

Surgical Treatment of the Twisted Nose



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KEYWORDS

• Rhinoplasty • Twisted nose • Crooked nose • Osteotomies • Septoplasty • Realignment

KEY POINTS

- Key in the surgical procedure is that all structures of the nasal skeleton need to be dissected free, mobilized, repositioned, and stabilized.
- Important surgical steps are intermediate osteotomies on the contralateral side of the deviation for the upper nasal third.
- Important surgical steps include, for the mid nasal third, a unilateral spreader graft or splint on the nondeviated side, and for the lower nasal third, fixation of the caudal septum to the anterior nasal spine.



Videos of the steps in the correction of the twisted nose accompany this article at <http://www.plasticsurgery.theclinics.com/>

INTRODUCTION

The nasal septum plays an essential role in the twisted nose. Cottle's dictum, "as the nasal septum goes, so goes the nose," is true and implies that a successful correction of a crooked nose starts with accurate septoplasty. Isolated cartilaginous deviations, including the nasal septum and upper lateral cartilages (ULCs), are rare, and in most cases, the nasal bones are involved in the deformity with a need for additional osteotomies. Usually, the deformity is caused by nasal trauma; sometimes, however, the cause is unknown.

Typically on the ipsilateral side of the deviation, the twisted nose has a shorter and steeper bony and cartilaginous nasal sidewall. On the contralateral side of the deviation, the nasal bone usually is longer and has a more gradual angle with the cheek area; this has important implications for the osteotomies, which should be performed in an asymmetric manner. Because the ULC and nasal septum form a T-bar, if the middle nasal vault appears to be deviated, then by definition the dorsal septum is also deviated. In contrast,

the basal part of the nasal septum is usually deviated to the contralateral side with or without a deviation of the premaxilla and anterior nasal spine. Therefore, both sides of the nasal airway can be blocked partially or completely in patients with a twisted nose. These patients have a functional and esthetic problem of the nose.

The nasal septum, ULCs, and nasal bones should be brought into midline in order to straighten a twisted nose. Therefore, all structures of the nasal skeleton need to be dissected free, mobilized, repositioned, and stabilized.¹ Because the upper and middle third of the twisted nose are asymmetric, the right and left side of the nose require a different surgical technique. In most cases, the open, or external approach, provides the best exposure to the anatomic regions in the nose for optimal reconstruction.

TREATMENT GOALS AND PLANNED OUTCOMES

The goal of surgery is to realign the bony and cartilaginous nasal skeleton in order to create

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symmetry in the face and to restore nasal patency. Despite the highest personal effort of the surgeon, the patient should understand that a perfectly straight nose is not always possible due to nonsurgical factors. These factors include other asymmetries of the face, wound healing, scar tissue or stresses, trauma in the postoperative phase, and so on.

PREOPERATIVE PLANNING AND PREPARATION

A standardized rhinoplasty protocol is essential for a successful outcome. This protocol includes standardized preoperative documentation using an assessment and surgical rhinoplasty sheet. The medical history should be reported including the use of medication. Medication that can influence blood coagulation should be stopped before surgery. Inhalation allergies should be tested and treated as needed with antihistamines and nasal corticosteroids. Inspection of the nasal airway using an endoscope might be required in selected cases. Standardized preoperative rhinoplasty photographs (frontal, oblique, lateral, basal, and bird's eye view) should always be performed and documented. Sometimes 3dimensional imaging or computer-simulated imaging is helpful in the communication with the patient. In all cases, a written informed consent with all possible side effects of the surgery and postoperative period should be given and signed by the patient.

PATIENT POSITIONING

The patient is preferably placed supine into slight reverse Trendelenburg position because this position reduces bleeding. Surgery is usually performed under general anesthesia in combination with a local infiltration anesthetic and topical application of 200 mg of cocaine in order to promote vasoconstriction and prevent bleeding. The local anesthetic should be given at least 10 minutes before starting surgery.

PROCEDURAL APPROACH

Surgical correction of the twisted nose can be divided into 4 steps:

1. External approach rhinoplasty
 - a. Full dissection of the nasal skeleton (Videos 1 and 2)
 - b. Releasing the mucoperichondrium on both sides of the nasal septum (Video 3)
 - c. Separation of the ULCs from the nasal septum
2. Osteotomies
 - a. Endonasal or percutaneous micro-osteotomies: on both sides (medial, lateral, and oblique; Video 4)
 - b. Intermediate osteotomies: on the contralateral side of the deviation because the nasal bone usually is longer on this side. Intermediate osteotomies can also be applied in patients with a complex post-traumatic fracture pattern of the nasal bones. The intermediate osteotomies should be performed before the lateral and oblique osteotomies.
 - c. Percutaneous root (frontal beak) osteotomies in severe cases
3. Septoplasty and realignment of the middle nasal vault
 - a. An L-strut is created of the nasal septum with a dorsal and caudal part of approximately 1.5 cm (Video 5)
 - b. The premaxilla and anterior nasal spine are mobilized and realigned in cases where there is deviation from the midline
 - c. Partial thickness scoring is performed of the dorsal and caudal part of the L-strut. The scoring is performed on the concave side to relieve intrinsic binding forces.
 - d. The dorsal or caudal part of the septum is splinted with a strong cartilaginous or bony (with predrilled holes) batten or spreader graft. In order to create symmetry, this is performed on the contralateral side of the deviation. Depending on the amount of deviation and asymmetry, bilateral or asymmetric spreader grafts are applied (Videos 6 and 7).
 - e. Dissolvable polydioxanone (PDS) plate can be used to restore the L-strut in the case of multiple fractures of the cartilaginous and bony nasal septum. A PDS plate (0.15 mm) can act as a temporary template for suturing and stabilizing cartilage pieces² (Video 8).
 - f. The caudal part of the septum is secured to the anterior nasal spine through a predrilled hole with a (semi) permanent suture (Video 9).
 - g. The ULCs are stabilized and fixed to the straightened L-strut using mattress sutures.
 - h. Septal mattress sutures are applied to prevent dead space and septal hematoma.
 - i. Extracorporeal septoplasty can be performed in severe deviations. The nasal septum can be scored and splinted with cartilaginous or bony battens on the table and reinserted in between the mucoperichondrium layers. Securing the septum to the dorsum is critical to prevent subsequent

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