, common to different ethnic groups around the world. Other studies also find in infants and from 3 months, a prolonged fixation of the gaze towards "attractive" faces compared to ugly faces. Leonardo da Vinci had already studied the various proportions of the face and nose [19]. Beauty results from the purity of lines, skin texture, quasi-symmetry, accuracy of proportions and unity of diversity: the nose must be analyzed in its facial context. Indeed, the appearance of the nose depends on the frontal, the eyes, the intercanthal distance, the lips and the chin. It is facial balance, on which the surgical indication will also depend [1].

a) Nose in lateral view

- The nasofacial angle is made up of a line tangent to the frontal and chin, and a line running along the back of the nose. It measures 30 to 35°.
- The nasofrontal angle corresponds to the root of the nose, the junction point between the frontal and the nose. This angle measures 150-160° in Caucasian subjects. It is more open in men than in women. The thickness of the skin next to the nasion can erase this angle.
- The septal angle or supralobular notch is created by the lower part of the anterior edge of the cartilaginous septum and the upper edges of the alar cartilages. This angle ensures good definition of the tip of the nose and plays an important aesthetic role. This is what the Anglo-Saxons call the supratip, in French suprapointe. This angle is more evident in men, and more marked in women.
- The columello-apical angle results from the intersection of the planes of the columella and the nasal tip. It reflects the break of the mesial crus in a sagittal plane. This angle creates, with the dorso-lobular angle, the elegant Anglo-Saxon double break.
- The nasolabial angle is at the intersection of the columellar plane and the upper lip. It varies from 90 to 110. This angle is more open in women.
- The projection and height of the nose have a ratio of 55% in women and 60% in men.
- The Alogenian furrow is the point where the wing of the nose and the cheek meet. The weak lateral triangle is located above the nostril wing at the level of the posterior extension of the alar cartilage. The lower edge of the columella normally extends 3 to 4 mm beyond the lower edge of the nasal ala in profile.

b) Nose in frontal view

The nose gradually widens from the root to the bony dorsum, then becomes more refined at the level of the cartilaginous dorsum to widen frankly towards the tip.

- Sheen describes two symmetrical and harmonious lines which follow the internal orbital rim, the nasal bridge laterally, and spread apart to end on the domes [5]. A break in these lines disrupts the harmony of the face.
- The width of the wings of the nose is ideally equal to the distance between the internal canthuses (32 ± 4 mm). This width is 70% of the height of the nose.
- The distance between the domes is approximately 8mm. It determines the width of the tip of the nose.

c) Base of the nose

On an inferior view, the base of the nose is triangular and pierced by two oval nostrils with a large posterior end, oblique and surrounded by the edges of the laterally convex nostril wings. In the midline, the lobule is half the length of the columella. The base of the nose is divided into 3 parts separated by:

- A line passing through the top of the nasal openings
- Another line passing through the point of divergence of the columella.

The width of the nose is equal to the internal intercanthal distance.

d) Interindividual variability

All of this data constitutes a basis that must be adapted according to each patient. For example, the reliefs and angles of the nose are all the more marked as a thin skin covering is applied to the underlying structure.

There are also many variations between races: projected tip and narrow nostrils in the white race, poorly projected tip and oblique nostrils in the Asian, flattened tip and wide nostrils in a man of color. Likewise, the root of the nose is wide and the frontonasal angle is not very marked in Asians and black people.

3. EPIDEMIOLOGY

The frequency of nasal defect is not influenced by age or sex. Rather, age and sex may influence the etiology and choice of repair procedure. We see in North African studies like that of Moutamassik [1] that all age groups were affected. A slight male predominance was noted with a sex ratio varying between 1.4 and 1.2.

4. The etiologies of nasal defect

In the 6th century AD, the main cause of nasal PDS was amputation of the nose to punish adultery, certain crimes and misdemeanors in India.

Since then, the etiologies have evolved although the repair processes have remained approximately the same.

The etiology influences the choice of the repair process and its delay [2].

a) Tumoral etiologies

The prominent position of the nose at the level of the face with permanent exposure to ultraviolet radiation makes the nasal skin predisposed to the risk of cancer. Thus the nose represents the predilection site for skin cancers of the face (25%) [3].

Several conditions predisposing to the occurrence of skin carcinomas are known: albinism, xeroderma pigmentosum, Bowen's diseases [4].

The predominance of basal cell carcinoma is clear in the majority of series. Squamous cell carcinoma takes second place in all series. Its frequency varies between 5 and 14%. Melanoma cancer is exceptional. Other rare malignant tumors can cause nasal defect such as: sarcomas, osteosarcomas, chondrosarcomas [5].

The surgical treatment of malignant nasal cutaneous tumors requires a complete excision with safe margins, best aided by an extemporaneous anatomopathological analysis to allow immediate reconstruction. However, the timing of this reconstruction can be decided after consultation between the surgeon, the pathologist and the patient [4].

Benign tumors, such as hemangioma in children and nevi or rhinophyma in adults, rarely cause significant nasal defect, but can sometimes cause repair problems [5].

b) Infectious etiologies

Infection is the cause of many nasal defcet in underdeveloped countries (leishmaniasis, leprosy, noma, syphilis) [5].

c) Traumatic etiologies

The nose, the central element of the face, is on the front line in terms of facial trauma.

Road and domestic accidents can cause nasal defect requiring secondary repair.

Animal Bites represent a common cause of facial trauma, especially in children [6]. Human bites are the prerogative of adults.

Nasal burns are rarely isolated. They are frequently associated with facial burns. According to Foyatier [7], rhinopoiesis is always the first step to be carried out in the event of after-effects of facial burns because it is certainly the one which will most improve the appearance of a seriously affected face.

d) Malformative etiologies

Nasal malformations can be isolated or part of a craniofacial malformation. They are accompanied by a partial or total tissue defect, associated in most cases with a lack of support structure [8]. Several types of nasal malformations have been reported such as: dysplasia of the wing of the nose, the tip, the columella and even the entire nose observed in cases of craniofacial malformation, The absence of a hemi -nose.

5. CHARACTERISTICS OF defect

a) Nasal unit defects

Ulloa considered the nose as an aesthetic unit of the face. The areas that separate the nose from other units are called boundary zones. These border areas present particularities during reconstruction. These areas (tip, dorsum, lateral faces, wings, soft triangles, columella) are called the topographical subunits of the nose classified by several authors, the most currently retained is that of Burget [9].

The variability in the quality of the skin which covers the nasal pyramid is at the origin of the distinction between:

- The proximal two thirds; the skin is thin and mobile in relation to the underlying plane, which allows local flaps.
- The distal third or the alo-columello-lobular complex: the skin is thick, rich in sebaceous glands and fixed in relation to the underlying plane limiting local flaps use [10].

Therefore, nasal defect can be classified either at the level of the distal third or at the level of the proximal two thirds.

b) Nasal defect size

Nasal defect size influences the choice of repair procedure. Thus, small nasal defect can benefit from a simple technique for their repair such as direct suture while large nasal defect requires a greater local or regional tissue supply [11].

c) Depth of nasal defect

Deep and transfixing nasal defect requires three-dimensional reconstruction that requires more than one reconstruction at a time.

6. NASAL RECONSTRUCTION principles

Nasal reconstruction aims for an aesthetic and functional results. It is a three-dimensional reconstruction, restoring the mucosal plane, the osteo-cartilaginous architecture and the skin to which Burget added a fourth dimension, the aesthetic result [5, 6].

To get closer to the natural appearance, certain rules must be respected. These rules are:

- Obtaining a natural appearance is achieved by restoring the contours, shapes and furrows as they were defined.
- Reconstruction processes must recreate the topographical units, that is to say the aesthetic subunits, as far as possible using flaps or grafts designed exactly to the size of the area to be restored.
- The healthy contralateral side should be used as a reference when possible.
- The scars must be camouflaged in the furrows and along the borders of the different subunits.
- Each missing tissue must be reproduced with the same quality tissue in three dimensions, knowing that the skin tissue must conform exactly to the reliefs of the nasal structure.
- Donor sites should be treated aesthetically.

7. REPAIR OF nasal defect BY THE FRONTAL flaps

The frontal region represents the ideal donor site due to the quality, texture and color of its skin, close to the nasal skin, and to the reliability of its vascularization. It provides transient pedicle flaps requiring at least two operating stages. The disadvantage of these frontal flaps is the frontal scar visible especially in young patients. The frontal flaps are of two types: either with an inferior pedicled flap (the paramedian frontal flap, the median frontal flap, The oblique frontal flap, The "island" frontal flap with a subcutaneous pedicle) either with a superior pedicled flap, allowing the mobilization of a very large cutaneous surface intended for total rhinopoiesis.

a) Paramedian frontal flap

Over the last few decades, thanks to the technical refinements made by Burget [12], the frontal flap, by becoming paramedian, becomes the king flap of rhinopoiesis.

The paramedian frontal flap is a pedicled flap, centered on a single supratrochlear artery. The pedicle, drawn on the nasal defect side, includes only one vascular pedicle centered on the first frown line. Doppler identification makes it possible to obtain the narrowest possible pedicle, between 12 and 15mm, thus ensuring better rotation and closure of the pedicle by simple approximation. The contralateral vascular pedicle must be preserved; it allows the raising of a second flap which can be used as a lining during the same surgical procedure or secondarily in the event of recurrence.

- Operating technique

The design of the flap, made from a precise pattern of the nasal defect, can extend beyond the insertion of the hair, particularly if the flap must reach the columella, but this requires secondary hair removal. It is preferable to perform a sufficiently low proximal dissection.

Dissection of the flap begins at the upper part of the skin and is done using the three-thirds technique:

- At the level of the upper third, strictly subcutaneous dissection must respect the frontalis muscle. The skin of the flap, significantly degreased, is as thin as possible. The hair bulbs are removed when the skin extends into the hairy area;
- At the level of the middle third, the dissection is submuscular and takes away the frontalis muscle;
- At the level of the lower third, approximately 5 mm above the brow bone, the dissection becomes subperiosteal. It allows better rotation of the flap by increasing the radius of curvature and protects the vascular pedicle.

Closure of the pedicle is done in two planes after readjustment of the frontal wrinkles. At the level of the skin palette, several possibilities are offered depending on the size of the defect:

- A defect of less than 3cm in size is closed without great difficulty by simple approximation after a large lateral separation, particularly in elderly subjects with skin along the axis, avoiding any traction which is a source of skin necrosis;
- If the donor area cannot be closed by simple approximation, it is left for directed healing. This gives a better aesthetic result than a possible skin graft. Closure of the frontal with a double advancement flap should be avoided because it unnecessarily sacrifices the contralateral vascular pedicle.

The flap is placed and sutured in one plane. Pad stitches, essential to reduce dead spaces, are left in place for a very short time. They reduce the risk of hematoma and help redefine the natural contours of the nose.

Severing of the flap is usually carried out after 3 weeks.

After severing, the base of the pedicle is degreased and replaced between the eyebrows, thus avoiding any distortion.

Some authors, including Menick, recommend a three-step technique [13]. This intermediate time makes it possible to defat and refine the distal part on an independent flap without taking any risk on the vascular level because the skin is initially taken with the frontalis muscle. This technique makes it possible to refine areas that cannot be retouched secondarily, in particular the nostril rim and the columella.

The paramedian frontal flap remains the "gold standard" of nasal reconstruction and addresses any extensive nasal defect, regardless of size or location, particularly the tip, ala or columella.

b) Medial frontal flap

Better known as the Indian flap, has been used since time immemorial. Contrary to popular belief, nose reconstruction was originally performed using a cheek flap and not a frontal flap. This technique has lost interest because it unnecessarily wastes two vascular axes. The too wide pedicle of the flap limits its rotation and makes it difficult for it to reach the lower part of the nose.

c) Oblique frontal flap

Described by Auvert [14], has a skin palette drawn at the level of the lateral part of the frontal region. The vascular pedicle which is no longer vertical but oblique therefore does not respect the topography of the vascular pedicles, sometimes requiring the use of autonomy because the vascularization of the end of the flap is random. Many authors propose to increase the vascular supply by taking the frontalis muscle. This flap is useful in people with a small frontal with a low hairline or when the nasal defect is low on the nose, particularly at the columella.

d) Island frontal flap with subcutaneous pedicle

An attractive technique proposed by Monks [15], it leaves a minimum of skin scar and avoids secondary withdrawal but the compression of the vascular pedicle at the nasofrontal level makes this technique less reliable. Filling the nasofrontal angle with the subcutaneous pedicle often requires secondary revision.

e) Converse flap

The frontal flap may be insufficient if the nasal defect that is extended to the upper region of the nose, to the glabella or involves the region of the supratrochlear pedicles. In these cases, the use of a Converse flap is essential.

The skin palette depends on the size of the nasal defect. It is taken from the lateral part of the frontal on the side opposite the temporal pedicle which will ensure vascularization. The size of 7 to 8cm is necessary to reconstruct the entire lower part of the nose.

The incision begins above the eyebrow and outside the midline. The periosteum must absolutely be preserved so that a skin graft can be placed secondarily. The incision continues in the scalp from the external incision and joins the usual route of the coronal incision, towards the posterior region of the pinna of the ear. In the proximal part of the dissection, intended to be secondarily repositioned, the periosteum can be included in the dissection of the flap which must be able to be translated to the lower part of the columella.

Folding the flap, which is delicate, requires a few basting stitches; the middle part reconstituting the columella and the two lateral parts reconstituting the wings of the nose, which can in certain cases of limited defect avoid the use of a cartilaginous plane.

The section of the pedicle is carried out at the third week and its proximal part repositioned. Repair of the donor area is usually carried out when the flap is divided using a skin graft.

V. CONCLUSION

Frontal flaps have been used for a very long time to repair nasal defects. Their popularity is mainly linked to their proximity to the recipient site, their good vascularization and especially the color and texture of the frontal skin which are significantly similar to those of the nasal skin.

They currently constitute, for a very large number of teams, the method of repair of first choice in large nasal defect which is a complex, three-dimensional anatomical structure presenting a surface made of an assembly concave and convex areas separated by furrows or angulations that are difficult to reproduce.

The evolution of ideas regarding nasal reconstruction gave rise to a multitude of techniques and concepts, while requiring aesthetic and functional reconstruction according to very specific principles. The goal of rhinopoiesis is a nose that is as close to normal as possible. Thus, before any rhinopoiesis, it is necessary to precisely evaluate the elements that are missing and the tissues spared by amputation to know how to integrate them and use them in the reconstruction.

REFERENCES

1. Moutamassik, Z. (1996). La rhinopoïèse: procédés de reconstruction- attitude pratique. Thèse Sousse.
2. Talmant, J. C. (1999). Reconstruction du nez. EMC. Technique chirurgicale, 45-540, 31p.
3. Evans, G. R., Williams, J. Z., & Ainslie, N. B. (1997). Cutaneous nasal malignancies: is primary reconstruction safe?. *Head & Neck: Journal for the Sciences and Specialties of the Head and Neck*, *19*(3), 182-187.
4. Denoux, Y., Boulier, N., & Louis, Y. (1997). Carcinomes cutanés. In: Andrieu, J. M., Colonna, P. Cancers: evaluation, traitement, et surveillance. ED. ESTEM, Paris.
5. Divaris, M. (1989). A propos de la reconstruction du nez. Analyse de 542 reconstructions. Thèse Paris.
6. Rapley, J. H., Lawrence, W. T., & Witt, P. D. (2001). Composite grafting and hyperbaric oxygen therapy in pediatric nasal tip reconstruction after avulsive dog-bite injury. *Annals of plastic surgery*, *46*(4), 434-438.
7. Foyatier, J. L., Comparin, J. P., Boulos, J. P., Bichet, J. C., & Jacquin, F. (2001, January). Réparation des séquelles de brûlures de la face. In *Annales de chirurgie plastique esthetique* (Vol. 46, No. 3, pp. 210-226). Elsevier Masson.
8. Gloster Jr, H. M. (2000). The use of full-thickness skin grafts to repair nonperforating nasal defects. *Journal of the American Academy of Dermatology*, *42*(6), 1041-1050.

9. Burget, G. C., & Menick, F. J. (1985). The subunit principle in nasal reconstruction. *Plastic and reconstructive surgery*, *76*(2), 239-247.
10. Becker, G. D., Adams, L. A., & Levin, B. (2003). Nonsurgial repair of pernasal skin defect defects. E.M.C Technique chirurgicales _ tete et cou, 46-120, 24.
11. Stricker, M., Hadjean, E., Cariou, J. L., & Ricbourg, B. (1994). Rhinopoïèses étendues 6 expériences. Dans: Revol M? Guinard, D., Bardot, J., & Texier, M, la réparation des pertes de substance du nez chez l'adulte. Paris, Milan, Barcelone: Masson, 164-214.
12. Burget, G. C., & Menick, F. J. (1989). Nasal support and lining: the marriage of beauty and blood supply. *Plastic and reconstructive surgery*, *84*(2), 189-203.
13. Pochet, F. (2005, April). La greffe de peau totale glabellaire pour la reconstruction de la pointe du nez. In *Annales de chirurgie plastique esthetique* (Vol. 50, No. 2, pp. 161-166). Elsevier Masson.
14. Negrier, S., Saiag, P., & Guillot, B. (2005). Recommandations pour la pratique Clinique: Standards, options et recommandations pour la prise en charge des patients adultes atteints d'un mélanome cutané MO. *Ann Dermatol Venereol*, 132, 10S79–85.
15. Jourdain, A., Germain, M., & Demers, G. (1999). Musculocutaneous flap of the transverse nasalis muscle in repair of nasal-tip skin carcinoma. *Journal of Otolaryngology-Head & Neck Surgery*, *28*(1), 37-42.
16. Chari, P. S. (2003). Susruta and our heritage. *Indian J Plast Surg*, *36*(4), 4-13.
17. Joseph, L. (1987). Nasenplastik und sonstige Gesichtsplastik. Traduction S. Milstein. Norman Publishing.
18. Gohritz, A., Schelling, J., Kelly, M. B. H., Weisser, C., & Muhlbauer, W. (2004, July). Heinrich von Pfalzpaint: First treatise on reconstructive rhinoplasty in Europe by a Bavarian battle surgeon more than 120 years before Tagliacozzi. In *British Association of Plastic Surgeons Summer Meeting*, 169.
19. Zitouni, K. (1998). La rhinopoïèse: technique et indication. Thèse Tunis.