

RECOMMENDATIONS OF FSO

Clinical practice recommendations " Cosmetic and Functional rhinoplasty "

**SPONSOR: FRENCH SOCIETY FOR OTORHINOLARYNGOLOGY
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INTRODUCTION

Requests to change the appearance of the nose are among the most difficult to satisfy, as complex requirements must be met. Closely intertwined technical, functional, and psychological issues must be resolved. The recommendations developed by the task force provide answers to the following questions:

- What is the best process for planning rhinoplasty?
- What steps are needed to comply with current regulations?
- What are the contraindications to rhinoplasty?
- What is the best postoperative care protocol?
- What are the best materials for augmentation rhinoplasty?

The recommendations are rooted in a critical reappraisal of the literature. When published data failed to provide clear answers to questions that must be resolved in everyday practice, a consensus was sought among task force members.

DEFINITIONS

Rhinoplasty is a surgical procedure that changes the shape of the nose with the goal of improving cosmetic appearance or respiratory function.

Cosmetic rhinoplasty

Cosmetic rhinoplasty is available to patients who want to change the shape of their nose in a way they feel will improve their appearance. This cosmetic procedure must preserve function.

The patient pays for the procedure, which must comply with specific regulations about cosmetic surgery.

Functional septorhinoplasty

Functional septorhinoplasty is used to correct nasal obstruction and other symptoms due to impaired nasal patency. The patient should be told that although the procedure is designed only to improve nasal function, it may have positive or negative effects on appearance.

Mixed cosmetic and functional septorhinoplasty

The two types of rhinoplasty can usually be combined. History taking, a physical examination, and appropriate investigations are useful for clarifying the patient's motivations and determining the respective

contributions of functional and cosmetic considerations in the indication for rhinoplasty.

A. PREOPERATIVE VISITS

Before the rhinoplasty procedure, discussions must be held with the patient to develop a relationship of mutual trust. The patient must have ample opportunities for asking questions, which must be answered in depth. Written information sheets and administrative documents must be handed to the patient.

A.1 PREOPERATIVE VISITS AND PATIENT INFORMATION

The rhinoplasty procedure must be embedded in a predefined management protocol that extends from the first contact with the patient to the last follow-up visit (grade C). The surgeon must provide the patient with clear and accurate explanations about the perioperative management protocol and the main techniques that will be used. At least two visits are recommended to explain the issues and to answer the patient's questions. During these visits, the rhinoplasty procedure is planned with the patient, with the help of photographs or computerized images. Problems related to surgical technique must be explained and the usual postoperative course described. The risks of adverse events should be discussed. Efforts should be made to foster trust during the preoperative visits in order to ensure that the patient develops realistic expectations about the effects of the procedure and to reduce the risk of future conflict between the patient and the surgeon.

Evaluation by the anesthesiologist

The visit should occur at least 2 days before the scheduled date of the rhinoplasty procedure. The anesthesiologist should obtain additional investigations if needed. Rhinoplasty is usually performed under general anesthesia.

A.2 ADMINISTRATIVE DOCUMENTS

A.2.1 Accreditation of the surgeon and surgical center

The surgeon must comply with a number of administrative requirements. Specifically, the facility where the rhinoplasty procedures are performed must be accredited for cosmetic surgery and must be operated

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in accordance with regulations (most notably regarding advertising). Since January 12, 2006, specific authorizations must be obtained for the facility and technical conditions.

A.2.2 Administrative documents for the patient

The administrative documents are usually handed to the patient during the first visit. The patient is given an information sheet containing a step-by-step explanation of the procedure with the main techniques and the postoperative course. An informed consent document is given at the same time, to be signed by the patient and returned at the second visit or no later than 24 hours before the procedure. Although the informed consent document has no legal value per se, its absence in the event of a malpractice suit may be interpreted as denoting inadequate patient information and substandard practices, which would create a bias against the surgeon.

A.2.3 Quote and payment

Charges and fees for rhinoplasty procedures are determined by French regulatory agencies. Each component of the rhinoplasty procedure is assigned a code, and the final rhinoplasty code is determined based on the component codes. Surgeons are required to comply faithfully with regulations regarding the assignment of component codes. Patients scheduled for cosmetic rhinoplasty should be given a quote no later than 15 days before the scheduled date of the procedure; (quotes must be supplied for all cosmetic surgical procedures). Both the patient and the surgeon must sign the quote. Written authorization from the parents is required for underage patients.

A.3 INFOGRAPHY MATERIAL: PHOTOGRAPHS, COMPUTERIZED SURGICAL PLAN (MORPHING)

Photographs taken before and after the procedure have become an integral part of the rhinoplasty protocol. For medicolegal reasons, the appearance of the nose before and after surgery must be reliably documented. The preoperative photographs should be examined with the patient in order to conduct a detailed analysis of the deformity and to gain a full understanding of the patient's wishes and expectations. The photographs are used to plan the surgical procedure with the patient either by drawing directly on the photographs or by using morphing software to modify digitized photographs. Studies have provided firm

evidence that morphing facilitates communication, improves rapport, and fosters trust in the surgeon. Preoperative planning on digitized images substantially improves rapport and trust with the patient, who perceives the surgeon as technologically proficient. The main issue is whether the computer simulation should be given to the patient if requested. In several retrospective studies, giving the simulation was associated with a decreased likelihood of malpractice suits. Nevertheless, the surgeon must explain clearly that the simulation merely illustrates the surgical procedure but does not constitute a guaranteed preview of the outcome.

Recommendation: argentic or digital photographs that can be worked on and reproduced must be obtained and saved (strong professional consensus).

B. THE PROCEDURE AND WORKUP

B.1 THE MAIN TYPES OF RHINOPLASTY

The main types of rhinoplasty should be explained to the patient. A thorough physical examination is mandatory. In particular, the quality of the skin in the nasal area must be assessed.

B.1.1 Reduction rhinoplasty

When reduction rhinoplasty is being considered, the nasal profile should be analyzed on the photographs, with attention to the osteocartilaginous hump, nasofrontal angle, nasolabial angle, chin position, height of the upper lip, and whether the lips are incompetent.

B.1.2 Augmentation rhinoplasty

The goal of augmentation rhinoplasty may be to correct saddle-nose deformity or to increase the projection of the nasal tip. The need for harvesting bone or cartilage grafts must be clearly explained to the patient.

B.1.3 Functional and/or posttraumatic septorhinoplasty

Potential positive or negative results of functional surgery should be described to the patient and recorded in the medical chart, as well as in any correspondence sent to the patient's usual physician.

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B.1.4 Revision rhinoplasty

Detailed information should be given to patients requesting revision rhinoplasty, whose dissatisfaction with previous procedures fosters feelings of distrust. At least 1 year should be allowed to elapse between the first rhinoplasty procedure and the revision procedure.

B.2 COMBINATIONS OF SURGICAL PROCEDURES

Surgical procedures may be either cosmetic or functional.

The following should be assessed routinely in patients seen prior to rhinoplasty:

- the underlying bony structure,
- dental occlusion,
- labial competence,
- nasal patency,
- facial aging and skin.

B.2.1 Combined cosmetic procedures

B.2.1.a Profiloplasty

Profiloplasty may be indicated in two situations:

- in patients with Class I occlusion, rhinoplasty can be combined with contouring genioplasty or symphyseal osteotomy;
- in patients with dental occlusion abnormalities and facial dysharmony, orthodontic treatment and maxillo-mandibular surgery should be performed before rhinoplasty. The rhinoplasty procedure should be appropriate for the new bone contours.

B.2.1.b Lipostructure

Lipostructure of the middle third of the face, most notably the malar region, can be combined with reduction rhinoplasty in patients who have a convex nose and facial fat involution.

B.2.1.c Blepharoplasty

Rhinoplasty can be combined with upper lid blepharoplasty. Lower lid blepharoplasty should be viewed with reservation given the possibility of exacerbated postoperative edema and bruising (consensus among task force members).

B.2.2 Combined functional procedures

B.2.2.a Correction of nasal valve abnormalities

One component of nasal valve correction is insertion of cartilage grafts to strengthen and widen the valve.

B.2.2.b The turbinates

In patients with chronic hypertrophy of the inferior turbinates, radiofrequency reduction can be used during or after rhinoplasty. Partial turbinoplasty may be offered.

B.2.2.c Endoscopic sinus procedures

Endoscopic sinus procedures are rarely performed in combination with septorhinoplasty. They should be confined to the ostiomeatal unit in patients with out-flow obstruction (see contraindications C.3).

B.3 THE PREOPERATIVE WORKUP

In some circumstances, imaging studies (computed tomography or radiographs) or rhinomanometry should be obtained to evaluate functional disorders.

B.3.1 Rhinoscopy

Ideally, anterior rhinoscopy should be complemented by endoscopy of the nasal cavities.

Rhinoscopy is essential to assess the condition of the septum and nasal cavities.

B.3.2 Imaging studies

Computed tomography is recommended in patients with a history of surgery or trauma (fractures of the facial bones or skull base). Computed tomography is strongly recommended in patients with active inflammatory sinonasal disorders or a history of endonasal surgery.

B.3.3 Rhinomanometry

Perceived nasal breathing fails to correlate consistently with rhinomanometry measurements of nasal resistance. Rhinomanometry is of limited value: although high resistance values usually correlate with perceived nasal obstruction, low or normal values may be found in patients who report severe subjective nasal obstruction.

C. CONTRAINDICATIONS

Contraindications to cosmetic, functional, or mixed rhinoplasty may be absolute or relative.

They may be obvious to the surgeon or require a multidisciplinary discussion of issues raised by underlying conditions.

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C.1 AGE

Age is a relative limiting factor. In children, rhinoplasty is reserved for specific situations requiring reconstructive surgery:

- severe trauma to the nasal pyramid,
- obstruction due to severe septal deviation,
- birth defects (e.g., Binder's syndrome or cleft lip and palate).

Under ordinary circumstances, rhinoplasty should not be performed before 16 years of age in girls and 17 years of age in boys (grade C). Careful attention should be directed to the degree of psychological maturity and to the statural growth stage (opinion of the task force members). Advanced age does not contraindicate rhinoplasty provided the procedure does not put the patient at undue risk.

C.2 GENERAL CONTRAINDICATIONS

A multidisciplinary discussion is appropriate in a number of clinical situations. The most commonly involved specialists are the anesthesiologist, cardiologist, dermatologist, internist, and psychiatrist.

C.3 RHINOLOGICAL CONTRAINDICATIONS

Rhinoplasty in patients with inflammatory sinonasal disorders

Many patients seek both cosmetic and functional improvements. Although restoration of nasal cavity patency is widely accepted as a complement to cosmetic rhinoplasty, same-step treatment of sinus disorders and cosmetic deformities is controversial. Many surgeons now believe that surgery for sinusitis can be performed at the same time as rhinoplasty: the sinus procedure should be limited to relieving ostiomeatal obstruction, i.e., to ostiomeatal complex surgery (consensus among task force members).

In patients with inflammatory sinonasal conditions (e.g., polyposis or chronic ethmoiditis), the task force feels strongly that endonasal surgery should not be performed during the same step as rhinoplasty. In practice, the sinonasal condition should be treated first. If appropriate, rhinoplasty may be performed subsequently (grade C).

The main complications of sinus surgery, i.e., cerebrospinal fluid leakage or orbital complications, may be masked by postoperative bruising and nosebleeds related to concomitant rhinoplasty.

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C.4 PSYCHIATRIC CONTRAINDICATIONS TO RHINOPLASTY

During the preoperative visits, the surgeon must attempt to evaluate the patient's psychological status. Referral to a psychiatrist may be useful to detect psychiatric contraindications to rhinoplasty. These fall into two main categories.

C.4.1 Absolute contraindications that are readily detected

- severe depression;
- in patients with psychosis, delusional episodes or phases of disorganization;
- schizophrenic disorders, in which cognitive impairments cause body image disturbances;
- paranoid syndromes.

C.4.2 Absolute contraindications that may be difficult to detect

They include body dysmorphic disorder (BDD) and Münchausen syndrome (DSM IV criteria). BDD is characterized by inordinate concern about body image that usually focuses on imaginary flaws in the face or nose. Rhinoplasty fails to alleviate the concern, since this last stems from imaginary factors. The typical patient is a young individual with marked anxiety and psychological rigidity. Paranoia is common, with the patients blaming the surgeon for what they perceive is a failed procedure and undertaking malpractice litigation, at times in a highly aggressive manner. Patients with Münchausen syndrome have no physical disease but cause real symptoms (e.g., self-inflicted wounds or diarrhea induced by laxatives) and describe imaginary symptoms (e.g., headaches or vertigo). These factitious symptoms prompt invasive investigations and ultimately may lead to surgery. Referral to a psychiatrist is a valuable tool for elucidating the wishes and expectations of a patient whose psychological profile remains poorly understood at the end of the usual preoperative visits. The psychiatric evaluation helps to detect latent psychiatric disorders.

D. MATERIALS

D.1 AUTOLOGOUS BONE

Bone and cartilage grafts are among the most widely used adjuvants for rhinoplasty.

Two sites are widely used in everyday practice: the

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parietal bone is the main donor site, although iliac bone is used in some cases in order to minimize the risk of iatrogenic events. Another site for obtaining good-quality bone is the mandibular ramus, which is a good alternative to the parietal bone, given the lower risk of iatrogenic events (consensus among task force members).

D.2 CARTILAGE GRAFTS

D.2.1 Cartilage donor sites

Cartilage grafts are usually harvested from the septum, which has the obvious advantage of being located at the surgical site. The inferior lateral cartilage may be used, its main advantage being thinness and its main drawback limited volume. When the amount of available septal cartilage is inadequate, auricular cartilage can be used. The concha may offer a large area for graft harvesting, which does not usually induce local sequelae. When a large amount of cartilage is needed, for instance to perform complex augmentation rhinoplasty, rib cartilage can be taken from the lower chest, the main disadvantages being a scar and some degree of postoperative pain. Rib cartilage is abundant and easy to shape (grade C).

D.2.2 Indications for cartilage grafts

Autologous cartilage grafts are being increasingly used in augmentation and reconstructive rhinoplasty. Advantages of autologous cartilage grafting include the multiplicity of donor sites, good tissue tolerance, and ease of shaping, which permits reconstruction of the complex structures of the mobile nose using material of identical nature to the recipient site.

Cartilage grafts are classically divided into contouring grafts and structural grafts.

Contouring cartilage grafts are added to the native osteocartilaginous nose in order to obtain an aesthetically pleasing appearance. The dorsum and infratip are the most common sites of contouring graft implantation, which produces a harmonious dorsal unit and optimizes tip projection. The grafts are placed in the coronal plane. They must be secured, for instance using resorbable or nonresorbable sutures or glue. Changes over time at the graft-skin interface may lead to unbecoming graft visibility through the skin.

Reconstructive grafts play a biomechanical role that ensures stability of the cartilaginous framework of the mobile nose. These grafts correct or prevent inspiratory collapse of the middle third of the nose and of the

nares. *Spreader grafts* stabilize the triangular cartilages at the dorsum. Columellar struts stabilize the base of the nose. Alar batten grafts strengthen the lateral crura. Reconstructive grafts are positioned chiefly in the sagittal plane. Their stability over time is highly satisfactory, particularly when they are secured via an open approach. Reconstructive grafts allow morphological and functional reconstruction of the nasal tip in patients undergoing revision rhinoplasty.

D.3 FAT TISSUE

Lipostructure as developed by Coleman can be useful in revision rhinoplasty. Lipostructure corrects irregularities in the nasal dorsum such as dents, asymmetry, or abnormal visibility of bone.

An advantage of lipostructure is limited invasiveness: no additional dissection is needed in these patients who often have a history of multiple surgical procedures (consensus among task force members).

D.4 IMPLANTS OR SYNTHETIC MATERIALS

D.4.1 Background

Synthetic material should be considered only when none of the options for autologous or homologous tissue grafting is feasible (grade C).

Four factors related to the implant or local conditions should be considered:

- porosity;
- particle shedding, which occurs chiefly when synthetic material is placed at mobile sites;
- biocompatibility: none of the available materials is ideal;
- the location of the implant, which plays a crucial role in the success of the procedure. Irrespective of biocompatibility, the risk of graft failure is high at body sites that have some degree of mobility. At the nose, the tip should be considered a mobile site where the implantation of synthetic material is best avoided.

D.4.2 Available implants

- metallic implants;
- polymers (silicone, polytetrafluoroethylenes, polyethylenes),
- human skin derivatives.

The ideal rhinoplasty implant is still being sought. The synthetic material should be selected only after considering all the options for autologous bone or cartilage grafting.

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The best indications for synthetic implants for rhinoplasty are the absence of options for harvesting autologous bone or cartilage, a risk of severe donor-site complications, or unwillingness of the well-informed patient to undergo graft harvesting. The task force recommends that preference be given to autologous grafts.

E. POSTOPERATIVE MANAGEMENT

The surgeon or the surgical team must provide continuity of care should postoperative complications develop.

E.1 DISCHARGE DOCUMENTS

As with all surgical procedures, the following documents should be given to the patient at discharge from the surgical facility:

- a discharge summary;
- a list of precautions to take during the postoperative period;
- a prescription for local care and systemic medications;
- an appointment for the first postoperative visit;
- and the name, address, and phone number of the person to contact in the event of a problem.

E.2 TIME TO OUTCOME EVALUATION

The functional outcome can be assessed after 3 months but continues to change thereafter.

Evaluation of the cosmetic result can start after 3 months. However, the cosmetic result can be considered stable only after 1 to 2 years. The patient must be informed of this timeframe.

E.3 TIME TO REVISION RHINOPLASTY

Revision rhinoplasty should not be considered until at least 1 year after the first procedure, except in a few specific situations such as mucosal adhesions or anterior septal dislocation (consensus among task force members).

E.4 COMPLICATIONS

Complications that may occur perioperatively or in the middle and long term should be explained in the information sheet that is given to the patient before the procedure.

F. SPECIFIC SITUATIONS

F.1 CLEFT LIP AND PALATE

Septorhinoplasty is performed when growth is complete, the face harmonious, and the skeleton and dental occlusion normal. The procedure is complex. Its objective is to correct the abnormal position of the dome and alar cartilages, the frequent residual asymmetry of the columella and vestibular skin edge, and the flattening of the nare. Reconstruction of the nare and vestibular skin rim is often needed in addition to correction of the bone and septal abnormalities, and upper lip revision may be required. Rhinoplasty should be performed only after the underlying bony defects, most notably the bony cleft, are repaired. Patients place great expectations in this final surgical procedure, which they believe will allow them to lead a normal social life. Nevertheless, many patients request further cosmetic procedures, such as liposuction of the lip.

F.2 TRANSSEXUALISM

In transsexual males, rhinoplasty may be performed as part of the overall program of feminization, which should be developed with the patient and a specialized team of psychiatrists and other physicians.

CONCLUSION / FUTURE PROSPECTS

Overall, these recommendations about cosmetic and functional rhinoplasty reflect apparently contradictory changes in practices. On the one hand, surgical techniques have evolved with the goal of preserving a natural appearance and unimpaired breathing. The postoperative course is simpler and the short- and long-term results can be predicted with greater accuracy, as the surgeons strive to build an anatomically complete nose. On the other hand, the social, cultural, and legal environment has become more complex and more burdensome. The privileged relationship between the physician and patient is moving toward a contract-based relationship that is subject to consumer regulations.

Although the administrative requirements can be largely met within a standardized framework, the semiological and psychological evaluation of each individual patient is at the core of the physician-patient visits. An abundance of infographic and legal documents cannot compensate for inadequate attention to psychological or morpho-anatomic factors.

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Subjectivity often plays a crucial part. There is no direct correlation between the request for cosmetic surgery and the severity of the nasal deformity. In addition, the level of satisfaction with the surgical results often differs between the surgeon and the patient. Unfortunately, it is the patient's subjective perception of the result that will govern the risk of litigation. Therefore, careful attention should be directed to dissatisfaction expressed by the patient.

However, the importance of these potential negative perceptions should not be exaggerated: the overwhelming majority of patients are pleased with their decision to undergo rhinoplasty.

The quality of the work done to prepare the procedure is as important as the quality of the procedure itself. The decision to perform rhinoplasty cannot be taken until the patient is made aware of the morpho-anatomic, technical, and psychological components of the procedure. Reasonable expectations should be clearly outlined.

Rhinoplasty should never be performed as an emergency procedure. Multiple visits are not a waste of time: they are needed to unravel the morphological, emotional, and functional issues.

The infography tools that have become available recently improve communication and understanding between the patient and surgeon. They should be used for objective communication, not as tools for supporting narcissistic tendencies in the patient or surgeon.

METHODOLOGY

The recommendations were graded A, B, or C, as follows:

- Grade A: recommendation based on studies producing high-level evidence;
- Grade B: recommendation based on studies producing intermediate-level evidence;
- Grade C: recommendation based on studies producing low-level evidence;
- When no grade is indicated, the recommendation is based on expert opinion (consensus developed during the task force meetings).

This grading system is intended to clarify the bases for the recommendations. When no proof is available, every effort should be made to conduct further studies. However, the absence of proof does not mean that a recommendation is irrelevant or unhelpful (e.g., no proof is available for mastectomy in breast cancer or antibiotic therapy in tonsillitis).

The Task Force used the guide for reviewing the literature and grading recommendations issued in January 2000 by the ANAES (French Agency for Accreditation and Evaluation in Healthcare) to evaluate the level of proof supplied by the literature on rhinoplasty, based on the criteria below:

| Level of proof supplied by the literature | Grade of the recommendation |
|--|---|
| <p>Level 1 Randomized controlled trials with high statistical power Meta-analysis of randomized controlled trials Decision analysis based on well-conducted studies</p> | <p>Grade A Definitive scientific proof</p> |
| <p>Level 2 Randomized controlled trials with low statistical power Well-conducted non-randomized comparative trials Cohort studies</p> | <p>Grade B Scientific presumption</p> |
| <p>Level 3 Case-control studies Comparison with historical controls</p> | <p>Grade C Low level of scientific proof</p> |
| <p>Level 4 Comparative studies with major sources of bias Retrospective studies Case-series Descriptive epidemiological studies (cross-sectional, longitudinal)</p> | |