



# Overview of Facial Cosmetic Surgery

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## ABSTRACT

Dentists routinely refer patients to oral and maxillofacial surgeons for dentoalveolar surgery, however few of these dentists are fully informed as to the full scope of surgical practice. Appropriately trained oral and maxillofacial surgeons may also offer cosmetic facial surgery to their patients under certain circumstances. This paper will provide an overview of cosmetic facial surgery.

The specialties of oral and maxillofacial surgery and plastic surgery share common origins. The first plastic surgery organization in the world was formed at the Chicago Athletic Club in 1921, and was called the American Association of Oral and Maxillofacial Surgeons. Of the 20 founding members, 18 had both MD and DDS degrees.<sup>1</sup>

In 1926, the name changed to the American Association of Oral and Plastic Surgeons, and the requirement for a dental degree was dropped. They subsequently became the American Association of Plastic Surgeons in 1941. A subgroup of these members created a new organization in 1947 called the American Society of Maxillofacial Surgeons, including members with both MD and DDS degrees once more, and focusing their interest on maxillofacial surgery.<sup>1</sup>

Oral and maxillofacial surgery as defined by the American Dental Association includes the diagnosis, surgical and adjunctive treatment of diseases, injuries and defects involving both the functional and esthetic aspects of the hard and soft tissues of the oral and maxillofacial regions.<sup>1</sup>

Oral and maxillofacial surgeons have long been involved in changing or improving people's skeletal features through orthognathic surgery, reconstructive surgery, and repair of facial fractures.<sup>2</sup> While many of these surgeries are carried out through small intra-

oral incisions, others require incisions to be made in visible areas of the face.

Additionally, because changes of the facial skeleton have corresponding soft tissue changes, oral and maxillofacial surgeons are keenly aware that an esthetic result can only be achieved if attention is paid to both of these factors. It is, therefore, a natural progression to extend this expertise into cosmetic surgery procedures.

Most oral and maxillofacial surgery residencies now teach esthetic surgery of the face as part of their curriculum.<sup>3</sup> Today, candidates for certification by the American Board of Oral and Maxillofacial Surgery are examined on the evaluation, diagnosis, and treatment of the patient with cosmetic concerns. Additional, concentrated training, is also available at several post-residency fellowship programs.

Cosmetic facial surgery can be grouped into three categories: soft tissue, osteocartilagenous, and minimally invasive procedures. Soft tissue procedures include blepharoplasty (eyelid surgery), rhytidectomy (facelift), browlift, submental lipectomy (liposuction) and deep chemical peels or laser skin resurfacing.<sup>4</sup>



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**Figure 1.** Preop upper and lower lids.



**Figure 1b.** Postop upper and lower lid blepharoplasty.



**Figures 2a and b.** Premandibular/chin advancement and submental liposuction.



**Figures 2c and d.** Postmandibular/chin advancement and submental liposuction

Osteocartilagenous procedures include rhinoplasty, otoplasty, cheek implants, and chin implants or sliding genioplasty. These surgeries may be performed independently or in conjunction with orthognathic surgery.<sup>5</sup>

Minimally invasive procedures include botulinum toxin injection of the muscles of facial expression, lip augmentation, treatment of deep smile lines or prominent nasolabial folds with various tissue fillers or autologous fat injections, light to medium facial peels and photofacials.

### Soft Tissue Procedures

In the aging face, the eyelid skin becomes less elastic and tends to form excessive folds on the upper lid. The orbicularis oculi muscle also become weakened, allowing the orbital fat to herniate through it. This gives the appearance of “bags” under the eye.

Blepharoplasty is the surgical rejuvenation of the upper and lower eyelids. This procedure entails the removal of excess skin and orbicularis oculi muscle, and either repositioning or removing a portion of the fat pads (Figure 1). In order to avoid a gaunt, skeletized look, less fat removal and more superior repositioning may be indicated.

Endoscopic browlift is the procedure whereby the forehead skin and brows are elevated through three to five small scalp incisions, using a camera to visualize the underlying structures. This is a procedure most often recommended with an upper blepharoplasty, thereby minimizing the amount of skin removal necessary to obtain a refreshed look of the eyes. An open coronal approach can also be used to elevate the brow and resect the corrugators and procerus muscles.

Rhytidectomy or facelifting procedures are more extensive rejuvenation surgeries, involving the use of a surgical incision extending from the temporal region anterior to the ear, to the post-

auricular area curving around the earlobe. There are multiple schools of thought as to which flaps are more successful, and this usually correlates with the invasiveness of the procedure. These surgeries can be quite extensive and have known complications including blood loss, facial nerve injury and scarring.

Submental lipectomy involves the reshaping of the mentocervical angle. It can be used in conjunction with orthognathic surgery in more severe Class II or Class III skeletal deformity patients.<sup>5</sup> In severe Class II skeletal patients, this procedure can be used to further achieve a more esthetic mentocervical angle (see Figure 2). In a severe Class III mandibular hyperplastic patient, when doing a mandibular setback, the mentocervical angle can become less defined and a lipectomy may be necessary to avoid compromising this esthetic unit. A small submental incision and two additional postauricular incisions are used to insert a liposuction microcanula. Removal of lobules of fat is achieved through a suctioning and vacuuming technique. This procedure can also be performed as an isolated surgery in an office setting.

Laser skin resurfacing is achieved with either the CO<sub>2</sub> laser, Erbium-YAG laser or a combination of both. Skin resurfacing removes the top layer of the skin and allows a new layer of skin to develop. This improves appearance of sun-damaged skin, smoothes out rhytids (wrinkles), improves mild scarring, destroys epidermal lesions (e.g. actinic keratosis and lentigines), ameliorates underlying skin diseases (e.g. acne and rosacea) and blends the effects of other resurfacing procedures.

Chemical peels and dermabrasions have been used in the past to achieve the same results that laser resurfacing does today. There may still be some indications for these procedures in certain patients. There are different types of peels available, depending on the



**Figures 3a and b.** Premandibular setback, chin reduction and rhinoplasty.



**Figures 3c and d.** Postsetback of mandible, chin reduction and rhinoplasty.

degree of penetration into the skin layers. They are divided into light, medium and deep skin peels, with the deep peels being equivalent to the laser resurfacing. Dermabrasion is still very effective in smoothing out severe acne scars.

### Osteocartilagenous Procedures

Rhinoplasty is one of the most popular procedures performed on the facial skeleton. It can be as simple as reducing a prominent dorsal hump or as complicated as reconstructing a cleft nose. The most common procedures performed to reshape the nose are dorsal hump reduction, refining and/or rotating of the nasal tip and narrowing of the base

of the nose (Figure 3). Septoplasty, along with rhinoplasty is sometimes indicated in straightening of the severely deviated nose. Surgery on the nose can be performed separately or concurrent to an orthognathic procedure.<sup>5</sup>

Otoplasty entails the correction of the floppy ear by removing part of the conchal bowl and reconstruction of the antihelix. This surgery can be done on patients as young as 5- to 6-years old, prior to entering first grade, to help avoid developing a stigma from constant teasing from other children.

Cheek implants can be used to augment mid-face deficiencies in patients who are unwilling to undergo ortho-

dontics and/or a maxillary osteotomy to correct their skeletal discrepancy. They can also be used in conjunction with maxillary osteotomy to achieve a fuller mid-face in those patients with severe mid-face deficiencies, as those encountered in certain syndromes.

Chin implants vs. sliding genioplasty has always been a hot topic of controversy.<sup>6,7</sup> With a sliding genioplasty, one can achieve a 3-dimensional movement of the chin, rather than just the single forward movement obtained with a chin implant.<sup>6,8,9</sup> The patient in **Figure 2** had a mandibular deficiency which was treated with a mandibular advancement and advancement genioplasty. The patient in **Figure 3** had a mandibular hyperplasia in a horizontal



**Figures 4a.** Pre-Botox injections forehead.



**Figure 4b.** Post-Botox injections forehead.

and vertical dimension. She was treated with a mandibular setback and a reduction genioplasty. Occasionally, a patient with severe mandibular micrognathia may require a mandibular osteotomy with forward movement,

advancement genioplasty and later a chin implant.

#### Minimally Invasive Procedures

In light of the FDA approval of new products like Botox Cosmetic, Restylane



**Figure 5a.** Pre-implant surgery.



**Figure 5b.** Post-implant surgery/pre-Restylane.



**Figure 5c.** Post-Restylane nasolabial fold and lip

and other collagen fillers, there has been a change toward these less invasive types of procedures being performed. This also has been attributed to patient unwillingness to take weeks off of work to heal.

More patients are interested in doing “preventative” cosmetic surgery, rather than large overhauls. The more common of these are used to temporarily freeze movement of the muscles of facial expression with botulinum toxin (Botox Cosmetic, **Figure 4**).<sup>10</sup> Various tissue fillers (i.e. Restylane and collagen) are used to restore lost volume in the face, and plump up deep nasolabial folds, smile lines and marionette lines in the corner of the lips (**Figure 5**), as well as augment thin lips (**Figure 6**).

Another emerging method to stimulate collagen production, minimize fine wrinkles, as well as improve the sun-damaged skin is the photofacial therapy. This non-invasive procedure involves the use of intense pulse light (IPL) and results are more permanent than those obtained with just Botox and tissue fillers.<sup>11</sup> The IPL treatment can also be used to treat telangiectasias (broken capillaries) of the face, rosacea (a common dermatological condition of the face) and rhinophyma (red, thick-skinned nose), as well as remove unwanted hair.

## Summary

There is a great amount of emphasis on appearance these days. Hollywood continues to be a major source of obses-



**Figure 6a.** Pre-Restylane lip augmentation.



**Figure 6b.** Post-Restylane lip augmentation.

sion with appearance. Patients always wanted to look like the movie stars they see on TV or on the big screen, but until recently, the “average Joe” most likely stayed the “average Joe.” With the advent of television programs such as “Extreme Makeover” and “The Swan,” the public is now aware of what it takes to make them beautiful and youthful looking and may seek the advice of their dentist. Consequently, it is important for dentists to inform their patients of the dental and surgical procedures available to address their esthetic concerns. CDA

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