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AUGMENTATION OF THE MALAR-SUBMALAR/MIDFACE

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Today's higher professional standards and greater patient expectations of aesthetic facial enhancement demand that the contemporary facial plastic surgeon provide a thorough understanding of midface adjunctive techniques. The configuration of the midface and its relationship to the remaining facial anatomy will be addressed in this article.

Health and fitness have also brought a renewed enthusiasm for the ideals of physical beauty. Modern hallmarks of beauty are distinguished by bold facial contours that are accented by youthful malar-midface configurations and a sharp, well-defined jawline. These ideal principles of beauty have stimulated revolutionary changes in aesthetic surgery. The primary goal of midfacial contouring is to produce a natural-appearing beauty by maintaining or restoring youthful qualities by enhancing structure.

Despite the variables in facial features of size, shape, position, and coloration, the most important component of beauty is determined by the major architectural promontories of the facial skeleton. The configurations of the nose, malar-midface area, and the mandible-jawline create the fundamental proportions and contours.

Diminution or enlargement of any of the three promontories effects the aesthetic importance of the others in both direct and inverse ways. Reduction of the nasal prominence causes both the malar-midface and the mandibular-jawline volume and projection to appear relatively more significant. Accentuating the malar-midface area diminishes the effect of the nose and chin. Conversely, enhancement of the mandibular or malar-midface volumes makes the nose appear smaller and less imposing. By altering the volumetric relationships of the skeletal structures, the surgeon can create or restore facial harmony, balance, and beauty; and simultaneous changes in more than one anatomic area will have significantly greater impact than when only one area is altered (Fig. 1). Secondary promontories such as the supraorbital ridge, the temporal mound, and the premaxilla are also subtleties in contour that must be considered.

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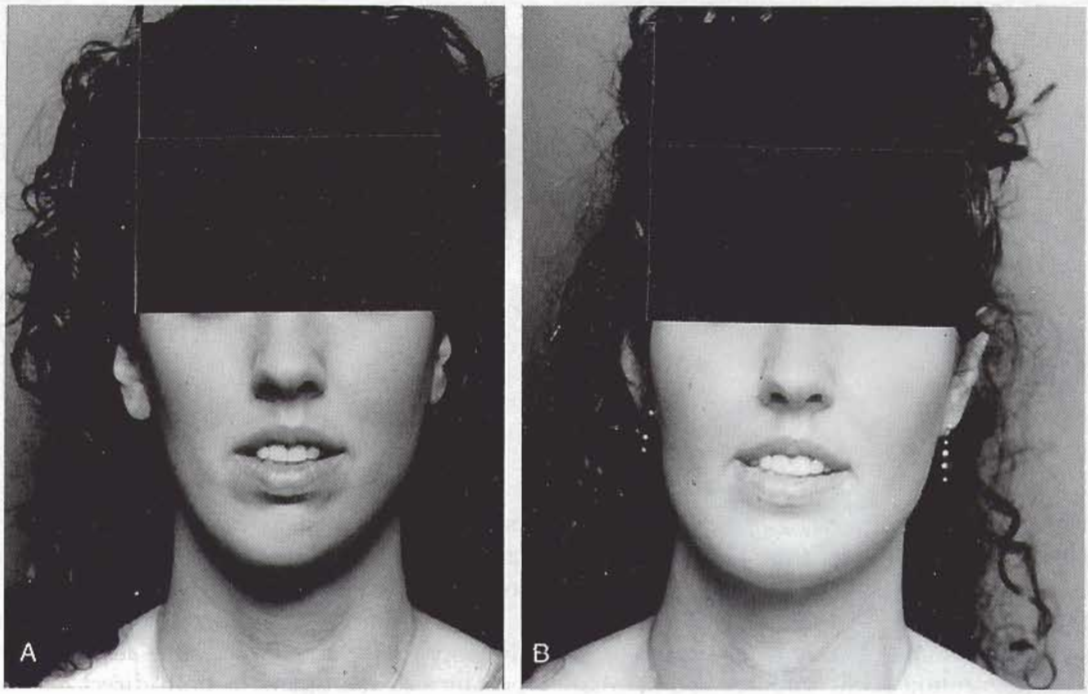

Figure 1. A 32-year-old woman showing the results of facial contouring. Correction of facial balance by altering all three major promontories: rhinoplasty, malar, and premalar alloplastic augmentation.

It is important to analyze youthful faces before performing augmentation procedures for the purpose of facial rejuvenation. Those in their teens and early 20s have an abundance of soft tissue, providing a homogenous composite of facial form. Full cheeks with smooth, harmonious, and symmetrical contours that are free of sharp irregular projections or indentations commonly embody these youthful qualities.[7] Facial architectural structures or defects become progressively more prominent as the subcutaneous tissue camouflage decreases with the normal aging process. In certain degenerative disorders such as lipodystrophy, the underlying fixed facial architecture becomes acutely obvious. To a lesser degree, loss of midface subcutaneous tissue can occur with predetermined genetic characteristics and will provide different degrees of disharmonious relationships. In many different forms most of the midfacial soft-tissue deficiencies found within the anatomic recess described as the submalar triangle (see the article by Tobias and Binder elsewhere in this issue) can be demonstrated with the benefit of CT and MR imaging evaluation.

PREOPERATIVE ANALYSIS FOR FACIAL CONTOURING

Facial contouring means quite literally changing the shape and architecture of the face. Augmentation of the facial skeleton with silicone elastomer or other alloplastic implants changes the deepest (skeletal) plane of the face with a three-dimensional modality. Incorporation of bony skeleton alteration techniques and combining these with modifications in the superficial planes of the skin, subcutaneous fat, and SMAS fascia (via rhytidectomy) further enhances the surgical result.

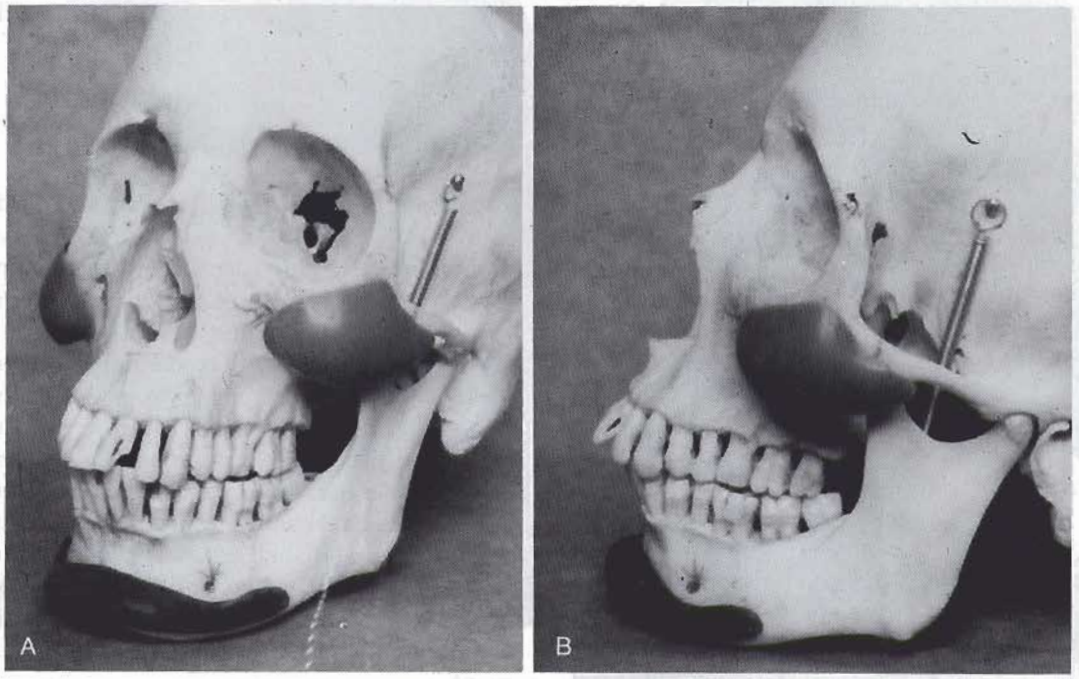

Figure 2. Alloplastic facial contouring by zonal principles of skeletal anatomy. Examples of contemporary anatomic design, malar shell, and premandibular silastic implants.

The three elements necessary to alter facial form are shape, size, and positioning. Different implant shapes and sizes change facial contours in very precise and controlled ways. However, correct analysis and identification of distinctive and recognizable configurations of midfacial deficiency are essential for choosing the optimal implant shape and size for obtaining the best overall result in facial contouring. Initial analysis of the ideal midface as described by Pendergast and Schoenrock describes some of the computerized analyses that can be used to determine possible changes in configuration of the midface.[10] Five zones of facial contouring as described by Terino provide a basis for determining midfacial implants on a skeletal level (Figs. 2 and 3). The five basic types of midface deformities described by Binder also provide a visual basis for choosing the best implant to correct specific contour defects (Table 1. See Figs. 5–9).[1a] Recognizing and properly analyzing these topographical zones and areas requiring augmentation are the first steps in obtaining good results in facial contouring procedures.

METHODS USED FOR CHOOSING MIDFACIAL IMPLANTS

Zonal Principles of Skeletal Anatomy

It is useful to conceptualize the malar-midface region into five distinct anatomic zones (see Fig. 3). Zone one, the largest area, includes the major portion of the malar bone and the first third of the zygomatic arch. Augmentation within this zone maximizes the projection of the maxillary eminence. It produces a high, sharp angular appearance (Fig. 4).

Zone two overlies the middle third of the zygomatic arch. Enhancement of this zone and of zone one accentuates the cheek bone laterally, producing a broader dimension to the upper third of the face. Zone three, the paranasal area, lies midway between the infraorbi-

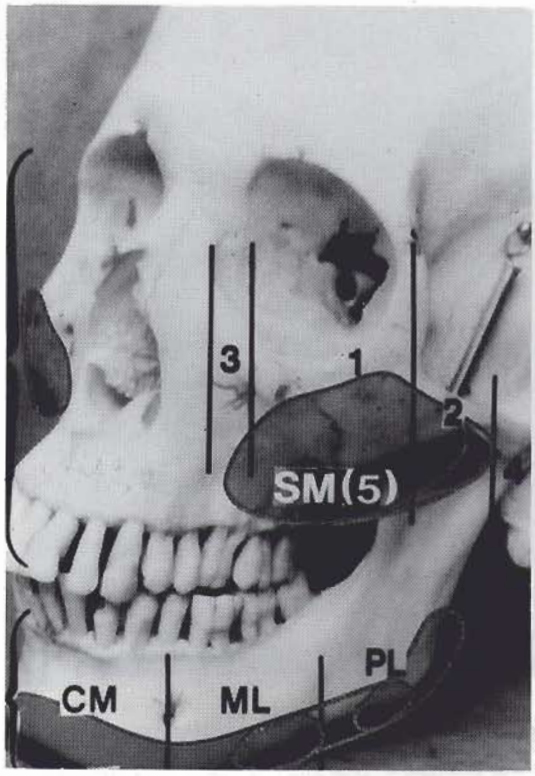

Figure 3. Alloplastic facial contouring by zonal principles of skeletal anatomy. The five zones of midfacial skeletal augmentation.

tal foramen and the nasal bone. A vertical line drawn from the infraorbital foramen marks the lateral border of zone three, which is the medial extent of the usual dissection done for malar augmentation. Augmentation of zone three, or the paranasal area, gives medial fullness to the infraorbital region. Since the skin and subcutaneous tissues are quite thin in this region, any implant placed in zone three must be perfectly sculptured and tapered.

Zone four overlies the posterior third of the zygomatic arch. Augmentation of this area produces an unnatural appearance, and in most cases is not indicated. Tissues overlying this zone are quite adherent to the bone, and dissection in this zone is dangerous, because the zygomaticus, temporal, and orbicularis occuli branches of the facial nerve pass superficially within the temporoparietal fascia over the zygomatic arch. Zone five is the submalar zone or submalar triangle.

Midfacial Contour Defects

In order to provide basic assessment guidelines, a topographical classification also serves as a reference to help correlate distinctive anatomic patterns of deformity with specific implants (Table 1). The first deformity (Type 1) occurs in a patient with good midfacial fullness, but insufficient malar skeletal development (Fig. 5). In this case, a malar implant would be desirable to augment the zygoma and create a higher, arched and more lateral projecting cheekbone appearance. Terino prefers the malar shell type of implant to augment this area. The shell concept provides a larger surface area to impart greater implant stability, which reduces rotation and displacement.

The second type of deformity (Type II) occurs in the patient who has atrophy of the midfacial soft tissues in the submalar area and adequate malar development (Fig. 6). In this case, submalar implants are used to augment or fill these depressions and/or provide anterior projection to a wide or flat face. A third type deformity (Type III) is a distinctive variant of Type II that occurs in a patient who has thin skin and prominent malar eminences. These characteristics combine to cause an abrupt transition to an area of extreme hollowness found within the submalar region (Fig. 7). This produces the impression of an exceptionally gaunt or skeletonized facial appearance. In this group of patients, the abrupt midfacial hollow may actually be exaggerated instead of remedied by rhytidectomy.

The fourth deformity (Type IV) is the result of combined malar hypoplasia and submalar soft-tissue deficiency, also described as the "volume deficient" face (Fig. 8).[1a] In this situation, a single combined malar-submalar implant must serve two purposes: it must proportionately augment a deficient skeletal structure and it must fill the void created by absent midfacial soft tissue. The fifth or "tear trough" deformity (Type V) is specifically limited to a deep groove that commonly

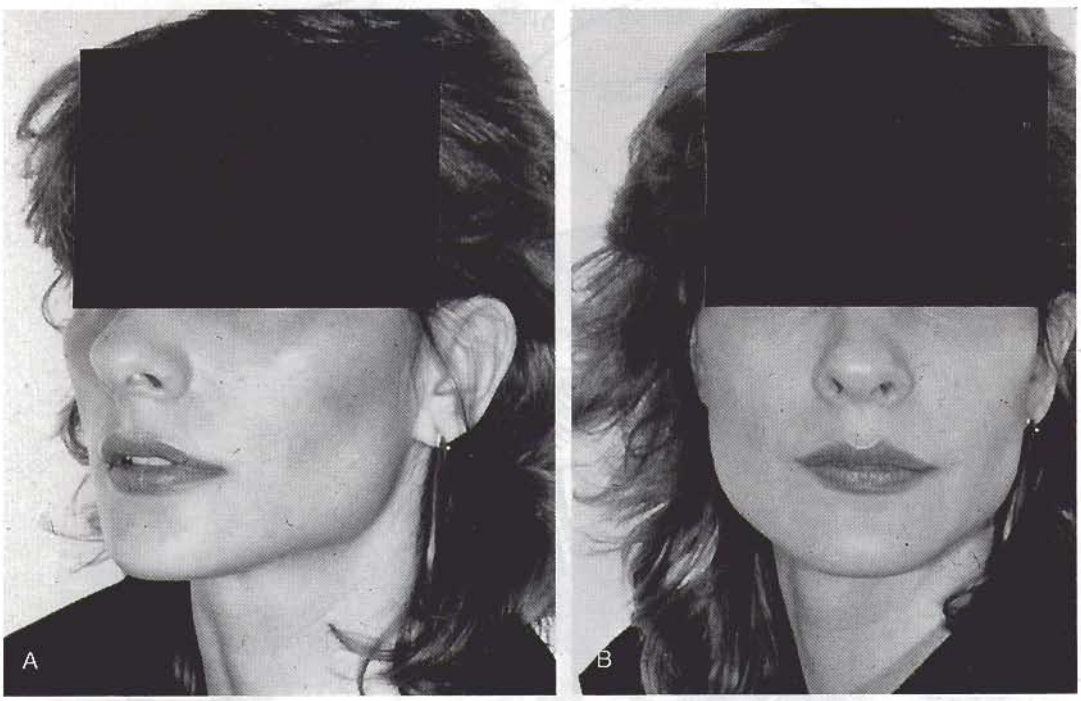

Figure 4. Postoperative views of a patient who wanted a high, sharp, angular cheek contour. This was produced by using a small anatomic implant placed high in zones one and two.

Table 1. PATTERNS OF MIDFACIAL DEFORMITIES CORRELATED WITH TYPE OF IMPLANT

Deformity Type	Description of Midfacial Deformity	Type of Augmentation Required	Type of Implant Used
Type I	Primary malar hypoplasia; adequate submalar soft tissue development	Requires projection over the malar eminence	Malar Implant: "shell-type" implant extends inferiorly into submalar space for more natural result
Type II	Submalar deficiency; adequate malar development	Requires anterior projection. Implant placed over face of maxilla or masseter tendon or both in submalar space. Also provides for midfacial fill	Submalar Implant
Type III	Extreme malar-zygomatic prominence; thin skin with abrupt transition to a severe submalar recess	Requires normal anatomic transition between malar and submalar regions; plus moderate augmentation around inferior aspect of zygoma.	Submalar Implant (generation II): more refined; U-shaped to fit within submalar space and around inferior border of prominent zygoma
Type IV	Both malar hypoplasia and submalar deficiency	Requires anterior and lateral projection; "volume replacement implant" for entire midface restructuring	"Combined" submalar-shell Implant; lateral (malar), and anterior (submalar) projection. Fills large midfacial void
Type V	Tear-trough deformity (infraorbital rim depression or recess)	Requires site-specific augmentation over infraorbital rim	Tear-trough Implant; to fit site-specific suborbital groove

From Binder WS: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231, 1993.

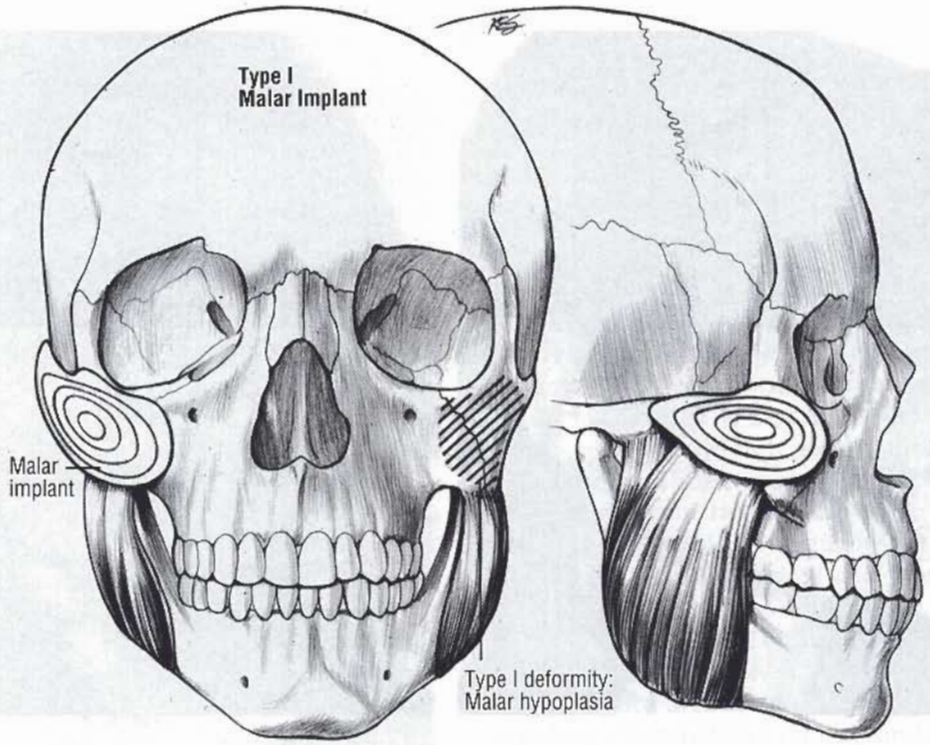

Figure 5. Type I midfacial deformity. (*From* Binder WJ: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

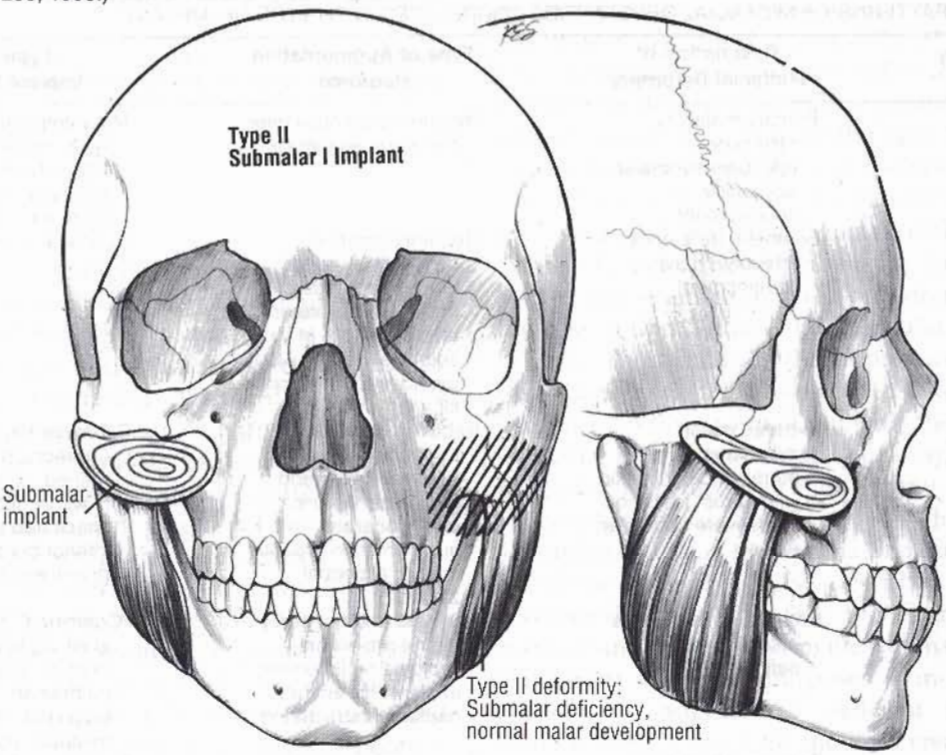

Figure 6. Type II midfacial deformity. (*From* Binder WJ: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

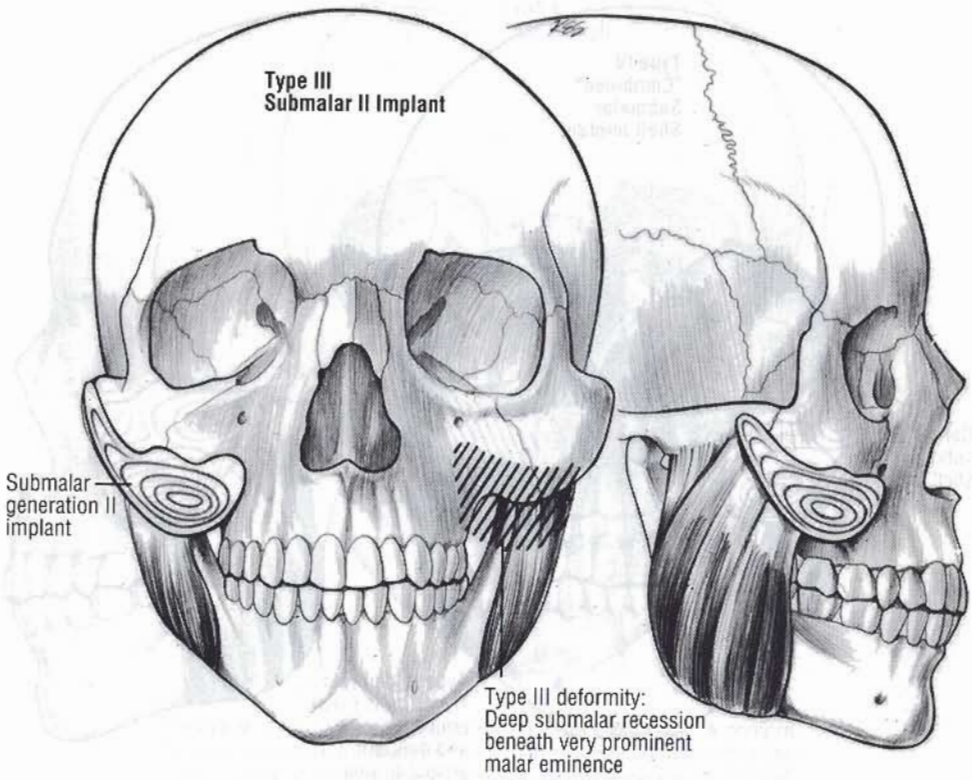

Figure 7. Type III midfacial deformity. (*From* Binder WJ: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

occurs at the junction of the thin eyelid and thicker cheek skin. In this deformity a pronounced nasojugal fold extends downward and laterally from the inner canthus of the eye across the infraorbital rim and the suborbital component of the malar bone (Fig. 9). Flowers has used a tear trough Silastic implant and Schoenrock a GORE-TEX implant to augment this region.[3,11]

Qualities of Ideal Facial Implants

Ideal facial implants should be easy to place, simulate normal tissue, be nonpalpable, readily exchangeable, malleable, conformable, inert, resistant to infection, and modifiable by the surgeon. Qualities of compressibility and malleability are important to provide the surgeon with the ability to insert implants onto bone through small apertures in the soft tissue envelope of the face.

The success of recently designed anatomic facial implants is based in large part on their anatomic conformability to the facial skeleton. The posterior surface of these implants molds more easily to the external contour of the underlying bone structure. Implants with larger surface areas will volumetrically fit the dimensions of the face more effectively and minimize malposition, migration, and displacement. The ability to modify the implants at the time of surgery also provides the surgeon the flexibility to improve results.

SURGICAL TECHNIQUES FOR MALAR-MIDFACE CONTOURING

After preliminary assessment, the breadth of possibilities in the expanding science of fa-

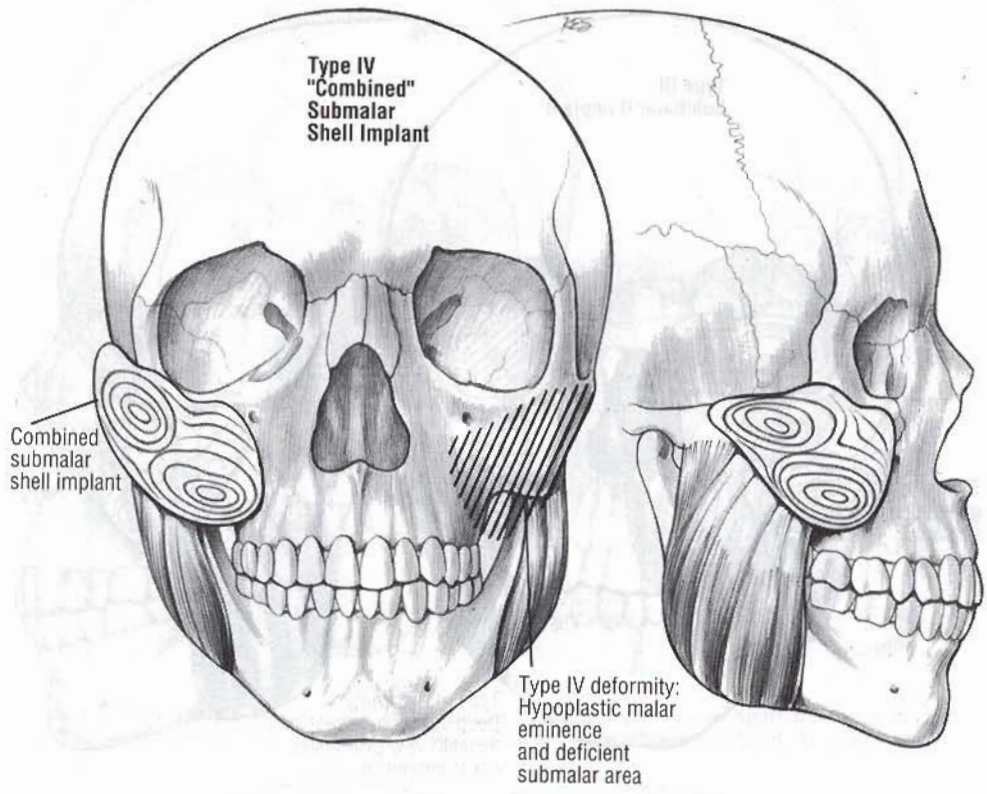

Figure 8. Type IV midfacial deformity. (*From* Binder WJ: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

cial contouring makes it essential that the surgeon and the patient understand precisely what is desired and what is possible. Terino asks his patients to bring numerous photographs of themselves and others, including models and actors, to help the surgeon and the patient see clearly what is desired. Another author, Schoenrock, simulates the various sizes of the implants using the aid of computer graphics. Although most patients have very specific details in mind about their facial contours, it is still important to uncover unrealistic expectations. It is always difficult for patients to anticipate totally how much skeletal augmentation in general will change their appearance. The possibility of patients having unrealistic expectations is greater if a thorough discussion is not conducted prior to the surgical procedure.

Considering the infinite variations of facial form, most analytic measurements used in determining aesthetic guidelines have been unreliable. By following the principles of skeletal zonal anatomy and by identifying the specific type of topographical anatomy or deformity, the surgeon will be able to determine the optimal course for correct implant selection and placement.

The safest level of dissection in the face is on bone where all anatomic landmarks such as foramina and the exiting nerves are familiar to the surgeon. In this subperiosteal plane, silicone elastomer implants become firmly secured and attached to the skeleton by capsular fibrosis, becoming stabilized usually within several days. Dissection to elevate the soft tissues also can be facilitated by adequate infiltration of diluted local anesthetic agents, whereby the tissues are separated easily without requiring force. The dissected compart-

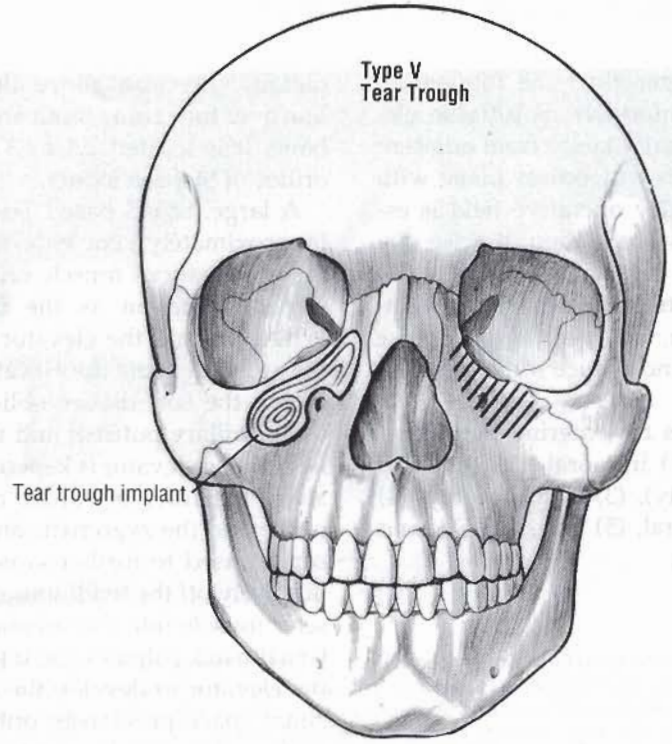

Figure 9. Type V midfacial deformity. (*From* Binder WJ: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

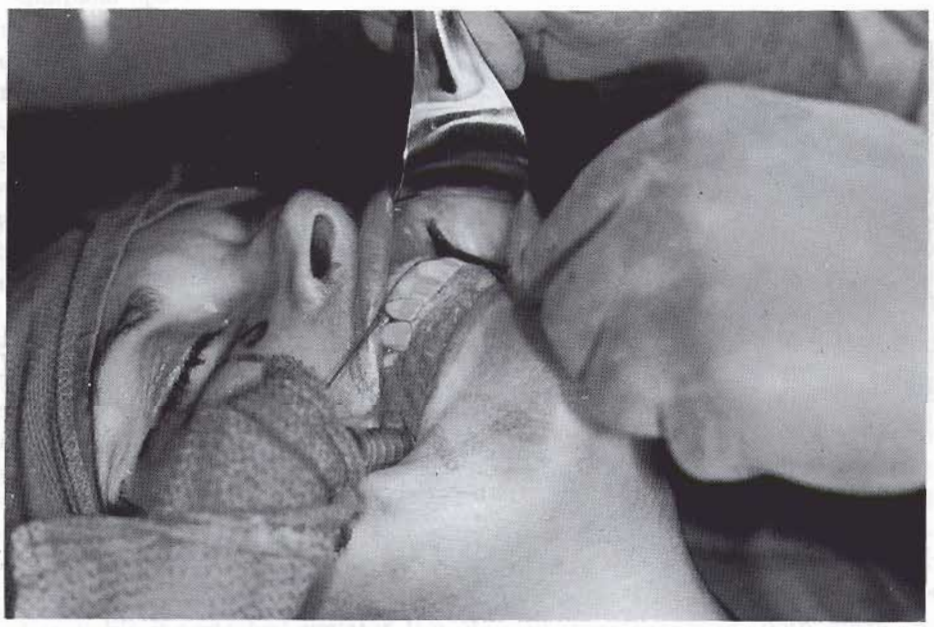

Figure 10. Malar augmentation through the intraoral route. After the incision is made, a sharp elevator is introduced vertically and thrust directly down onto bone.

ment should be larger than the implant to accommodate it comfortably. Soft-tissue elevation into the submalar space from adjacent bone is performed in a bloodless plane with blunt dissection. A dry operative field is essential for accurate visualization, precise dissection, and proper implant placement. The addition of hyaluronidase (Wydase, Wyeth-Ayerst, Philadelphia, PA) will also disperse the local anesthetic and reduce soft-tissue distortion.

The various routes for entering the malar-midface area are: (1) intraoral, (2) subcilary (lower blepharoplasty), (3) rhytidectomy, (4) zygomatic or temporal, (5) transcoronal, and (6) transconjunctival.

Intraoral Insertion

The intraoral route has become the most common approach used for malar-midface augmentation and is now the preferred route for most midfacial implants, with the exception of the tear trough implant. After infiltration of the anesthetic solution, a 1-cm incision is made through the mucosa in a vertical oblique direction above the buccal-gingival line over the canine tooth and carried down to bone. It is located 2.5 to 3 cm medial to the orifice of Stensen's duct.

A large, broad based Tessier-type elevator (approximately 1 cm wide) is directed through the zygomaticus muscle onto the bone in the same orientation as the incision (Fig. 10). While keeping the elevator directly on bone, the surgeon turns the elevator horizontally to sweep the soft tissues obliquely upward off the maxillary buttress and the maxillary eminence. The elevator is kept on the bony margin along the inferior border of the malar eminence and the zygomatic arch and, if desired, can be used to further sweep the soft tissues inferiorly off the tendinous origins of the masseter muscle into the submalar space. The external hand palpates the internal excursion of the elevator to develop the exact limits of the zonal space previously outlined on the skin surface (Fig. 11). For routine malar-submalar augmentation procedures no attempt is made to visualize or dissect within the vicinity of the infraorbital nerve, unless an implant is intended for this area. Frequent irrigation is performed with an antibiotic solution (Bacitracin 50,000 units per liter of normal saline). Intro-

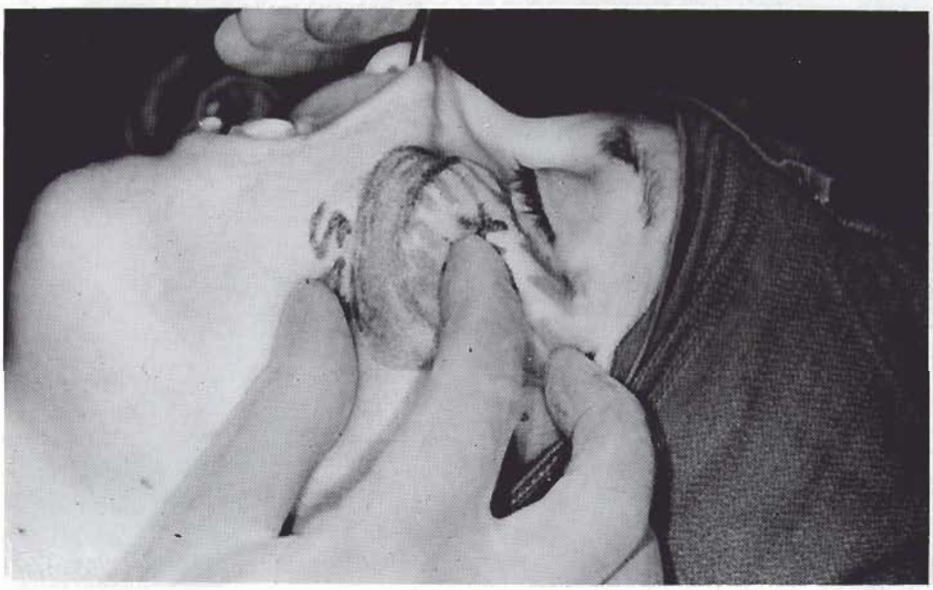

Figure 11. Malar augmentation through the intraoral route. The free hand (external to the skin) guides the elevator in the precise dissection over the specific anatomic zonal space.

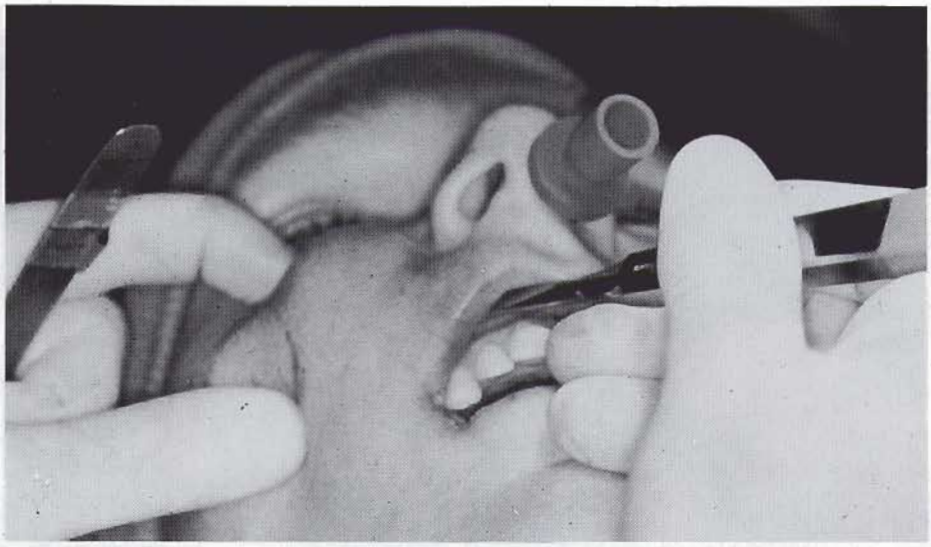

Figure 12. Using a broad periosteal elevator, the surgeon's free hand guides the dissection along the inferior border of the zygomatic body and arch and then is extended over the attached masseteric tendons and muscle. (*From* Binder WJ: A comprehensive approach for aesthetic contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

duction of the implant is accomplished by using a long, nonserrated clamp that can be retracted easily after the implant is placed.

The submalar space is created by elevating the soft tissues inferiorly over the tendinous attachments of the masseter muscle below the zygoma (Fig. 12). Once in the correct plane, one is able to discern by direct vision the glistening white tendinous fibers of the masseteric tendons. The submalar pocket is opened by gently and bluntly pushing the superficial tissues inferiorly and away from this deeper tendinous structure. It is important to note that these masseteric attachments are not cut and are left completely intact, providing a supporting framework upon which the implant may rest (Fig. 13). The submalar space may be extended inferomedially without difficulty for at least 2 to 3 cm. As the dissection moves posteriorly along the zygomatic arch, the space becomes tighter and is not as easily enlarged; however, this part of the space can be opened by gently advancing and elevating the tissues with a heavy, blunt periosteal elevator. It is of utmost importance that the dissection be extended sufficiently so that the implant fits within the pocket passively. A pocket that is too small will force the implant toward the opposite direction, causing implant displacement or extrusion. When the intraoral route is used for insertion final implant selection is completed while observing the actual topographical changes produced by placement of different implants or sizers into the pocket (Fig. 14).

Implant Positioning and Adjustment

The final determinant of implant placement must correspond to the external topographical defects outlined on the face preoperatively. For submalar augmentation, the implant may reside below the zygoma and zygomatic arch, over the masseter tendon or rest more superiorly on the bone, or it may overlay both bone and tendon. The larger shell-type malar implants reside primarily on bone in a more superior, lateral position and may extend partly into the submalar space. The combined implant will occupy both areas. Any implant placed in patients with noticeable facial asymmetry, thin skin or an extremely prominent

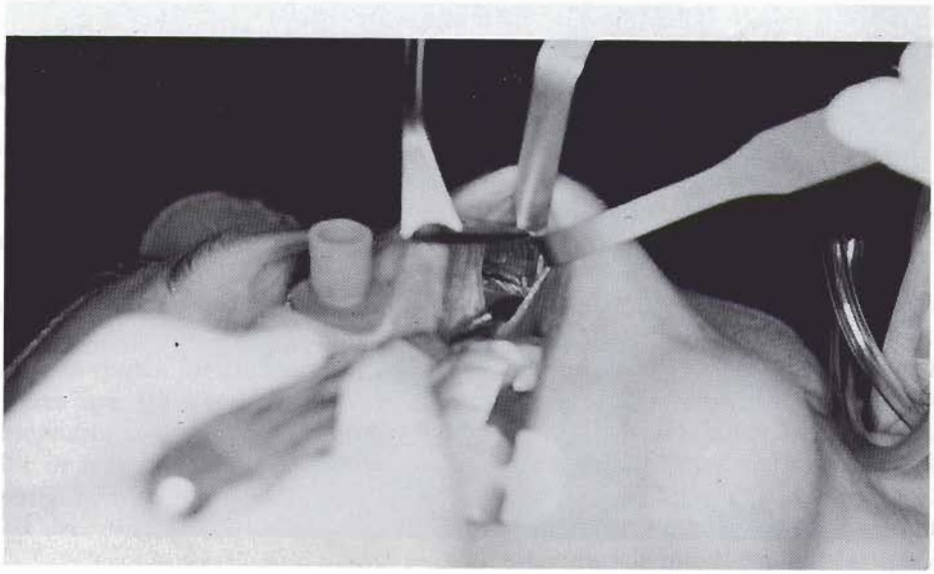

Figure 13. The periosteal elevator is positioned over the anterior surface of the masseter tendons within the submalar space. The submalar portion of the pocket is made large enough to ensure that there will be no inferior encroachment of soft tissue on the implant. (*From* Binder WJ: A comprehensive approach for contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

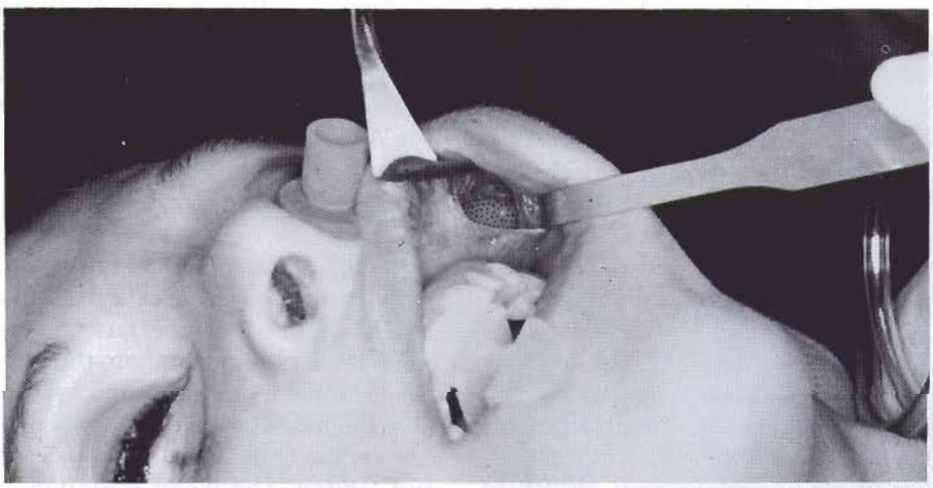

Figure 14. Direct visual inspection of the midfacial structure can be obtained through the intraoral route by retracting the overlying tissues. Using sizers or different implants helps to determine the optimal size, shape, and position of the final implant selected. The stippled area represents a sizer that has been placed within the pocket. (*From* Binder WJ: A comprehensive approach for contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

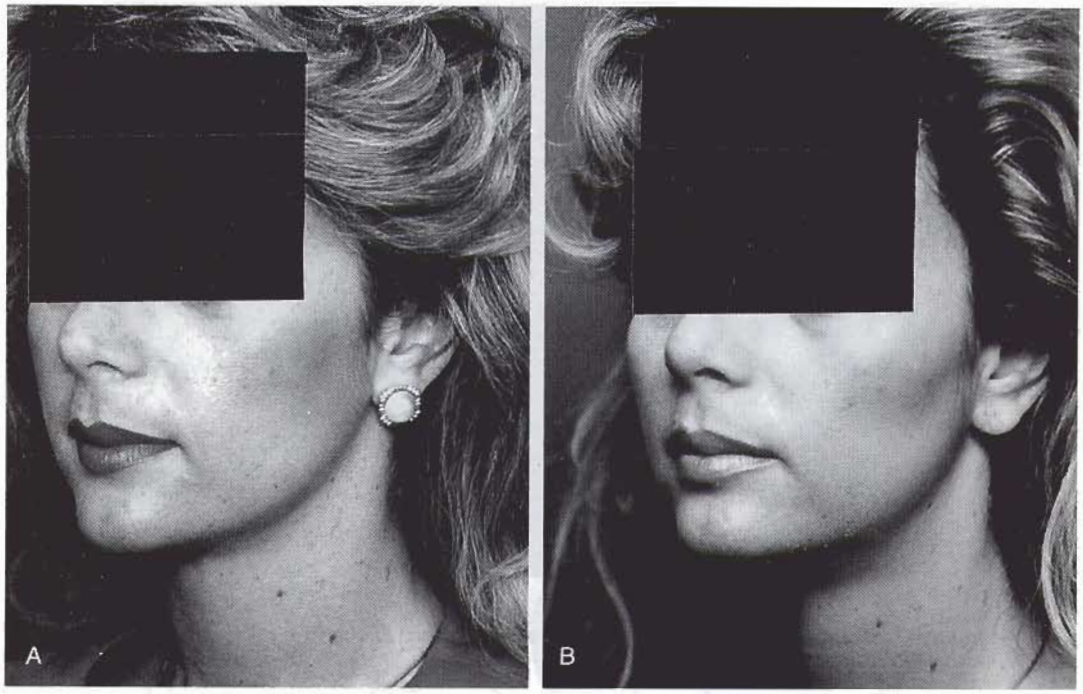

Figure 15. A 4-mm malar shell placed in zone one and partly in the submalar zone (zone five) provides modest cheek contour.

bone structure may require modification to reduce its thickness or length to avoid potential ridging or abnormal projections.

It is possible to vary the size, shape, and projection of implants in order to manipulate and control precisely general facial contours. Moving an implant only several millimeters in one direction or another alters the specific outlines of the cheek margin in a very subtle manner. Thicknesses of malar and midfacial implants will also vary. Four millimeters of projection is the most commonly used thickness of the malar implants that encompass Zone one producing a modest increase in volume (Fig. 15). Five millimeters of projection causes a more pronounced and dramatic effect. A 6-mm thickness is quite bold and, in many people, excessive. For a very large face, particularly in men, 7 or even 8 mm of projection may be necessary.

Projection of specific areas of midfacial implants may be adjusted appropriately in a manner similar to the ones commonly used to change the anterior projection of chin implants by using silicone elastomer wafers of variable thicknesses[12] or GORE-TEX[11] in combination with implants. In particular this system has been used in conjunction with the larger combined submalar shell implants, in which wafers of varying thicknesses are locked into place along the undersurface of the implant to increase projection of either the malar or submalar component of the implant (Glasgold A; personal communication). This method of customization by using incremental wafers of silicone elastomer or GORE-TEX is used primarily with the larger, broader surface area implants.[11]

Methods of Fixation

Once implant position has been established it is often necessary to further secure the implant. This can be accomplished with a number of different methods. Internal suture fixation relies on the presence of an adjacent stable segment of periosteum or tendinous structure to anchor the implant. Stainless steel or tita-

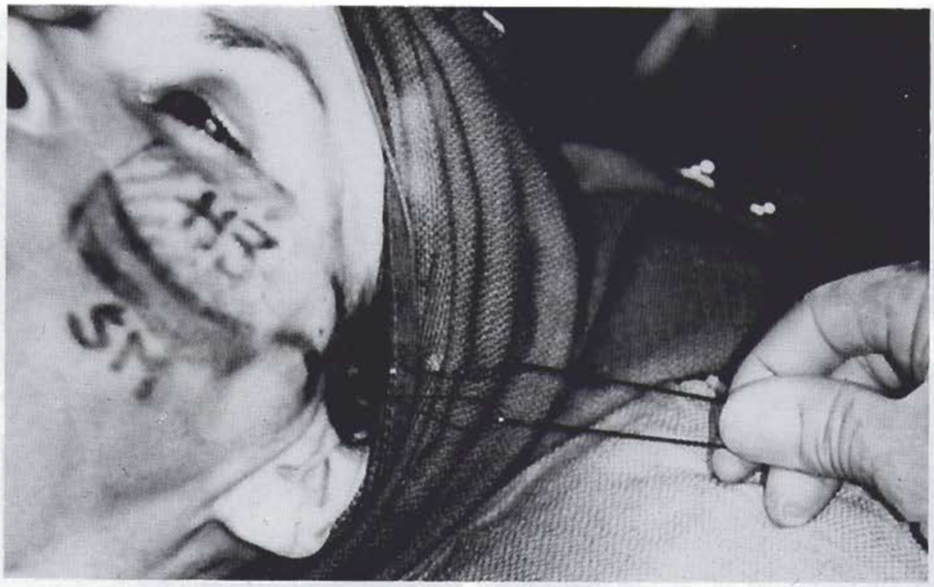

Figure 16. Percutaneous 2-0 Surgibond traction sutures extend through the tail of the implant and into the temple region.

nium tap screws also have been used, but care must be taken not to enter the maxillary sinus when the implant is positioned over the anterior surface of the maxilla. Two methods of external fixation are used to stabilize midfacial implants. The indirect lateral suspension technique is accomplished by the introduction of 2-0 Ethilon sutures wedged on to 10-inch Keith needles and placed through the implant tail. These are thrust percutaneously posterior to the temple hairline (Fig. 16). Posterior traction on the tail of the implant is accomplished, and buckling of the tail of the implant is prevented by passing a periosteal elevator both anteriorly and posteriorly to the implant (Fig. 17).

The direct method of external fixation is often used in a patient with gross asymmetry or in situations in which the implants are mobile or are placed within the submalar area or in a large pocket, which is often necessary for better visual inspection and accurate implant placement. In these situations, external methods of fixation will prevent slippage in the immediate postoperative period. In the direct method of fixation, once the implants are correctly positioned, a point is marked on the skin to correspond to the position of the most medial fenestration of the implant. Symmetrical placement of both implants is assisted by measuring the distance from the midline to both right and left medial markings. The implants are then removed and placed on the skin by lining up the medial fenestration over the corresponding mark and confirming that the implant is within the same general area outlined by the preoperative skin markings. The superior-inferior position of the lateral portion of the implant is then determined, and a second point is marked on the skin corresponding to the adjacent lateral implant fenestration. Each end of a double-armed *2-0 silk suture with 1-inch straight needles* is passed through the medial and central implant fenestrations, looping the suture around the posterior surface of the implant. The needles are advanced through the pocket and passed perpendicularly through the skin, exiting at their respective external markings. The implant, following the needles, is guided into the pocket (Fig. 18*A*). Both implants are examined by external pal-

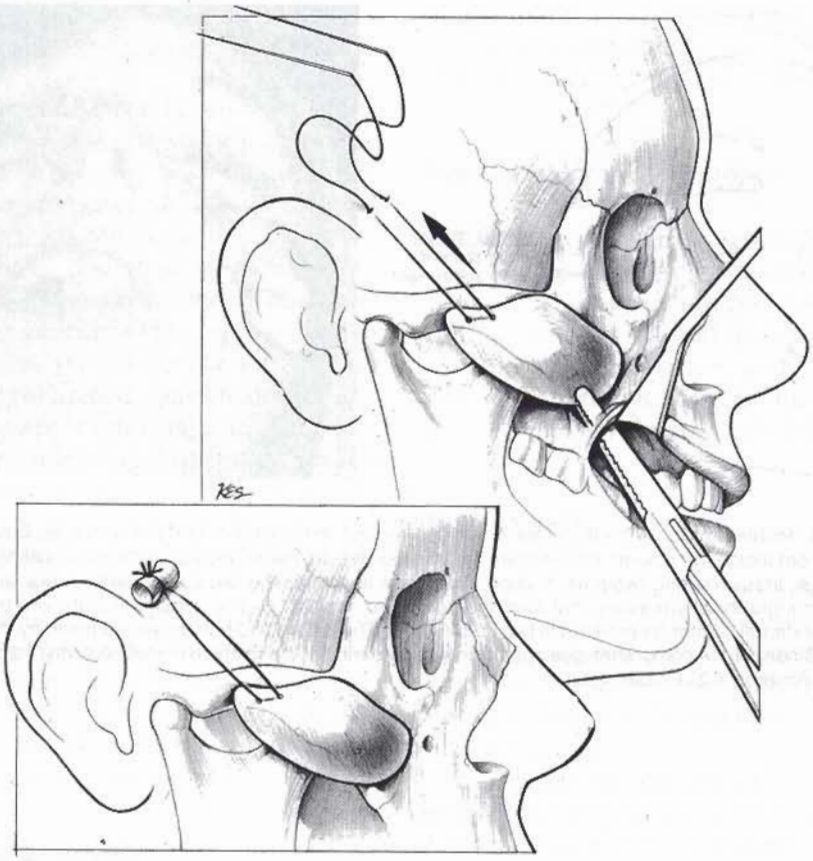

Figure 17. Indirect external method of suspension fixation whereby the implant is pulled and fixed in a superolateral position. This technique is more suitable for malar rather than submalar augmentation. (*From* Binder WJ: A comprehensive approach for contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

pation and internal visual inspection to ensure that they are correctly and symmetrically positioned. The implants are sutured in place by gently tying the sutures over a cotton bolster comprised of two dental rolls (Fig. 18*B*). Closure of the intraoral incision is accomplished by suturing together the pillars of the zygomaticus muscles and the mucosa in two layers.

Avoidance of complications from midfacial augmentation is largely technique-dependent. Traditional transverse incisions that transsect the zygomaticus muscle may cause transient, or in rare cases, partial permanent muscle weakness that can inhibit normal lip elevation and change the smile configuration. Hypesthesia from infraorbital nerve damage is extremely rare, but can occur during dissection, or if the nerve is excessively stretched by forceful traction of the cheek, or by pressure impingement from improper implant placement. Most of these complications can be easily avoided by passing the elevator lateral and parallel to the origin of the infraorbital nerve. It is extremely important that each patient be evaluated within the first 48 to 72 hours after surgery to ensure that there is no significant facial asymmetry, which may indicate the presence of a hematoma. Should a hematoma occur, immediate drainage of the pocket is important in order to avoid the need for implant removal.

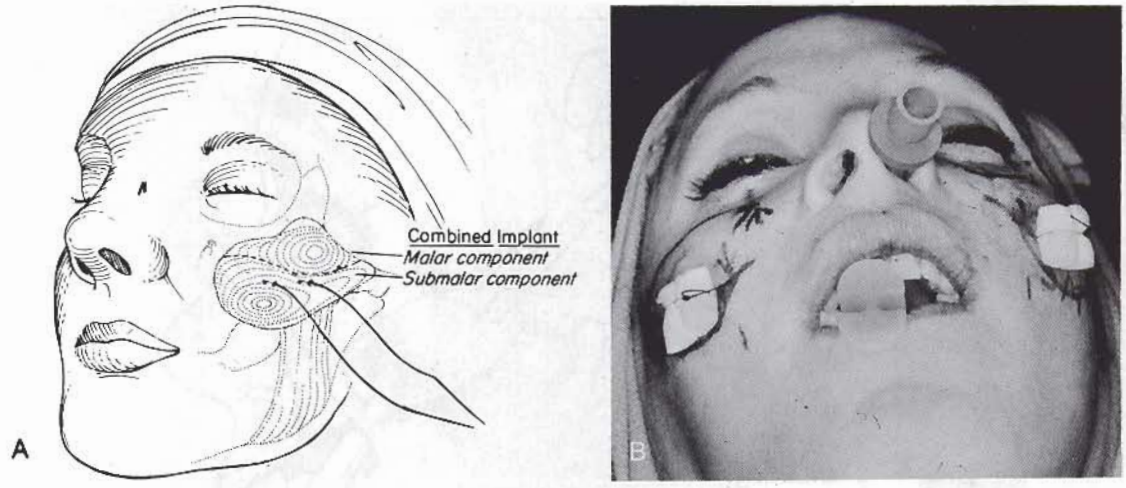

Figure 18. *A*, A double-armed 2–0 silk suture is passed around the posterior surface of the implant and through the fenestrations. From inside the pocket, the needles are passed directly perpendicular to the skin, exiting at the respective external markings, thus providing two-point fixation. This figure illustrates the two components (malar and submalar), with the respective topographical variations that form the combined implant. *B*, The implant is stabilized by tying the suture directly over an external bolster (comprised of two cotton rolls). The suture and bolster are removed by the third postoperative day. (*From* Binder WJ: A comprehensive approach for contouring of the midface in rhytidectomy. Facial Plastic Surgery Clinics of North America 1:231–255, 1993.)

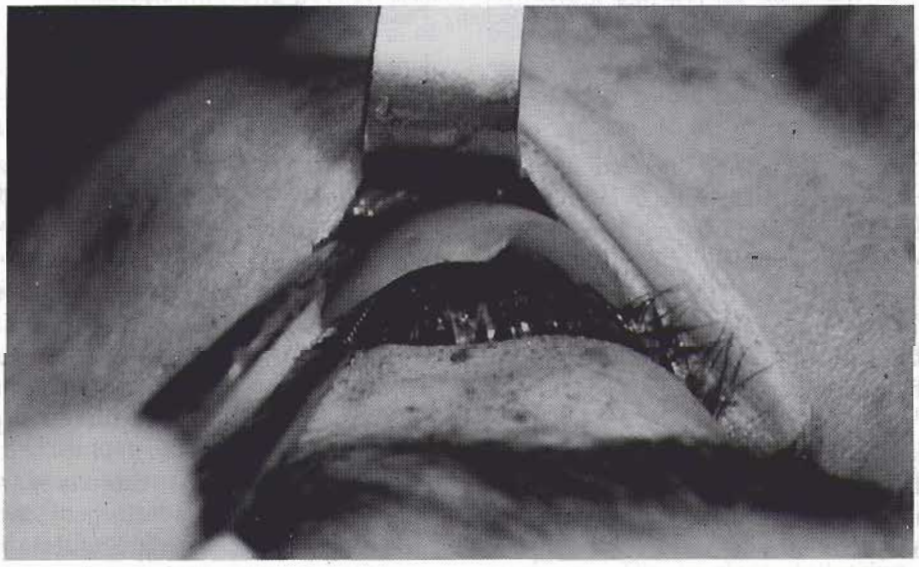

Figure 19. Malar augmentation by the subciliary (lower blepharoplasty) approach. Direct visualization during insertion is an advantage.

Subciliary (Lower Blepharoplasty) Approach

Since the introduction of the newer implants with larger surface areas, the subciliary (lower blepharoplasty) approach has been progressively abandoned. However, this is the preferred approach for the insertion of the tear trough implant as described by Flowers.[3] In malar augmentation, only when zones one and two (malar eminence anterior one-third of the zygomatic arch) require volumetric filling to achieve high arched cheekbones is the blepharoplasty approach useful. In this situation it may have advantages over the intraoral approach because of the lack of oral contamination and because the inferior floor support reduces the chances for implant rotation or descent. This procedure has been used frequently by Terino and Schoenrock for the presentation of implants in the zones one and two (Fig. 19). However, this technique can precipitate ectropion in the case of a weak tarus, and for those cases we advocate the simultaneous use of canthopexy or canthoplasty.

Rhytidectomy Approach

The malar space may be safely entered through zone one of the malar region. Penetration of the SMAS just medial to the zygomatic eminence is accomplished bluntly with a spatula elevator, and the SMAS is entered down to and beneath the periosteum. There are no significant facial nerve branches in this area. The malar pocket is created by retrograde dissection. This approach affords the opportunity for accurate implant placement and the opportunity for direct observation and palpation and usually avoids external methods of fixation (Fig. 20). Insertion of an implant by this approach can introduce technique difficulties during SMAS dissection in this area during rhytidectomy.

Zygomatic (Temporal) and Transcoronal Approaches

The use of craniofacial techniques used in subperiosteal facelifts have provided ready access to the malar zygomatic region. For the inexperienced surgeon, an unwarranted risk of fontalis nerve damage is present.

Transconjunctival Approach

The transconjunctival approach also can be used for insertion of midfacial implants, but usually requires disinsertion of the lateral canthal tendon. This necessitates secondary resuspension, reposition, and reinsertion of the canthal tendon with the attendant risk of lower eyelid asymmetry and distortion.

DISCUSSION

Historically, elevation and tightening of the skin provide only two-dimensional assistance for the aging face. SMAS techniques may extend the longevity of facelifting procedures, but can change malar-midface contours only minimally if at all.

Understanding the principles of zonal anatomy, observation of the types of external facial forms and careful attention to basic techniques results in greater predictability in facial contouring. Critical analysis of the patient's face and precise and focused communication between surgeon and patient will lead to optimal patient satisfaction. Many different types of facial implants are available and can be further refined and customized by the surgeon to create a variety of contours and fulfill most needs. Additional refinement in implants or the need to reconstruct more complex contour defects can be accomplished by using three-dimensional computer technology to manufacture customized implants in a readily available fashion (see the article by Binder and Kaye in this issue).

CONCLUSION

Newer and better implants have been designed to enable the facial plastic surgeon to restore, rejuvenate, or enhance facial form in a more permanent way and for an increasing range of applications. By using these princi-

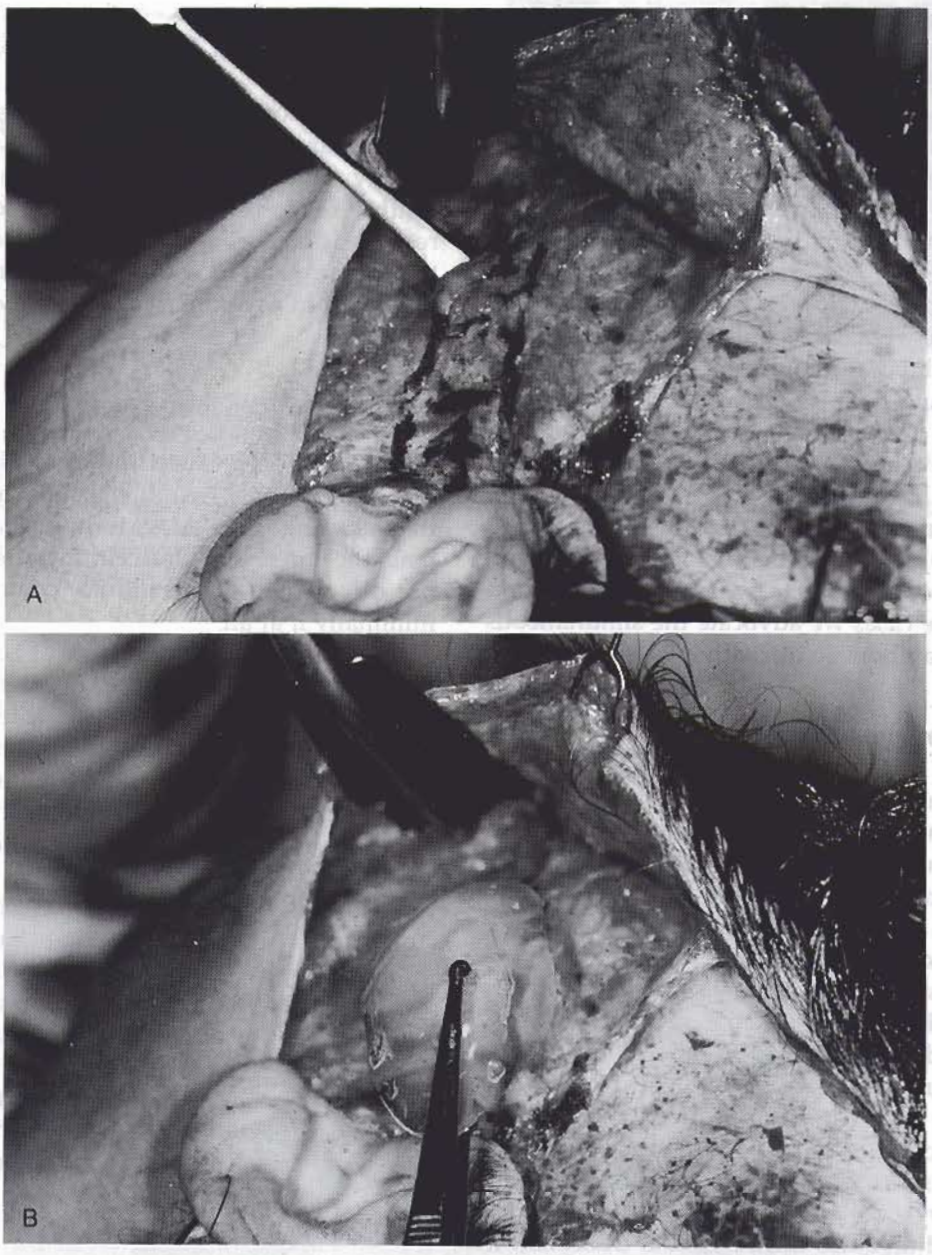

Figure 20. *A*, Malar augmentation through the rhytidectomy approach. It is necessary to dissect posterior to zone two over the zygomatic arch. *B*, Insertion of the malar shell.

ples of three-dimensional alloplastic volumetric contouring, we can now reconstruct damage from injuries, correct hereditary deficiencies found in youth, or change the facial flaws caused by aging in very subtle or in extremely dramatic ways. It should be recognized that counseling of the patient prior to the surgical procedure and the support needed in the first several weeks after the procedure are extremely important. This form of facial contouring provides the patient with significant changes in his or her facial appearance, which are not restored until all swelling has resolved. The adjustment process for a patient who has undergone a midfacial augmentation procedure is sometimes difficult at best. With this in mind, the patient should be advised preoperatively of the need for patience and recognition of the fact that it will take a period of 3 to 6 weeks for the face to attain its normal contour. At the same time there are very few procedures that will provide the significant rewards that facial contouring procedures of the midface offer.

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