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The Surgical Approach to the Mediterranean Nose

Armando Bocchieri, M.D.¹

ABSTRACT

The Mediterranean nose possesses some specific characteristics of the ethnic group in question that can appear unduly accentuated in some cases and reflect a situation of authentic nasal deformity. The problems most frequently encountered consist of a prominent hump and protruding dorsum, a ptotic tip, an acute nasolabial angle, and thick, sebaceous skin. The surgeon in his approach to the Mediterranean nose must be able to recognize these deformities and to resolve them in accordance with the aesthetic canons peculiar to this ethnic group. To this end, this article describes prudent and progressive criteria for selection of the most appropriate techniques to correct the various flaws while seeking to preserve the structures as much as possible. Cartilage grafts can prove very useful with a view to ensuring both excellent results and their stability over time.

KEYWORDS: Mediterranean nose, ethnic nose, tip ptosis, acute nasolabial angle

As a channel of rapid exchange for culture and trade, the Mediterranean was a cradle of civilization in ancient times, bringing different racial groups into contact and giving birth to a sharply defined race whose characteristics are still present today. In particular, the peoples initially inhabiting the shores of the Mediterranean and sufficiently developed to communicate with one another were the Romans, Greeks, Spanish, Jews, Turks, Phoenicians and Egyptians. Anthropometric studies performed in different periods have identified some somatic features of the face common to the Mediterranean race. These typical traits include dark coloring of the eyes and skin, black hair, a low-medium brow, strongly marked lineaments, and a prominent nose.¹ The nose tends to be convex in profile with some thickness of the upper third in frontal view. The tip is often ptotic and the skin somewhat thick. Apart from its particular anatomic features, however, the Mediterranean face is particularly expressive due to its

marked lineaments and deep, penetrating gaze. An overly prominent conformation of the nose can therefore attract attention and impair this particular expressiveness by clashing with what can be regarded as the Mediterranean aesthetic canons. Conversely, an insufficiently pronounced nasal conformation, such as saddle nose deformity, can also lead to a mournful expression that is equally out of keeping with the Mediterranean face. Rhinoplasty must not be confined in such cases to correcting the deformity in question but should seek above all to restore the harmony of the nose in the context of the face in accordance with the canons of Mediterranean ethnic beauty.

The purpose of this article is to describe a surgical approach that takes into account the major deformations of the Mediterranean nose and the surgical techniques used to correct the same. Particular care is taken to indicate procedures making it possible to modify the shape of the nose without distorting the characteristics

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of the Mediterranean race but endeavoring to apply its peculiar canons of beauty rather than imitate those of other ethnic groups.

ANALYSIS

Analysis of the deformities presented by the Mediterranean nose cannot but take a particular model of beauty as its point of reference in relation to the vast range of clinical cases. A temporal overview stretching from the art of ancient Greece and Rome through the Italian Renaissance up to contemporary art and the legendary figures of the mass media shows that the Mediterranean canon of beauty has altered little over the centuries.

Examination of a range of male faces such as Augustus in the famous statue of the 1st century BC, the ancient frescoes of the Villa of Mysteries in Pompeii, Michelangelo's David (Fig. 1), Marcello Mastroianni, and Antonio Banderas reveals the same anatomic and expressive characteristics of Mediterranean beauty in all cases. The nose is always straight in profile but remains large in size and blends in well with the other facial features, which are fairly pronounced. Another common element is an open nasolabial angle with good rotation and projection of the nasal tip. The same journey can be made through the centuries in search of an ideal model

of female beauty, from the famous bust of Nefertiti (Fig. 2) and the Venus de Milo up to the statue of Paolina Borghese and images of Sofia Loren and Penelope Cruz. Examination of all these famous faces again reveals a nose of some length with a straight profile, good projection, and a fairly open nasolabial angle. The latter parameter appears to be the element most constantly present in the most beautiful Mediterranean faces, endowing the possessor with immediate appeal and setting off the lips and the other facial features. As regards the frontal nasal angle, the tendency in these celebrated models is toward the rather obtuse and not particularly pronounced angles best exemplified in the "Greek nose" of Hellenistic art.

It is essential for the surgeon performing rhinoplasty on patients of Mediterranean origins to identify the flawed elements of the nasal pyramid distancing the patient from the models of beauty of the past and present familiar to us all. For example, although ptosis of the nasal tip is often an element to be corrected, it is also very important to establish whether this is associated with a normal, insufficient, or excessive degree of projection, as the surgical technique adopted will be different in each case.

Reference should be made in clinical practice to the simplest methods of analysis of the different nasal



Figure 1 The face of Michelangelo's David (Florence, Piazza della Signoria). (Copyright © 2009. Photo Scala, Florence. Courtesy of the Ministero Beni e Att. Culturali.)



Figure 2 The profile of Nefertiti, 1350 BC (Berlin, Aegyptisches Museum). (Copyright © 2009. Photo Scala, Florence/BPK, Bildagentur fuer Kunst, Kultur und Geschichte, Berlin.)

parameters. As regards tip rotation, this is determined by the nasolabial angle, the ideal for which has been estimated as 95 to 105 degrees for women and 90 to 95 degrees for men.² In actual fact, however, this value can vary in relation to ethnic group and personal aesthetic taste. The projection of the tip can be assessed immediately on the basis of the rule that the distance between nasal tip and subnasal point should be equal to the distance between the latter and the upper lip.³ As this obviously holds only for patients with a harmonious upper lip, an alternative is the 3-4-5 rule derived from the drawing of a right triangle on the nasal profile.⁴ The ideal ratio between the first cathetus, second cathetus, and hypotenuse should be 3:4:5, and a value of more or less than 3 for the first cathetus obviously determines overprojection or underprojection of the tip.

A further element of malformation sometimes found in the Mediterranean nose is malposition of the lateral crura, which can be horizontal rather than vertical in orientation.⁵ Careful clinical observation of the frontal view makes it possible in such cases to identify a parenthesis deformity of the nasal tip determined by the caudal margin of the lateral crura.^{6,7} As regards assessment of the nasofrontal angle, crucial importance attaches to identification of the deepest point of this angle (the nasion), the height of which is ~15 mm if measured from the medial canthus.⁸ Consideration of this parameter is a key factor in the definition of the nasal dorsum, as a hump can be masked or accentuated respectively by a shallow or deep nasion.

Complete analysis of the patient must also take into consideration two further aspects of the nasal pyramid, namely the quality of the skin and the strength of the supporting cartilage structures. In the case of the Mediterranean nose, the careful palpation required to assess these factors will generally reveal markedly thick skin of a sebaceous type. Although the cartilaginous structure is sturdy in most cases, it is important to identify patients with weak cartilage to be prepared for the use of structural reinforcing grafts during surgery.

PLANNING THE OPERATION

The preoperative phase reaches completion with one or more talks with the patient to agree upon the aesthetic modifications and explain the corrective purpose of the planned surgical procedures. To this end, it is useful for surgeon and patient to examine the photographs together and discuss the defects present in such a way that the latter can form some idea of the extent to which his or her expectations can be fulfilled.

An open approach to the nasal pyramid and septum is used in most cases with an inverted V columellar incision. All the operations are governed by the philosophy of preserving and strengthening the nasal structures as much as possible. The findings of careful

analysis of the patient's face and the deformations present in the nasal pyramid provide the basis for selection of the most appropriate corrective techniques.

Reshaping the Nasal Dorsum

As previously mentioned, the dorsum of the Mediterranean nose is often excessively prominent with humps of bone and/or cartilage. The line of the profile must be lowered gradually and sparingly for both male and female patients so as to remain within the boundaries of the ethnic models. To this end, the use of a rasp is recommended as a way of avoiding the removal of unduly large amounts of tissue from the dorsum. Even in cases of large humps, the work of excision should be completed with the rasp after prudent initial use of the scalpel. A very careful and sparing approach is also required in cases where it proves necessary to correct an insufficiently pronounced nasofrontal angle.

In cases where medial osteotomy does prove necessary, an oblique medial approach is preferable with a view to preserving the solidity and continuity of the bony structure after the fracture. Although just one lateral osteotomy is generally advisable on either side, two can be used in cases of marked width of the upper third of the nasal pyramid. This procedure, which is perhaps more frequently indicated for the Mediterranean nose, makes it possible to bring the nasal bones closer together after the fracture. A graft of morselized septal cartilage can prove very useful in reshaping the nasal dorsum for the purpose of disguising any irregularities remaining after osteotomies or raising the line of the profile by a few millimeters.

Saddle-nose deformities of the nasal dorsum, which are often the result of trauma or previous operations, present problems of a diametrically opposite nature. It is preferable in such cases to use autologous grafts of septal, auricular, or costal cartilage shaped as required and secured to the structures below with sutures. Importance again attaches to taking the patient's ethnic origins into consideration and restoring the correct degree of Mediterranean expressiveness to the face.

Correction of Ptosis of the Nasal Tip

Ptosis of the nasal tip is one of the most frequent deformities of the Mediterranean nose. In addressing this problem, it is important first of all to assess the deficit in rotation and then whether this is associated with a normal, insufficient, or excessive degree of tip projection. In the case of slight deficits, a small strip of the cephalic portion of the lateral crura can be removed, as the subsequent cicatricial contraction of the empty space thus created will cause a small upward rotation of the tip. For deficits of greater size, it is also possible to remove an inverted triangle of caudal septum, taking care



Figure 3 Removal of a triangle of cartilage from the caudal septum to obtain upward rotation of the nasal tip.

to avoid the basal portion of the septum and any damage to the septocolumellar ligaments located there, which play an important part in supporting the tip (Fig. 3). Another simple and effective strategy is to apply a plumping graft of septal cartilage (diced or crushed) to the front of the nasal spine (Fig. 4). The placement of this graft at the labiocolumellar angle gives the illusion of rotation of the nasal tip and restores one of the most attractive features of the Mediterranean face.

The lateral crural overlay technique proves particularly useful in correcting marked ptosis of the tip, above all when combined with overprojection.⁹ The deformity is determined in these cases by abnormal length of the lateral crura, and careful observation of the patient's profile can help to recognize this anatomic situation. Drawing the outline of the lateral crura on photographs in lateral view also helps to distinguish their excessive length. One initial procedure to be used in this connection is the conservative cephalic trimming of the lateral crura. The lateral crural overlay technique essentially involves making an incision at the beginning of the posterior two-thirds of the lateral crura and laying the anterior segment over the posterior while leaving the vestibular skin below intact. The two segments are



Figure 4 Positioning of a graft of crushed septal cartilage on the nasal spine to increase the nasolabial angle.



Figure 5 Intraoperative view of the lateral crural overlay technique.

then sutured with 5-0 nylon (Fig. 5). By restoring the correct physiologic proportion of the lateral crura, this maneuver causes considerable rotation of the tip with a decrease in projection. At the same time, the lateral shifting of the lateral crura leads to enlargement of the domus region and thus makes it necessary in almost every case to make use also of the double-dome unit technique,¹⁰ which improves the definition of the nasal tip. This procedure involves a horizontal mattress suture through each dome and then a transdomal mattress suture through both domes to bring them together.

Finally, in the case of tip ptosis combined with underprojection, the correction of the latter takes precedence and can be affected by means of sutures of the alar cartilages and/or cartilage grafts. After satisfactory projection of the tip has been attained, a suitable degree of rotation can of course be obtained by using one or more of the techniques described above depending on the degree of ptosis involved.

Correction of Projection of the Nasal Tip

Whereas the combination of overprojection and marked ptosis of the nasal tip is a frequent flaw of the Mediterranean nose, situations of overprojection together with normal or excessive rotation, which are common among the northern and other races, are less often



Figure 6 Intraoperative view of the lateral crural steal technique.

encountered. Cases of underprojection of the tip are also frequently encountered in the surgical approach to the Mediterranean nose. The numerous techniques devised to increase the degree of projection rest essentially either on cartilage sutures or on cartilage grafts. Though in no way ruling out the subsequent or combined use of grafts where necessary, we consider it preferable for treatment to begin with suture techniques such as the lateral crural steal.¹¹ This involves lengthening the medial crura at the expense of the lateral and creating a new dome complex in a more lateral position (Fig. 6). To this end, two mattress sutures are applied to the lateral crura on either side, and the two new domes are then brought closer to the center by means of a transdomal suture. One crucial surgical phase of this technique regards detachment of the vestibular skin beneath the new domes so that the cartilages can be freely lifted and sutured without sticking to the surface below. If the projection still proves insufficient once this procedure has been executed, further enhancement can be obtained by means of Peck onlay grafts¹² of intact or morselized septal cartilage on the domal complex (Fig. 7). The cartilage of the cephalic portion of the lateral crura can also be used for grafts of this type in the event of prior cephalic trimming. Optimal projection is ultimately to be sought after on the operating table with careful appraisal of the relationship between tip and supratip, preference being



Figure 7 Morselized septal cartilage graft sutured onto the domes to enhance projection of the tip.

in any case accorded in the case of the Mediterranean nose to maneuvers that serve to enhance the projection of the tip rather than lower the dorsum.

One important cartilage graft that is nearly always employed is the columellar strut,¹³ cut in a rectangular shape from a straight and sturdy portion of the cartilaginous septum and sutured in place between the two medial crura. This plays a crucial part in strengthening the medial crura, ensuring support for the tip, and preserving the stability of the degree of rotation and projection obtained over time. It can also serve to correct asymmetry of the columella. An alternative adopted for the same purposes is the tongue-in-groove technique,¹⁴ which involves suturing the caudal portion of the nasal septum between the two medial crura. Recommended above all when the aim is also to reduce the length of the nose, this procedure can be used when necessary to enhance the projection and rotation of the tip by varying the position of the suture.

Correction of Malpositioned Lateral Crura

The techniques designed to modify projection and rotation, which have constituted the primary focus in the field of nasal tip surgery for many years, have recently been joined by a new parameter with important aesthetic and functional implications, namely the cephalo-caudal position of the lateral crura in space. Cephalic malposition of the lateral crura giving rise to parenthesis deformity of the nasal tip is frequently found in the Mediterranean nose. This anomaly can manifest itself either in isolation or together with various degrees of impairment as regards projection and rotation.

Used on its own or combined with the medial crural overlay,¹⁵ the lateral crural overlay technique offers an excellent solution for all the pathologic variants regarding the projection and rotation of the tip with no weakening of anatomic structures. The fact that the sectioning is step-shaped rather than vertical makes it possible to apply the lateral crural stair-step technique¹⁶

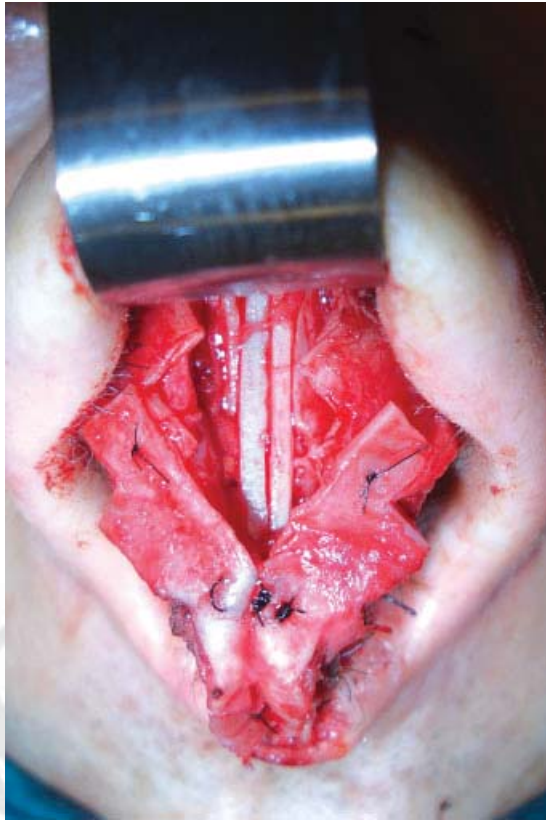


Figure 8 Intraoperative view of the stair-step lateral crural technique.

in cases of malpositioned alar cartilages. This modification of the lateral crural overlay technique can in fact be used to mobilize the anterior segment of the lateral crura and secure it in a lower position while preserving its attachment to the posterior segment (Fig. 8). Starting with a back-to-front incision, the procedure involves complete detachment of the cartilage from the skin below as far as the domus in such a way as to obtain complete mobilization of an anterior flap of the lateral crura. The posterior segment of the lateral crura must also be detached from front to back for a few millimeters.

Spatial repositioning of the lateral crura can commence at this point with several different surgical options depending on the nature of the case in question. In addressing parenthesis deformity with no other defect of the nasal tip, the lateral crura are moved downward, and the upper “step” is secured on top of the lower. In the case of malpositioned lateral crura with overprojection and ptosis of the tip, the anterior flap is not only moved downward but also slipped back over the posterior flap in accordance with the desired degree of rotation and projection. If malposition of the lateral crura is accompanied by marked overprojection of the nasal tip, it is also advisable to make use of the medial crural overlay technique, in which both medial crura are sectioned, overlaid, and secured (Fig. 9).

Correction of Thick Skin

Thick, greasy skin is often one of the anatomic characteristics of the Mediterranean nose. In the case of a large nasal tip, this is sometimes combined with weakness of the supporting cartilage structure. Contrary to what may appear obvious at first sight, the reshaping of the cartilage must be particularly sparing in such cases, and the addition of grafts to the existing structures proves advisable rather than any subtraction.

In the case of a bulbous, misshapen tip with thick skin, for example, use can be made of a shield graft¹⁷ of cartilage taken from the septum and sutured to the front portion of the caudal margin of the medial and intermediate crura with 6-0 nylon. The graft can be left large and cut to size after being sutured in place. In cases involving the correction of not only the definition but also the underprojection of a tip with thick skin, the upper margin of the shield must extend at least 2 to 3 mm past the domes. When this procedure is executed, the optical effect of the visibility of the edges of the graft beneath the skin enhances the definition and harmony of the tip even though there is no decrease in its actual size. In other cases of patients with thick skin, suturing of the lateral crura by means of techniques such as the double-dome or lateral crural steal is recommended, care being taken once again to leave the cartilage structures in a rather angular and sharply defined state. This makes it possible to obtain greater visibility of the reshaped contour of the cartilage beneath the thick covering of skin.

The skin can also be made slightly thinner in particular cases through conservative removal of the subcutaneous fat of the nasal tip. This procedure must be used with great caution due to the risk of complications such as chronic edema, excessive scar tissue, and cutaneous necrosis.¹⁸

An alternate and/or supplementary method is the use of local infiltrations of triamcinolone in the post-operative phase at intervals of 3, 5, and 7 weeks after the operation. Generally involving small amounts, these injections are performed in the points where some thinning of the covering tissue is desired, and therefore in the region of the supratip or tip.

DISCUSSION

The correction of deformities of the Mediterranean nose presupposes knowledge of the aesthetic models of reference present in the cultural and artistic traditions of this ethnic group. It is in fact important for the surgeon to relate the specific situation presented by the patient to these classical models to obtain a wholly natural result in line with what are recognized as the Mediterranean characteristics. Arising from the accentuation of various typical ethnic traits, the deformities in question are recurrent and generally comprise a long nose, a broad,

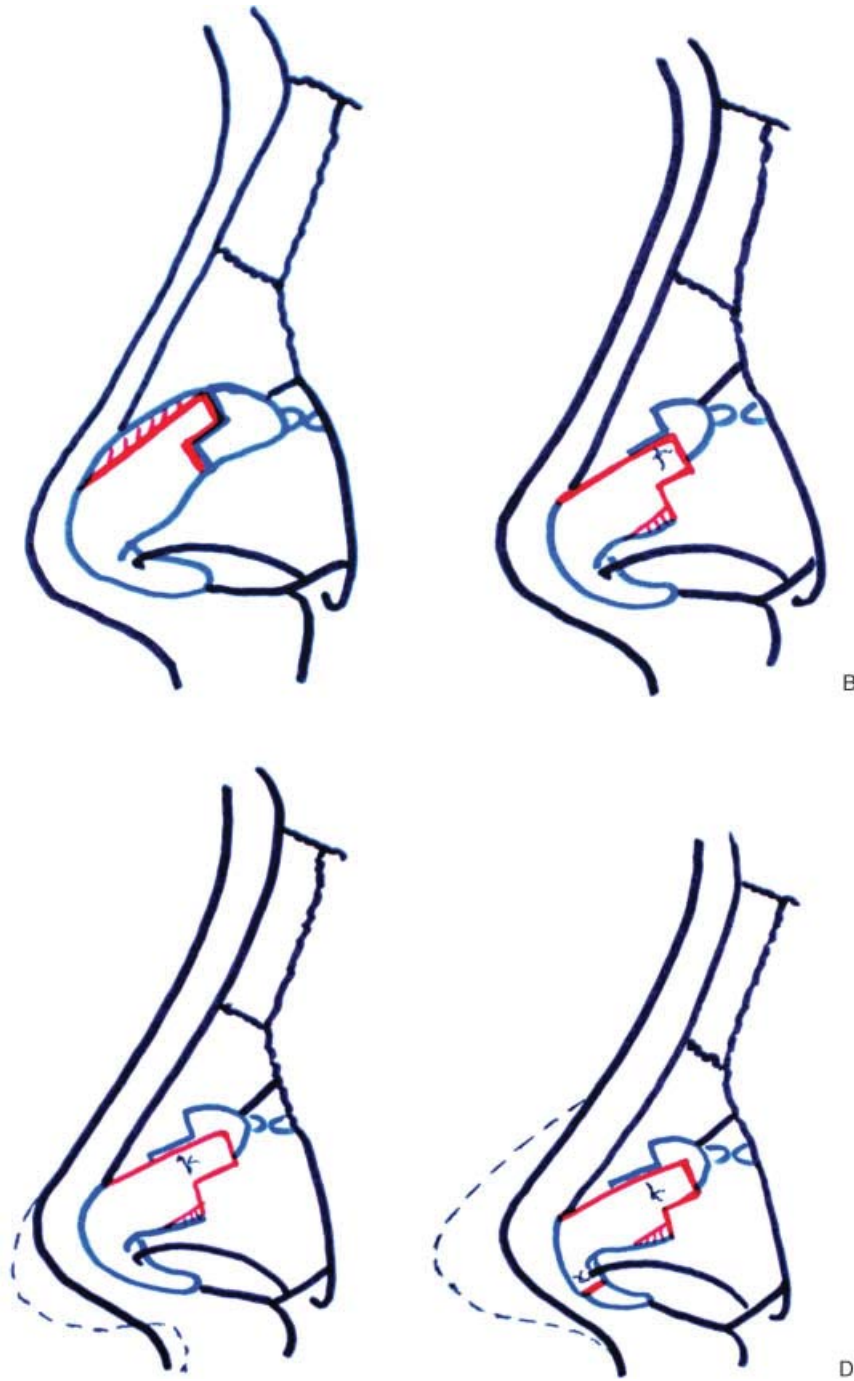


Figure 9 (A) Schematic drawing of stair-step incision. (B) Correction of pure parenthesis deformity. (C) Correction of malpositioned lateral crura combined with overprojection and ptosis of tip. (D) Correction of malpositioned lateral crura combined with marked overprojection of tip. (From Bocchieri A, Raimondi G. The lateral crural stair-step technique: a modification of the Kridel lateral crural overlay technique. *Arch Facial Plast Surg* 2008;10:57–58. Reprinted with permission.)

prominent dorsum, tip ptosis, overprojection or underprojection, and thick skin. An amorphous tip with cephalic malposition of the lateral crura is also frequently encountered. Some of the deformities described here have indeed been grouped together in four archetypal conformations of the Italian-Mediterranean nasal pyramid: the drooping nose, the strong prominent nose, the heavy nose, and the northern nose.¹⁹

Great importance attaches among the objectives of ethnic rhinoplasty to reshaping of the dorsum, as particular care must be taken to ensure a straight a profile for both male and female patients. A concave nasal profile would in fact clash with the other nasal parameters and with the pronounced lineaments of the Mediterranean face. It is interesting to note in this connection that a straight nasal profile is requested and



Figure 10 Case 1: Patient with osseocartilaginous hump, crooked nose, and tip ptosis with overprojection. (A, C, E, G) Preoperative views. (B, D, F, H) Postoperative views after hump removal, spreader graft placement, lateral crural overlay technique, and tongue-in-groove technique.

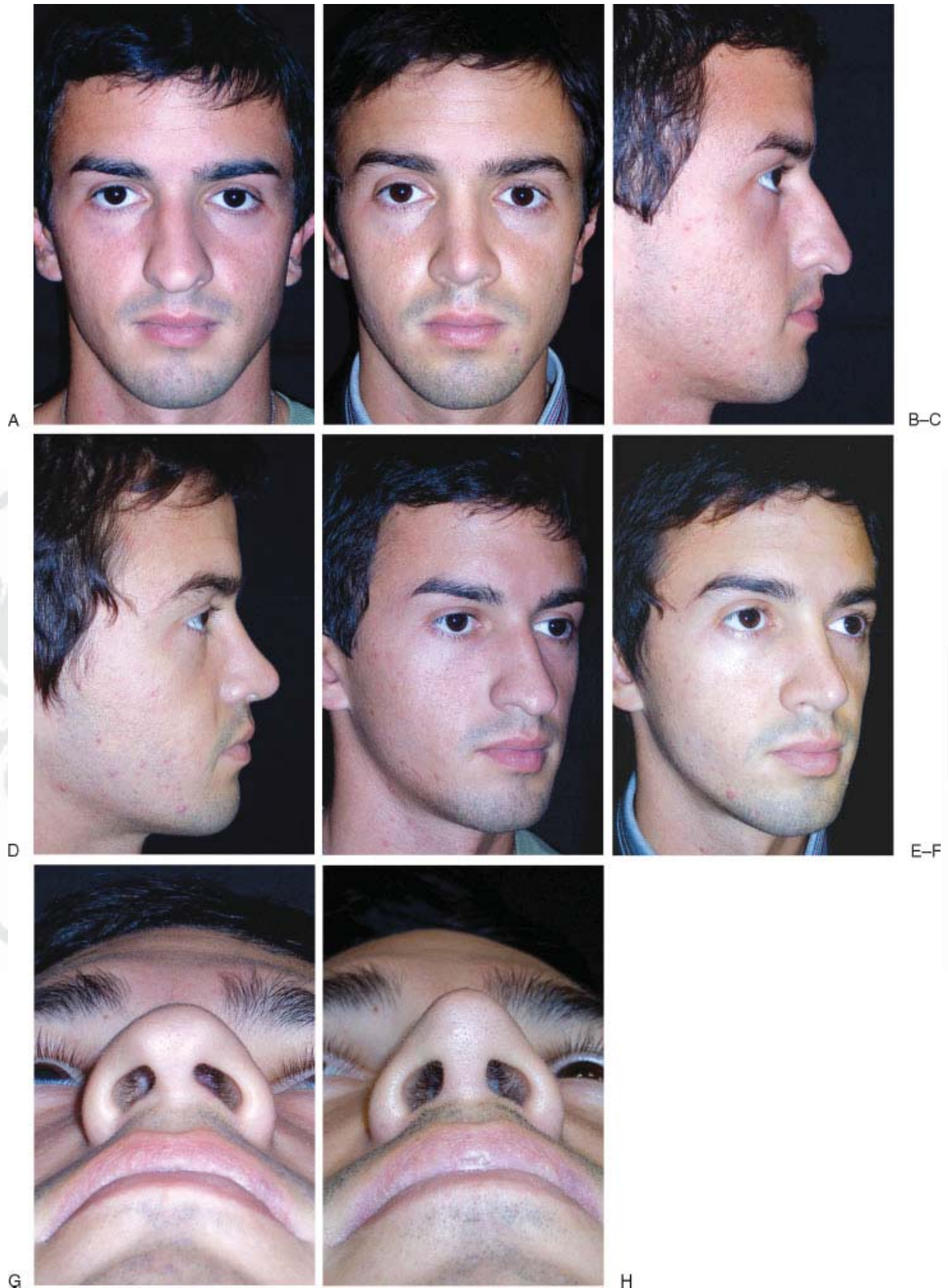


Figure 11 Case 2: Patient with slight osseocartilaginous hump, tip ptosis with underprojection, and acute nasolabial angle. (A, C, E, G) Preoperative views. (B, D, F, H) Postoperative views after conservative hump removal, lateral crural steal technique, lateral crural overlay, columellar strut, placement of onlay tip graft, and nasolabial plumping graft.



Figure 12 Case 3: Patient with slight osseocartilaginous hump, bulbous tip, and parenthesis deformity. (A, C, E, G) Preoperative views. (B, D, F, H) Postoperative views after conservative hump removal, lateral crural stair-step technique, columellar strut, and double-dome sutures.

recommended today also by patients of the female sex, whereas the "French nose" type of profile was preferred a few years ago. This change in female taste attests to a stronger and more independent psychological attitude while coinciding at the same time with the canons of the classical models of Mediterranean beauty.

Depending on the severity of the condition, ptosis of the tip should be addressed on the basis of common strategies with the gradual introduction of more complex techniques such as lateral crural overlay, which makes it possible to obtain the highest degree of rotation. Regardless of the degree of ptosis, it very often proves useful to perform a graft of cartilage on the front of the nasal spine. This simple and quickly executed procedure makes the nasolabial angle more open and helps to give the patient's face a younger and more attractive appearance. Careful examination confirms the presence of this appealing aesthetic feature in the most celebrated models of Mediterranean beauty of the past and the present. The lateral crural stair-step technique, which is to be regarded as a recent modification of the lateral crural overlay, can also be used to correct malpositioned lateral crura. This recently identified and described deformity of the nasal tip is quite often found in the Mediterranean nose, either in isolation or combined with defects of rotation and projection. Though cephalic malposition of the lateral crura can sometimes be masked by a markedly bulbous nasal tip with thick skin, careful analysis is sufficient to detect its presence. Frontal examination makes it possible to identify the caudal margin of lateral cartilages whose cephalic orientation gives rise to parenthesis deformity. Palpation can also serve to reveal an area devoid of cartilage corresponding with the caudal portion of the nasal wing. This malposition can be completely resolved with no need for cartilage grafts by making a step incision, detaching the anterior segment of the lateral crura from the skin beneath, and securing it in a caudal position.

Great care must be taken in modifying the projection of the tip in the Mediterranean nose, bearing in mind the height of the nasal dorsum and its relationship with the supratip region. Whereas the supratip break point is an aesthetic element emblematic of Anglo-Saxon beauty, it cannot be regarded as such for the Mediterranean nose. A narrow and slightly upturned tip with a small depression in the supratip area may be quite in keeping with the subtle and delicate features of the Anglo-Saxon face but clashes with the more pronounced lineaments of its Mediterranean counterpart. In this connection, greater importance attaches to the eclectic sensibility of a surgeon capable of harmonizing nasal modifications to the ethnic proportions of the face than to technical analysis based solely on millimetric parameters. In other words, it is very often preferable to leave a nose that is large but well suited to the overall context of the face rather than

obey the dictates of precise methods of analysis. The values provided by the latter for projection, rotation, and nasal angles should in fact be regarded not as absolute but as general guidelines to be taken into consideration together with other important parameters such as the gender, age, taste, and—last but not least—ethnic origins of the patient.

Figs. 10–12 show three cases of the Mediterranean nose treated with some of the procedures described above.

CONCLUSION

The correction of the deformities present in a Mediterranean nose must take the characteristics of this ethnic group into account, and the rhinoplasty must balance the nasal parameters so as to harmonize with the face. The common methods of analysis provide useful guidelines for some defects but should not be taken in an absolute sense, and the modifications should be adapted to the situation case by case to avoid impairment of the patient's physiognomy. Respect for the ethnic group of origin is therefore more important than the abstract pursuit of an unnatural aesthetic ideal.

In this connection, a fairly straight dorsum and open nasolabial angle are preferable for the profile of both male and female patients. Ptosis is a common flaw of the tip of the Mediterranean nose, and a progressive approach should be adopted in selecting the techniques used to obtain rotation, starting with simple surgical strategies and gradually arriving where necessary at more complex techniques that involve the sectioning and overlapping of the lateral crura. Efforts to enhance projection should also begin with procedures involving cartilage sutures and go on to the use of grafts only if these prove insufficient. The balancing of the projection of the tip and the line of the dorsum is the most delicate phase of rhinoplasty on the Mediterranean nose. If excellent results are to be obtained, crucial importance attaches to this phase in understanding the patient's expectations, ensuring harmony between the changes made and his or her ethnic characteristics, and ensuring the stability of modifications over time.

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Q2



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Q2: Au: Medline indexes "Arch Otolaryngol Head Neck Surg" but cannot find a listing for the reference 11 "Konior, Kridel, 1993". Please check the reference for accuracy.



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