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Medical Rhinoplasty – Profile Correction with Resorbable Fillers

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Abstract

The correction of nasal profile is a typical surgical field dating back centuries. In the last decade, with the fabrication of resorbable fillers, a new technique, which is mini-invasive, has emerged. For this treatment, the study of patients is especially important. The procedure can be performed with needles or cannulas; is very simple and easy; and the results are immediate. It must become baggage of any aesthetic doctor.

Keywords: Medical rhinoplasty, rino-filler, hyaluronic acid, nasal profile, nasal bridge, Asian rhinoplasty, Far-East rhinoplasty, blunt cannula, nasal tip, Rhinion, Nasion, deep nasal bridge, nonsurgical rhinoplasty, nasal spine, beauty, symmetry, asymmetry

1. Introduction

I remember perfectly, when back in 2007, after having extensively corrected a lady for many problems of aging, something in her face seemed wrong and not beautiful. During a conversation, she mentioned that she had noticed also that her nose was getting progressively older. My patient did not have a particularly bad or hooked nose that required immediate correction. She had one of those typically European noses, with a slight plunge, with the root deeper than just the tip. The tip was typically slightly hypoprojected.

In that moment, all of a sudden it occurred to me that a small injection of resorbable filler, hyaluronic acid in this case, at the level of the nasal root might give an interesting aesthetic result, improving that “sad” nose.

I used a small portion of the gel in the syringe in my hand to get the required correction. The result was immediate and dazzling!

I gave the lady a mirror to see the result. She looked in disbelief for a few seconds and blurted out: "Doctor, it is incredible. All my life I wanted to improve my nasal profile, but I had always been afraid to meet a surgeon for this."

In fact, the result obtained on nasal profile after correction with an absorbable filler is instantly visible in contrast to that obtained with the botulinum toxin for all mimic problems.

The route was mapped out.

Thereafter, it was easy to obtain the correction also of the nasal tip, in all hypoprojected noses; Finally, the correction of the columellar line allows the nasal base to be slightly rotated to achieve the typical, satisfactory result.

Subsequently, in 2008 [1], I published a scientific article with details of the technique that is described in this chapter.

Of course, there are a lot of anatomical differences among the races of the world and nasal defects widely differ.

The aim of this chapter is to demonstrate to the readers the technique I use on typical European patients. These corrections, however, can be used in patients of all races that present with these defects. According to my experience, these defects are more frequent in Caucasian ladies and men, and hence the title of this chapter: "Profile correction for European Patients."

2. Study of patients and good indication

In my opinion, it is impossible to reduce nasal aesthetics to a standard template, but to understand exactly the best indication it is of fundamental importance to study our patients. The defects to be corrected are sometimes so minimal yet strongly visible; at other times, the defects are more significant but affect total aesthetic of the face to a lesser degree. I would like, in this section of the chapter, to quickly recall the main aesthetical angles of the nose, which are of fundamental importance and thereafter deal with the correction by filler.

The nose is an organ of central importance. It is in the center of the face and is obviously closely related to the neighboring areas and in particular to the frontal, malar-zygomatic, and chin areas.

The more important anatomical details have been discussed in the previous chapter and in other parts of this book, which the the reader, if needed, can access.

I recall here very briefly the skeletal classes by Angle, already mentioned in the previous chapter regarding the treatment of mimical patients, but much more important with regard to the treatment of nasal contouring.

I recount for readers who have opened the book at this page, that the skeletal classes by Angle, from a dental point of view, are very important from a purely aesthetic perspective, determining with accuracy the mutual expression and projection of the chin and nasal tip [1-4].



Figure 1. Please add caption

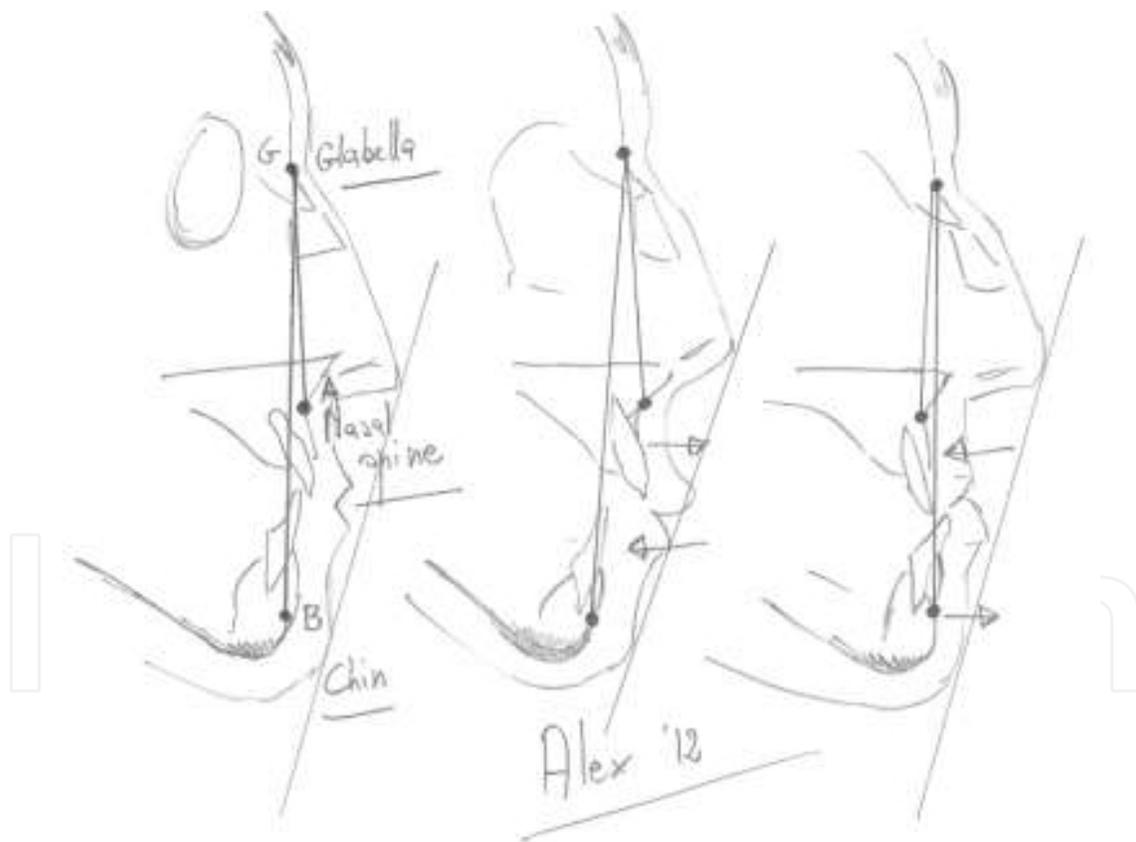


Figure 2. Angle's skeletal classes.

Edward Angle, in the past century, determined exactly what the relationships between the dental arches are, clearly observed in the lateral projection, and then described the three main models that are precisely the three skeletal classes: the first class called normal, a second class

when the jaw is in a position rearward from the upper jaw, and finally a third skeletal class in which the jaw is shifted forward and the lower incisors can be on the same axis of the superior if not exactly in front of them with a typical reversed bite.



Figure 3. Main nasal angles: (a) picture of the patient in profile position; (b) naso frontal angle: normally from 130° to 145°; (c) dorsal angle: normally straight; (d) naso labial angle: normally from 90° to 110°.

It is immediately evident that in the second skeletal class, often associated with a reduced projection of the malar-zygomatic area, the nose can sometimes appear hyperprojected and

bigger than it really is. As I often say in my master classes, a mountain is a mountain also because at the sides it has deep valleys!

This confirms that the nose cannot be studied in isolation, but that all facial areas in their totality are of paramount importance.

The facial angles of the nose are also of fundamental importance [1,2]. We can see them in the pictures (Figure 3).

3. Indicated fillers

Among commercial fillers, the most suitable for the correction of the nasal profile and used everyday in my surgery are those materials based on average cross-linked hyaluronic acid. It is of paramount importance that these gels are produced by pharmaceutical companies to absolute safety, with a well-known history and unequivocally perfect. I strongly advise all colleagues to avoid buying products only because they are cheap: a low price often hides a limitation in quality [2,4].

The fillers that I normally use for nasal profilometry are summarized in Table 1. I would like to emphasize that there are probably a lot of other fillers in the market that are not listed in the table, probably better than these, which I do not know of and therefore have not utilized.



Table 1. Fillers that I normally use for nasal profilometry.

As visible in the table here above, I'm not usual to use fillers made by HA too reticulated. In my opinion, the volumetrical fillers, for nasal reshape, are not indicated. For the same reason, I do not use Calcium-hydroxyl-apatite, which is, instead, very good for volumetrical corrections.

Also all nonresorbable fillers are not used in my practice.

Fillers based on Poli-levo-lactic acid are not indicated for nasal reshaping and not used by me.

4. Correction of the nasal profile in caucasian patients with needles

The correction technique of the nasal profile in Caucasian patients with fillers foresees two techniques: with needles and cannulas.

Generally, all techniques with needles may be more dangerous due to the possibility of injecting directly into a vein or an artery. Regarding the nasal area in the strict sense, nasal sides are particularly dangerous for the presence of numerous small terminal arterioles coming from the facial artery. Particular attention must therefore be paid in the injection of this area, in particular in the subcutaneous tissue upon the triangular cartilage.

Also the area of the nasal tip can be dangerous for the possible onset of ischemia of the tip with consequent damage to the cutaneous trophism, both for matter of compression both for local injections of small terminal arterioles.

Finally, the intra-arterial injection of the columellar artery is reported with ischemia of the tissues of the nasal tip and base.

All these possible side effects have consequently introduced the use of blunt cannulas that allow us to bring down these risks to practically zero.

4.1. Correction of the nasal root

In most Caucasian patients we find the typical "Dorsal angle" over 180°.

In Fig. 5 we can see a case of a Caucasian patient during treatment. The nasal profile has the typical angle of about 190°. We use in this case a middle reticulated hyaluronic acid. The injection is made from Rhinion to Nasion. It is injected deep on the bone. It is mandatory to keep the first and second finger of the non-injecting hand closely on the sides of the nose to absolutely avoid the migration of the Hyaluronic acid on the sides of the nasal root. A migration even to the inferior eyelid is described. So great attention must be paid to this detail!

I normally use a linear retrograde technique arriving to inject 0,20,3 ml. It is better not to overcorrect. As always if the injection is not enough we can reinject. If we inject too much, it is difficult to retrace!

After the injection, a light massage to the area is useful to make uniform the implant. The result is definitely immediate (Fig. 5e).



Figure 4. Correction of the nasal root.

4.2. Correction of the nasal spine

The nasolabial angle is the second angle that is sometimes reduced. This angle can be modified for mimical reasons or for a volumetrical/skeletal problem.

The correction in mimical patients can be made with BTxA (see the specific chapter).

If the problem is volumetrical, the correction can be achieved with the injection of Hyaluronic acid at the columellar area.

Normally, naso-labial angle is around 90° to 110°. The injection of nasal spine allows both an improving of the columellar line, with an opening of this angle, and also a light rotation of the

nasal tip, with a better projection. In Fig. 6b, it is possible to see a not too closed nasal angle (a little bit more than 90°), but there is indication for the rotation of the nasal tip.

The injection of the nasal spine is made with a 27G x 14 mm needle (the grey one). The angle on injection can be parallel to the nasal spine–Pogonion line (Fig. 6c) in all cases of reduced angles below 85° .

If instead we need an improving of volumes, we can inject with a 45° (Fig 6d).

It is better, before injecting that a quick aspiration is made with the same injecting hand, to confirm avoiding injecting of the columellar artery.

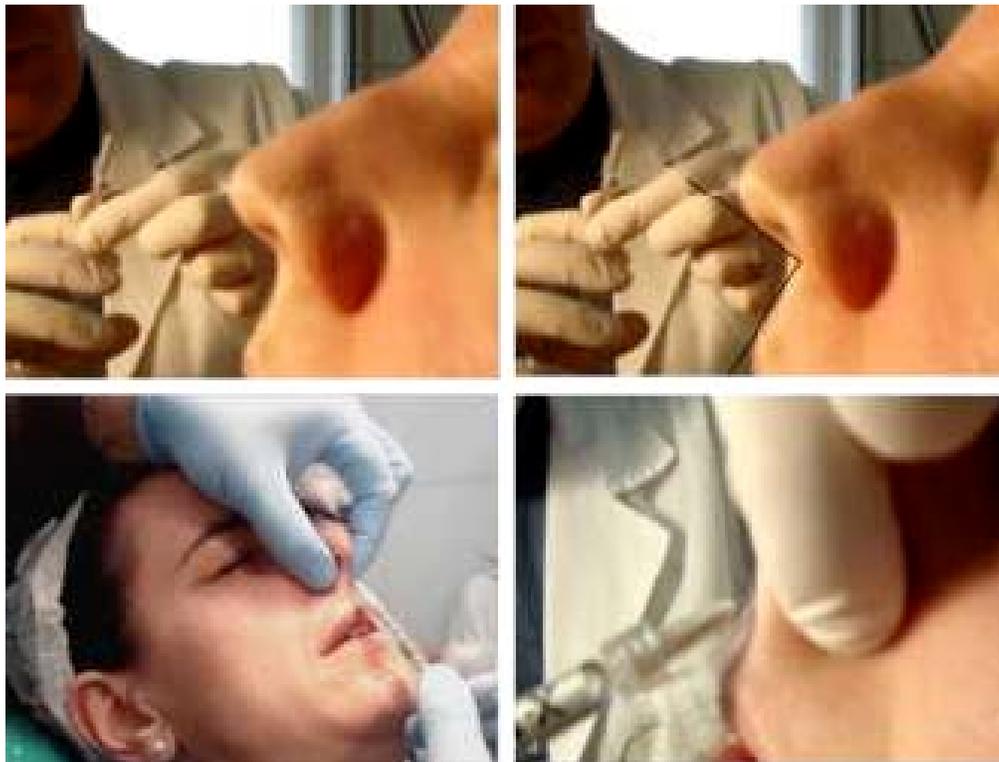


Figure 5. Injection of the nasal spine (c) and position of the contralateral fingers (d).

As visible in the figures above, the contralateral hand is helping to close the injection area and preventing loss of the product into depths where it would be not helpful to open the nasolabial angle. It is better to suggest the patient breathes with the mouth, since the nostrils will be closed with your fingers.

4.3. Correction of the nasal tip

The hypoprojected tips are the best indication.

The injection is made in the subcutaneous tissue, between the intermediate crus of the alar major cartilages. In Fig. 7b it is possible to see the exact point. The injecting doctor must decide if it is better to underline 1 or 2 tip defining points. Normally, I achieve this definition through

the same entry point using a fun technique that allows us to distribute the HA gel in a perfect way.

Every nose is, of course, different from others and it is impossible give the readers a standard template.

The result is immediate and in Fig. 7d it is possible to see it in this particular patient, immediately after the procedure.



Figure 6. PLEASE ADD CAPTION

5. Correction of the nasal profile in caucasian patients with the cannula

In the last months of the 2012, I was conducting a course on Medical Rhinoplasty in Singapore for the American Academy of Aesthetic Medicine. A very kind doctor let us use his private practice for our courses. The courses on medical Rhinoplasty are very famous and followed by many doctors here in Europe and in the Far East.

After finishing my presentation, we discussed some practical cases and also Dr Kelvin Chua showed us his technique with a blunt cannula. It was surprising and really amazing the ease with which the reshaping of the nasal profile could be performed. Immediately I also understood the possibility of reducing all side effects due to injection in the vascular vessels that could be avoided with a cannula in most cases.



Figure 7. Dr K. Chua.

Since then I have used this new technique in a lot of cases, both for Far Eastern patients as also in many cases of European profile corrections.

In this chapter of the book by Prof. Nikolay Serdev, I would want to deeply thank this colleague for his kindness and for having opened my mind to this “Columbus’s Egg” of the mini-invasive techniques on the nose.

This technique is very easy, safe, and described in the following text.

5.1. Indications

The best indication for the correction of nasal profile with the blunt cannula are the irregular profiles from the nasal tip to the root. The best cannulas to be used in this case are 25G x 50 mm. It is possible to use also 27G x 40 mm, but these are in my opinion a little bit more dangerous and also painful. Anesthesia, anyway, is not needed except for anesthetic cream at the entry point.

Patients are asked to arrive in my clinic with no makeup. The entire nasal area is thoroughly disinfected.

The cannula is inserted at the nasal tip. It is important to make the entry point at the perfect level; the entry with the cannula should be neither too superficial nor too deep.

The subcutaneous tissue is the perfect layer.

In most patients, I use a needle 23G to make the entry point at the nasal tip (Fig. 9b). The 23 G needle allows a very easy entry of the cannula, while the pain is the same as of any other thinner needle. With the preparation with the anesthetic cream, this pain is really very tolerable.

In this case I am using, as in most patients, a 25G cannula x 50 mm. The cannula is inserted gently at the entry point, and the right plain is found, where the cannula proceeds without an important pressure. The proceeding of the cannula must be easy and totally painless.

The first and second fingers of the non-injecting hand are positioned on the sides of the nose, just near the cannula to avoid spreading of the gel on the sides of the nose. This is also very useful to have a narrow nasal profile.

The cannula can arrive, however, also on the nasal sides to improve the little defects between the nasal cartilages.

Results are immediate. I suggest patients come back for a possible retouch in 15 days, since there is quite frequently a modest decrease in the result.

The result in most patients is very long-lasting, normally at least 1 year, and in many cases also 2 years.



Figure 8. Please add caption

6. The profile correction for far eastern patients: the deep nasal bridge

In the previous chapter, we discussed and examined how to improve the nasal profile in Caucasian patients, especially central-European patients, both in women and in men.

I learnt of another interesting indication, and a very special one, in my many trips to the Far East and Africa during the correction of the nasal profile in these particular patients.

In these patients we find a very deep and flat nose profile that helps make their faces round and flat. It is possible to raise their nasal profile in order to let the face emerge, making it more visible and detailed.

The correction can be done by needle or cannula, but personally I prefer this second solution for the perfect uniformity on the profile and for the better safety profile that assures.

In the few pages that follow we can see some practical case studies from the pre-picture through the practical decisions during the procedure to the final result.

Example 1: A case treated with needle



Figure 9. Patient study: 52 year old, Fitzpatrick photo-type 3-4. She is studied before the procedure during a medical course. The nasal profile is quite deep. There is also present an initial depression of the tears valley. I study the patient also in mimical phase and I do not see a particular mimical defect. So I decide to treat the nasal bridge with a middle reticulated absorbable filler. In this case, I use the technique with needle.

Anyway, normally, 0.2–0.3 ml of gel. Then I decide where to start the 1st injection for the nasal profile. Normally I inject from Rhinion to Nasion, deep on the bone. (c).

Immediately it is possible to see the bump caused by the injection of the gel. Gently, with the right hand, I proceed to the massage from up to down (e). During the injection, it is mandatory to keep the first and second fingers of the noninjecting hand on the sides of the nose, to avoid spreading of the gel in this area. I have seen many cases of migration of the gel also in the inferior eyelid. Pay a lot of attention to this in particular.

Immediately after, I proceed to the second injection just below the previous (f) always pushing the usual 2 fingers on the sides of the nose. I proceed then to the gently massage with both the right and left hands (g). Then I proceed to the final injection in the lower part of the nose to underline a little bit also the nasal tip (h). This is also a very fine passage. The compression of the nose, during the procedure (i). If the nose bleeds too little. immediately it becomes difficult to understand exactly the right correction. For this reason it is very important to avoid important ecchymosis of this area. I proceed to do a little correction also of the sides of the nose, between the alar great cartilage and the triangular (immediately above) to try to reduce nasal flaring (l-m).

In the preliminary study, I observed an important regression also of the chin. All the areas of the face are strictly connected to each other and a good aesthetic doctor must always have a three-dimensional approach. In so many Asian patients it is possible to see this little defect (2nd skeletal classes are so frequent). I inject for this reason at the Pogonion, down on the bone, 1 ml of Hyaluronic acid gel to get an improvement with a little protrusion of the chin (n).



Figure 10. The procedure: I start the procedure in the malar-zygomatic area (a and b). I draw a line 1.3 cm under the orbital bone. I inject normally in 2 or 3 points, down on the bone. It is impossible to say exactly how much. Normally I say “not too much!!!”

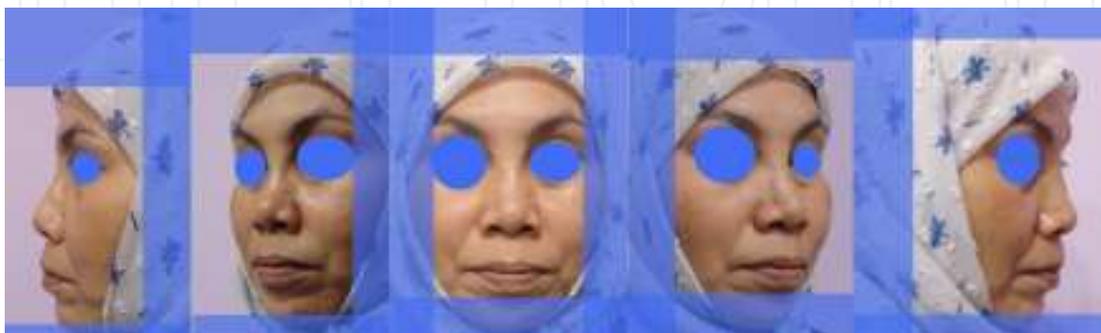


Figure 11. The results are immediate, as always while using a resorbable filler. They will last for many months, normally more than 1 year.

I finish the procedure with the correction of all the little defects that are is possible to see in the nasal bridge (o).

At the end, the correction must be perfect in all the projections of the nose.

The patient is studied also in mimical phase. The smile appears to be more balanced, visible in an important way, during movements (impossible to render just with some pictures) (p).

After 15 days it is a good rule to see the patients for a follow-up, to take pictures, but many times also for a little touchup, which in particular will allow you to have better and longer-lasting results.

Normally, patients come back after 1 year to make a new correction to maintain results.

The correction of nasal profile in Far Eastern and African patients can be made, of course, also with the cannula. I use as well the 25G cannula x 50 mm. Results are immediate and long-lasting.

All the passages are exactly the same as in all other patients. The suggestion, in this case, can be that of keeping the usual fingers of the noninjecting hand just near the sides of the cannula to obtain finally a narrow bridge that is more normally enjoyed by these patients.

7. Conclusions

The correction of nasal profile is a safe and easy technique. Results are immediate and long-lasting, more than in other facial areas.

The rules to obtain perfect results must be followed mainly to avoid side effects, which in this area can be unpleasant and also long-lasting. However, all possible side effects and especially skin necrosis heal well with time (2–3 months).

The perfect understanding of the genesis of the possible defects is the right way to use the right technique and finally have a good result.

It must become technical baggage of every aesthetic doctor.

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References

- [1] Redaelli A. Medical rhinoplasty with hyaluronic acid and botulinum toxin A: a very simple and quite effective technique. *J Cosm Dermatol*. 2008; 7, 210-220.
- [2] Redaelli A, Braccini F. *The Medical Rhinoplasty: Basic Principles and Clinical Practice*. Firenze: OEO; 2010.
- [3] Levignac J, Chalaye JC, Chalaye JM, Mahe E and Riu R. Morphology of the nose. Importance of the orificial mechanism. Surgical repercussions. *Ann Chir Plast Esthet*. 1986;31(4):309-318.
- [4] Jasin ME. Nonsurgical rhinoplasty using dermal fillers. *Facial Plast Surg Clin N Am*. 2013; 21(2):241-252.

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