

Plastic surgery combined with orthodontic and orthognathic procedures

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In contemporary orthognathic surgery, correcting the functional aspects of dentofacial deformities is our main focus, but, if the esthetic outcome is not improved, we often face serious patient dissatisfaction. Many adjunctive soft tissue procedures can be used to either enhance the esthetics of orthognathic surgical cases or overcome the deleterious effects of our surgi-

cal procedures. Procedures that we include in our orthognathic treatment planning regimen include rhinoplasty, submental liposuction, malar augmentation, and lip lift and augmentation, but the most common procedure performed simultaneously with orthognathic surgery is rhinoplasty.

Indications and advantages of combining rhinoplasty with orthognathic surgery include the following:

1. Some types of orthognathic surgical procedures produce deleterious side effects. For example, maxillary impaction or advancement widens the nasal base, increases nasal tip projection, rotates the nasal tip, shortens the upper lip, and deepens the supratip depression.
2. If rhinoplastic change is indicated or desired, only 1 surgery is needed instead of 2. Combining the

procedures means less total anesthesia and less expense to the patient.

There are advantages and disadvantages to simultaneous rhinoplasty and orthognathic surgery. The most commonly cited disadvantages of combined jaw surgery and rhinoplasty include potential airway compromise, intraoperative endotracheal tube management, potential inability to treat subtle nasal problems secondary to intraoperative edema, performing rhinoplasty on an “unstable foundation,” and the patient’s lack of appreciation of nasal deformities.

Because of unfamiliarity with the combined procedure, rhinoplasty, if considered, is often recommended as a secondary, or staged, procedure. However, 80% of the patients polled after simultaneous rhinoplasty and jaw surgery said that they would never have had the rhinoplasty done as a staged procedure.¹ We therefore believe that, even with the potential disadvantages of the combined procedures, the benefits far outweigh the disadvantages.

The most important component of simultaneous rhinoplasty and orthognathic surgery is the use of rigid fixation. Obviously, if maxillomandibular fixation is used, a simultaneous operation on the nose is impossible. With rigid fixation, the anesthesia is placed nasally for maxillary and mandibular surgery, and then is converted to an oral tube for the rhinoplasty. This tube conversion can be effectively performed without extubating the patient, a procedure we call “flipping the tube.” In this technique, the orthognathic procedures are performed first by using nasotracheal intubation. Once the rigid fixation of the jaws is in place, the nasal tube is clipped at the nasal entrance, and the surgeon reaches into the pharynx, grasps the anesthesia tubing, and pulls it out of the nose into the oral cavity. The main anesthesia tube is then reattached to the oral intubation. In our experience, this whole procedure takes less than 30 seconds. The surgeon can then turn his or her attention to the rhinoplasty or other adjunctive soft tissue procedure, which is performed last. In cases of mandibular surgery and rhinoplasty, we believe that there is no contraindication to simultaneous rhinoplasty, because the nose is not affected by any

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Fig 1. Patient had long lower facial height and extreme lip incompetence, secondary to vertical maxillary excess but exacerbated by very short philtrum. Gingival display on smile was of particular concern to patient.

postoperative edema or skeletal movement. Therefore, rhinoplasty with mandibular osteotomy should be considered an esthetic procedure, unless there is a functional issue such as septal deviation.

An excellent illustration of incorporating adjunctive soft tissue procedures into the treatment of dentofacial deformities is shown in Figure 1. This patient was referred for surgical treatment of her anterior open bite and long face deformity. She was particularly concerned about her excessive 6 mm gingival display on smile. Gummy smiles can be a result of² (1) vertical maxillary excess, (2) short crown height, (3) short philtrum height, (4) excessive smile curtain, or (5) detorqued maxillary incisors. This patient had a long lower facial third, consistent with vertical maxillary excess. Crown heights were normal, and the entire maxillary incisor was displayed at rest. She had a short philtrum relative to the commissure heights, and the long lower facial height and the short philtrum resulted in extreme lip incompetence of 15 mm. The profile was convex, with a shallow radix and a prominent dorsal hump to the nose. The mandible was underprojected relative to the upper face, resulting in a short chin-neck length.

After orthodontic preparation, the surgical plan was designed to impact the maxilla 4 mm and advance it 4 mm. The patient's gingival display of 6 mm would be corrected with an additional 2 mm lengthening of the upper lip after V-Y cheiloplasty in conjunction with



Fig 2. Combining rhinoplasty and maxillary osteotomy “deskeletonizes” base of nose, permitting V-Y cheiloplasty to effectively lengthen the philtrum. Here, LeFort I incision is cross-sutured to increase philtral height.

rhinoplasty. The advantage of combining rhinoplasty and maxillary osteotomy is that rhinoplasty “deskeletonizes” the base of the nose, permitting V-Y cheiloplasty to effectively lengthen the philtrum. The LeFort I incision is cross-sutured to increase philtral height (Fig 2) and can result in greatly enhanced upper lip esthetics through lip lengthening. The orientation of the closure also diminishes the excessive curtain of the lip, and improves the resting lip anatomy. In addition to the maxillary osteotomy, the mandible was also advanced 4 mm. Advancing both jaws maintains the dental occlusion and provides even greater lower facial projection, greater chin-neck length, and more soft tissue support



Fig 3. Final outcome showed reduced lower facial height and improved upper lip esthetics with improved philtrum height. Note refinement of nasal tip and reduction in gingival display.

and fullness; this is desirable in anticipation of the aging changes in the next decade. The chin was moved forward 3 mm and superiorly 3 mm via inferior border osteotomy to reduce the lower facial height, help improve lip strain, and balance the lower lip to the chin. The final outcome (Fig 3) showed a great improvement in facial proportions. Total lip competence was not achieved, but this was not surprising considering the extreme lip incompetence before treatment. The gingival display and smile arc characteristics were excellent, as was the appearance of the nose.

Since 1985, we have incorporated the talents of facial plastic surgeons into the orthognathic teams of orthodontists and oral and maxillofacial surgeons. The

mutual understanding of what each discipline has to offer the patient in attaining remarkable functional and esthetic results has been critical in treatment plan design. The coordination and timing of care require excellent communication and cooperation among all team members. The learning curve for this level of esthetic surgery requires time and commitment but, without question, is well worth the effort.

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