# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>ix</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>x</td>
</tr>
<tr>
<td>Contributors</td>
<td>xi</td>
</tr>
<tr>
<td>1. Applied Anatomy for Safety in Facelifting</td>
<td>1</td>
</tr>
<tr>
<td>Dino R. Elyassnia</td>
<td></td>
</tr>
<tr>
<td>2. Facial Analysis for Facelifting</td>
<td>12</td>
</tr>
<tr>
<td>Michael J. Sundine and Bruce F. Connell</td>
<td></td>
</tr>
<tr>
<td>3. Analysis of the Neck</td>
<td>17</td>
</tr>
<tr>
<td>Nicholas Nikolov</td>
<td></td>
</tr>
<tr>
<td>4. Facial Aging</td>
<td>22</td>
</tr>
<tr>
<td>Bryan G. Forley</td>
<td></td>
</tr>
<tr>
<td>5. Energy-Based Treatments for Facial Aging</td>
<td>28</td>
</tr>
<tr>
<td>Lawrence S. Bass and Jason N. Pozner</td>
<td></td>
</tr>
<tr>
<td>6. Facial Sculpting and Facial Slimming with Neurotoxins</td>
<td>39</td>
</tr>
<tr>
<td>Wofles T. L. Wu</td>
<td></td>
</tr>
<tr>
<td>7. Soft Tissue Fillers</td>
<td>45</td>
</tr>
<tr>
<td>Taiba Alrasheed, Paul Schembri, and Trevor M. Born</td>
<td></td>
</tr>
<tr>
<td>8. Fifty Years of Progression in Facelifting and Neck Lifting</td>
<td>64</td>
</tr>
<tr>
<td>Steven M. Hamilton and Bruce F. Connell</td>
<td></td>
</tr>
<tr>
<td>9. Male versus Female Facelift Surgery: Is There a Difference?</td>
<td>93</td>
</tr>
<tr>
<td>Steven M. Hamilton</td>
<td></td>
</tr>
<tr>
<td>10. Foreheadplasty: Recognizing and Treating Aging in the Upper Face</td>
<td>103</td>
</tr>
<tr>
<td>Bruce F. Connell</td>
<td></td>
</tr>
<tr>
<td>11. Endoscopic Browlift</td>
<td>118</td>
</tr>
<tr>
<td>Scott R. Miller and Ahmad N. Saad</td>
<td></td>
</tr>
<tr>
<td>12. Primary Superficial Musculoaponeurotic System (SMAS) Facelift and Neck Lift</td>
<td>126</td>
</tr>
<tr>
<td>Bruce F. Connell and Michael J. Sundine</td>
<td></td>
</tr>
<tr>
<td>13. Submental Contouring</td>
<td>149</td>
</tr>
<tr>
<td>Bruce F. Connell and Michael J. Sundine</td>
<td></td>
</tr>
<tr>
<td>14. Simultaneous Facelift and Fat Grafting</td>
<td>160</td>
</tr>
<tr>
<td>Timothy J. Marten and Dino R. Elyassnia</td>
<td></td>
</tr>
<tr>
<td>15. Midface Lift</td>
<td>188</td>
</tr>
<tr>
<td>Garo Kassabian</td>
<td></td>
</tr>
</tbody>
</table>
### Contents

16. **Condition-Specific Rhytidectomy: An Evidence-Based Paradigm Shift in Facial Rejuvenation** ......................................................... 193
   
   *E. Gaylon McCollough and Fred G. Fedok*

17. **Secondary Facelift** ........................................................................ 214
   
   *Michael J. Sundine and Bruce F. Connell*

18. **Avoiding Complications in Facelifts** ............................................. 225
   
   *G. Hunt Neurohr*

19. **Periorbital Rejuvenation with Autologous Fat** ................................ 237
   
   *Yifan Guo, Brian C. Drolet, and Patrick K. Sullivan*

20. **Comparison of Midface Rejuvenation Techniques** .......................... 243
   
   *Michael J. Sundine and Bruce F. Connell*

21. **Upper-Eyelid Blepharoplasty** .......................................................... 249
   
   *Robert S. Flowers, John Nassif, and Christopher R. Costa*

22. **Lower-Eyelid Blepharoplasty** ......................................................... 268
   
   *William P. Chen*

23. **Lateral Canthal Complications in Aesthetic Eyelid Surgery: Prevention and Reconstruction** .......................................................... 273
   
   *M. Douglas Gossman*

24. **Treatment of the Tear-Trough Deformity** ...................................... 280
   
   *Ramsey J. Choucair*

25. **Management of the Lateral Periorbital Area** .................................... 287
   
   *Thomas A. B. Bell*

**Index** ........................................................................................................ 292
The purpose of our book is quite simple: to provide the knowledge necessary so that surgeons may provide the most optimal outcomes possible for patients who desire facial rejuvenation. It is hoped that the principles taught by Dr. Connell including careful preoperative analysis along with precision customization and execution of the operation to meet each individual patient’s needs comes out into each chapter.

The textbook should transmit knowledge regarding treatment of the aging face. The scope of the book is comprehensive and includes chapters on anatomy relevant to facial aging, analysis of the aging patient, and surgical and non-surgical treatment methods used to treat the changes seen in the aging face.

The goal of the book is to transmit the latest and best surgical techniques available that will give the highest level of patient satisfaction in facial aesthetic surgery. The book will emphasize safe and long lasting results. The need for a textbook on thoughtful and quality techniques is especially important in the current environment of “light lifts,” “lunchtime face lifts,” and other very heavily marketed face lifts. These techniques produce dubious results with poor quality scarring, strange appearing outcomes, and little longevity. Clearly, more education is needed for surgeons who are not providing optimal results for their patients and we hope that this textbook will provide that knowledge.

The most unique feature of the book is the collection of authors who will be providing the chapters for the book. Traditionally many textbooks offer essentially an institutional perspective, in contrast, our textbook would have a collection of authors with wide ranging training and perspectives although many have had fellowships with the senior editor—Dr. Connell including the co-editor Dr. Sundine. The senior editor is recognized as one of the world experts in facial rejuvenation surgery—in fact, he has probably performed more face lifts on plastic surgeons who publish papers and textbooks on face lifting than anybody in the world. The book will utilize authors with 5 decades of experience producing quality results in aesthetic facial surgery. The authors are internationally recognized teachers of aesthetic plastic surgery. The patient results utilizing the techniques presented in this book demonstrate patients who appear to be 15 to 20 years younger and also continue to look like themselves. The techniques emphasize safety.

The textbook will be an important teaching aid to all surgeons who are providing aesthetic facial rejuvenation procedures as well as those performing reconstructive procedures. This will include practicing plastic surgeons, otolaryngologists, oral surgeons, ophthalmologists, dermatologists, trauma surgeons, and other ancillary practitioners who desire to minimize scars and deformities as well as improve the quality of their results. Those practitioners who are interested in beginning their practice in facial rejuvenation will also find this very useful. The book will also be useful to physician residents in training in all of the above specialties and medical students who are interested in aesthetic surgery. We hope the textbook will be enjoyed and found useful in your practices.
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1 Applied Anatomy for Safety in Facelifting

Dino R. Elyassnia

1.1 Introduction

Safety is paramount to achieving excellent results in rhytidectomy. Safety depends on the surgeon having a comprehensive knowledge of the anatomy of the face and neck in three dimensions. The fundamental goal in rhytidectomy dissection is to adequately release and mobilize the tissues the surgeon wishes to reposition and, in the process, preserve all vital structures. A prerequisite for accomplishing this safe release is a commanding knowledge of facial anatomy with respect to the key points of retention and their relationship to all vital structures. The first principle of anatomy in facelift is that facial soft tissues are arranged in a series of concentric layers. This layered approach not only provides an excellent system for understanding and organizing facial anatomy, but also constitutes the practical method for performing a lamellar superficial musculoaponeurotic system (SMAS) facelift. A lamellar dissection offers the advantage that both skin and SMAS can be treated individually, which allows the excursion, vector, and tension of each layer to be adjusted differently, resulting in a natural, comprehensive rejuvenation while minimizing secondary deformities.

This chapter focuses on the step-by-step relevant anatomy the surgeon confronts while performing a high-SMAS lamellar dissection; all the information discussed here is essential knowledge for the surgeon planning to perform any type of facelift technique.

1.2 Anatomical Considerations in Skin-Flap Dissection

Although the general thickness of subcutaneous tissue varies from person to person based on age and weight, there is a proper thickness for skin-flap undermining, especially when performing a lamellar dissection. When beginning skin-flap undermining in the cheek, the flap must be relatively thin so as to avoid including SMAS fibers in the skin flap, which will render the SMAS flap too thin and therefore useless. If dissection is in the proper plane, the fat on the undersurface of the flap will have a rough, “cobblestone” appearance to it, which is more visible when the flap is transilluminated (Fig. 1.1). When the dissection is too deep, the undersurface will look smooth and contain streaks of fine white tissue; when it is transilluminated, this flap will appear thicker and “cloudy.” When beginning skin-flap undermining in the postauricular area, it is important to understand that, superiorly and anteriorly, there is little subcutaneous fat between skin and fascia, which makes it difficult to establish the correct subcutaneous plane. Beginning the dissection more posterior and inferior, the surgeon will encounter more subcutaneous fat and establish the correct plane more easily, facilitating dissection of the postauricular flap and lateral neck. Unlike the cheek-skin flap, the neck flap should be slightly thicker to help avoid an, overresected appearance in the neck.

1.2.1 Great Auricular Nerve

As skin undermining progresses to the upper lateral neck, care must be taken to preserve the great auricular nerve (Fig. 1.2). This sensory nerve is derived from the cervical plexus and provides sensation to the earlobe and lateral cheek. The great auricular nerve runs obliquely from the posterior belly of the sternocleidomastoid muscle to the earlobe. The classic external landmark for locating the nerve is at the midbelly of the sternocleidomastoid muscle, 6.5 cm inferior to the bony external auditory canal. The most common area of injury to the nerve is where the nerve emerges from around the posterior border of the sternocleidomastoid muscle at the most peripheral aspect of the subcutaneous undermining. The key to preventing injury is to stay within the subcutaneous plane and not violate the superficial cervical fascia (an extension of the SMAS and platysma), which overlies the sternocleidomastoid muscle. Staying superficial to this fascia over the muscle and not exposing muscle fibers enables preservation of the nerve. In most cases, the nerve lies deep to the plane of skin-flap dissection and is not seen; however, in very thin faces or secondary facelifts, where little subcutaneous fat may be present, the nerve is at greater risk and extra caution is therefore advised.

Fig. 1.1 Appearance of a transilluminated skin flap in the cheek. If dissection is in the proper plane, as in this case, the fat on the undersurface of the flap will have a rough, “cobblestone” appearance to it.
1.2.2 Retaining Ligaments

Proper skin-flap redraping requires a thorough knowledge of the retaining ligaments of the face (▶ Fig. 1.3). These ligaments are vertically oriented fibers that penetrate the concentric horizontal layers of the face and function in a supportive role.3,4 First described by Furnas, there are two types of retaining ligaments: (1) true osteocutaneous ligaments that run from the periosteum to the dermis and are made up of the zygomatic and mandibular ligaments and (2) retaining ligaments formed by a coalescence of superficial and deep facial fascia that form fibrous connections and vertically span from deep structures, such as the parotid gland and masseter muscle, to the overlying dermis; examples include parotid and masseteric cutaneous ligaments. The parotid cutaneous ligaments span the entire surface of the parotid gland, and the masseteric cutaneous ligaments are a series of fibrous bands found along the entire anterior border of the masseter muscle, starting in the malar region and extending down to the mandibular border.

Based on this understanding of the retaining ligament anatomy in the face, the plan for skin-flap elevation and ligament release is shown here (▶ Fig. 1.4). As skin-flap elevation progresses over the cheek, one first encounters fibrous, dense attachments over the parotid gland, where the dissection will be more difficult; these attachments represent the parotid cutaneous ligaments that must be released. Anterior to the parotid and inferior to the zygoma, once these ligaments are released, the dissection can proceed more easily. Superiorly, as the dissection approaches the malar eminence, one encounters the zygomatic ligaments. These stout bands of ligament attach the malar pad to the underlying malar eminence and must be released for proper skin-flap redraping; however, skin
undermining does not arbitrarily include the entire face. In the performance of a lamellar SMAS flap, preserving the platysma cutaneous attachments in the perioral cheek and jowl area allows this tissue to be better elevated and supported via SMAS-flap elevation (Fig. 1.5). This area of connection between skin and SMAS also preserves important perforating vessels to the cheek flap, thereby reducing the likelihood of flap compromise.5

Complete skin-flap elevation in the neck combines wide undermining from both the lateral approach and the submental incision. Proper skin redraping and smooth contour of the chin and jawline require release of the submental crease and mandibular ligaments (Fig. 1.5). The mandibular ligaments are discrete fibrous bands that attach the parasympathetic dermis to the mandible. Although some bleeding is usually encountered in completion of this step, it is not so great as to prevent release of these ligaments. If skin undermining has been carried out appropriately, at its completion, the skin redrapes smoothly and without tension as a result of the release of retaining ligaments where necessary, while preserving the important structures, including the great auricular nerve and the deeper SMAS layer, so that it can subsequently be released and repositioned for optimal rejuvenation.

1.3 Anatomical Considerations in SMAS-Flap Elevation

Unlike skin, the SMAS is an inelastic layer that is capable of providing sustained support for sagging deep-layer tissues. This is the fundamental reason why a lamellar dissection is performed and why the SMAS layer must be separately released and repositioned. As in skin-flap elevation, the basic goal of SMAS-flap elevation is adequate release of the flap to obtain the desired effect while preserving vital anatomical structures, which requires a precise knowledge of the relationship of the SMAS layer to the retaining ligaments already discussed and to the
deeper facial layers and vital structures, such as the facial nerve and parotid duct.

The SMAS represents the superficial fascia of the face and forms a continuous layer throughout the face and neck. The SMAS is contiguous with the superficial cervical fascia inferiorly in the neck. Superiorly past the zygomatic arch, it becomes the temporoparietal fascia in the temple and then the galea in the scalp. The SMAS layer varies in thickness from one area of the face to another. It is dense and thick over the parotid gland, and it is this portion that is most commonly understood by surgeons as clinically representing the SMAS. As the SMAS is traced medially, it is thinner and less distinct over the masseter and buccal fat pad. In the malar region, the SMAS is also thin and ultimately blends into the epimysium of the upper lip elevators. The layer deep to the SMAS is the parotid–masseteric fascia (deep facial fascia). This layer in the cheek is made up of the parotid capsule over the parotid gland and continues anteriorly to form the fascial layer over the masseter muscle. The significance of this layer is that branches of the facial nerve always lie deep to this layer in the cheek. Recognizing the importance of this point and being able to identify this layer allow safe, extensive mobilization of the SMAS superficial to it.

1.3.1 Facial Nerve

The facial nerve emerges through the stylomastoid foramen and is immediately protected by the parotid gland. Within the parotid, it divides into an upper and lower trunk and then into its five major branches: temporal zygomatic, buccal, marginal mandibular, and cervical (▶ Fig. 1.6). The branches leave the parotid gland lying on the surface of the masseter immediately deep to the parotid–mas- seteric fascia. Medial to the masseter, the nerve branches lie on the buccal fat pad, at the same depth as the parotid duct and facial vessels. The nerve branches then proceed to innervate the mimetic muscles on their deep surface (except for the deep layer of muscles: the mentalis, levator anguli oris, and buccinator). This point is important because during elevation of a SMAS flap in the region of the malar eminence, the zygomaticus major and minor muscles are frequently encountered. When these landmarks are seen, the surgeon should maintain the dissection superficial to these muscles. This location is safe for dissection because it ensures protection of the nerve branches.

The facial nerve branches of greatest concern during a facelift are the temporal and marginal mandibular branches. Because the zygomatic and buccal branches have multiple interconnections and cross over, injury to these branches is not likely to cause a clinically noticeable deficit; however, this is not the case for the temporal and marginal mandibular branches. The temporal branch or collection of branches can be considered to travel along a line connecting the base of the tragus to a point 1.5 cm above the lateral eyebrow. Another useful landmark is the point at which all temporal branches will cross the upper border of the zygomatic arch from 0.8 to 3.5 cm from the external acoustic meatus or tragus. Unlike all other branches, which always lie deep to the deep facial fascia, the temporal branch penetrates the deep fascia just above the zygomatic arch and travels in the temporal region on the underside of the temporoparietal fascia. Thus, unlike SMAS elevation, which is always safe superficial to the parotid–masseteric fascia, elevation of the temporoparietal fascia across the location where the temporal branch traverses the deep fascia will result in temporal branch division. A SMAS flap can be elevated “high” at the upper border of the zygomatic arch, however, because the temporal branch is still deep to the SMAS at this level. Because of this complex anatomy, any surgeon performing a facelift or temple lift must have a detailed, three-dimensional knowledge of the temporal branch to prevent injury.

The marginal mandibular branch exits the parotid approximately 4 cm beneath the base of the earlobe, near the angle of the mandible. In most cases, it courses above the inferior border of the mandible, and in all cases where it is anterior to the point where the facial vessels cross the mandibular border, it courses above the inferior border of the mandible. In 19% of cases, it lies up to 2 cm below the mandibular border posterior to the facial vessels. In these cases, the nerve travels superiorly and will

Fig. 1.6 Facial nerve branches. a, artery; CN, cranial nerve; n, nerve; v, vein. (Reproduced from THIEME Atlas of Anatomy, 2nd ed., General Anatomy and Musculoskeletal System, © Thieme 2005, Illustrations by Karl Wesker.)
cross over the facial vessels as it continues above the level of the mandibular border. These vessels are palpable at the anterior border of the masseter and serve as a useful landmark for locating the marginal mandibular branch. This location is also likely to be where the nerve is at greatest risk for injury because the covering platysma and superficial fascia are thinner and the nerve is more superficial crossing over the facial vessels. In general, any subplatysmal dissection should proceed cautiously over the region of the angle of the mandible to prevent marginal mandibular branch injury.

1.3.2 Retaining Ligament Release in SMAS Elevation

Surgeons often describe the SMAS as having two sections: the immobile and mobile portions. The immobile, or fixed, portion lies over the parotid gland and is firmly adherent to it as a result of the adhesions between the superficial and deep fascia that form the parotid cutaneous ligaments. The mobile SMAS lies anterior to the parotid gland, and it is only through mobilization and traction on this mobile SMAS that the desired clinical effect can be achieved. Thus, to be efficacious, an SMAS flap must be elevated until this mobile SMAS is reached. If SMAS plication or SMAS-ectomy is performed, sutures are placed in such a manner that the mobile SMAS is repositioned and anchored to the immobile SMAS.

In designing the incisions for a “high”-SMAS flap, the upper mark is made along a line from the infraorbital rim to a point approximately 1 cm anterior to the superior portion of the tragus, which will place the upper border of the flap over the zygomatic arch and provide an effect on not only the lower cheek and jowl but also the midface and infraorbital region. At this level, the frontal branch of the SMAS and is safe. The upper mark of the flap is then continued inferiorly over the preauricular portion of the parotid. Inferior to the earlobe, it curves posteriorly to the anterior border of the sternocleidomastoid muscle. Angling the incision posteriorly in this manner moves the incision away from the angle of the mandible and the marginal mandibular nerve, thereby creating a safety zone. Once the initial incisions are made, flap elevation begins over the parotid. In general, undermining should be limited in the lower cheek and more extensive over the zygoma and upper midface, primarily because of the location of retaining ligaments that must be released to obtain adequate traction on the flap. As a result of the dense adhesions between the SMAS and the parotid fascia, elevation of the SMAS over the parotid requires sharp knife or scissor dissection to release the deeper origin of the parotid cutaneous ligaments. These two layers of fascia are quite adherent, making the plane between them often indistinct. At times during SMAS elevation, a portion of the parotid fascia may be incidentally raised, with the SMAS flap exposing part of the lobular surface of the parotid gland. Violating the deep fascia at this point of the dissection is of no clinical significance, as the facial nerve lies safe below the superficial lobe of the gland; however, the surgeon should use this visual aid to adjust the dissection slightly more superficially to preserve the parotid fascia. Once the anterior border of the parotid is reached in the lower cheek, the dissection is passed the parotid cutaneous ligaments, and a loose areolar plane is reached. Simple blunt dissection at this point can separate the SMAS-platysma flap above from the masseteric fascia below. Here the deep fascia is seen as a thin, shiny, transparent cover over the masseter muscle, and commonly facial nerve branches can be seen through this layer. Staying on top of this parotid–masseteric fascia is safe; however, great caution must be exercised not to violate this layer at any point because of the close proximity of the facial nerve branches and parotid duct just deep to this layer. As the clinically relevant retaining ligaments have been released at this point in the dissection in the lower cheek and the mobile SMAS is reached, further undermining, although quite simple, is not necessary. Traction on the lower flap easily raises the jowl and perioral tissues. If the dissection is continued anteriorly, no major restraint is encountered until the anterior border of the masseter, where the fibrous septa of the massteric cutaneous ligaments are encountered. Release of these ligaments lower in the cheek has not seemed to make a significant difference clinically with regard to improved repositioning of the SMAS flap.

In the malar region, the SMAS is elevated in continuity with the SMAS of the lower cheek. As the dissection is carried medially over the upper parotid and its accessory lobe, the SMAS becomes thin and less apparent as it invests the lip elevators. As mentioned, the safe plane here is superficial to the superior portion of the zygomaticus major muscle because the zygomatic branches of the facial nerve lie deep to this muscle. In thin patients, the muscle fibers may be clearly seen and uncovered; otherwise, it is best to leave some sub-SMAS fat over the muscle. In addition, at the origin of this muscle, the zygomatic ligaments will be encountered. These osteocutaneous ligaments must be released for adequate mobilization of the flap. The lateral ligaments are quite firm and require sharp dissection, whereas the more medial ligaments can often be disrupted bluntly. Once the zygomatic ligaments are released, the dissection continues to the last key area where release is required to obtain proper mobilization. Directly inferior and medial to the origin of the zygomaticus major muscle lies the zone of transition between the zygomatic ligaments and the upper
Masseteric cutaneous ligaments. This area is also usually the most difficult and dangerous part of the SMAS dissection. There are two reasons for this difficulty: First, the flap is quite thin in this area, which makes it susceptible to perforation. Second, the SMAS is composed mostly of fat in this region, which makes it difficult to delineate a true layer because there is fat both above and below the dissection. As the surgeon is trying to stay deep enough to maintain substance to the flap and release the upper masseteric ligaments, he or she comes dangerously close to the zygomatic branches of the facial nerve. In this region, it can be difficult to determine the difference between masseteric ligaments and nerve branches; however, proper release of the SMAS flap requires at least partial division of the masseteric cutaneous ligaments in this area (▶ Fig. 1.8). Although mobilization requires a detailed knowledge of the defined anatomical retaining ligaments and proper release of these discrete areas of restraint, the end point of the dissection is clinical, not anatomical. The release of retaining ligaments is continued until gentle traction on the flap produces motion at the nasal ala, philtrum, and stomal angle and elevation of infraorbital and lower eyelid tissue. This “traction test” should guide the final portions of the dissection. If the proper clinical effect is not seen, the surgeon continues the dissection, incrementally releasing any tethering fibers of the zygomatic and masseteric ligaments. In summary, the goal of SMAS–flap elevation is to release completely all parotid cutaneous, zygomatic, and upper portions of masseteric ligaments while staying superficial to the parotid–masseteric fascia and superficial layer of mimetic muscles to preserve the facial nerve. Once this immobile SMAS is freed, traction on the flap will easily translate to the mobile SMAS and produce the desired clinical effect, which ultimately determines the end point of the dissection.

1.4 Anatomical Considerations in Temple Dissection

During a facelift, the temple region can be managed by using an incision within the temporal scalp or along the sideburn and temple hairline. If a temporal scalp incision is indicated, it is usually carried down through the temporoparietal fascia to the deep temporal fascia overlaying the temporalis muscle. This dissection is easy to perform bluntly toward the temporal line of fusion anteriorly and toward the frontal branch inferiorly. In addition, this method of dissection protects hair follicles in the temporal scalp by moving the dissection to a deeper plane. It will create a bridge of tissue called the mesotemporalis that separates the deep dissection in the temple from the subcutaneous dissection in the cheek (▶ Fig. 1.9a). Based on knowledge of frontal branch anatomy, it is clear that the mesotemporalis cannot be completely divided because the frontal nerve branches lie within it as they transition from the deep plane to the undersurface of the temporoparietal fascia; however, it can be partially divided up to the temporal hairline, as the course of the frontal branch always lies anterior to the temporal hairline (▶ Fig. 1.9b). Another useful landmark is the frontal branch of the superficial temporal artery. This vessel lies within the mesotemporalis, always superior and lateral to the frontal branches. When this vessel is encountered, it is safe to ligate, although further division of the mesotemporalis should stop because the frontal branch will be just anterior to it. Partial division of this...
bridge of tissue allows the two different planes of dissection to be joined laterally, which facilitates exposure for SMAS dissection and redraping of the temporal portion of the face-lift flap.

When an incision is planned along the temporal hairline instead of within the temporal scalp, the flap is elevated in the subcutaneous plane and join it with the subcutaneous dissection in the cheek. No transition plane is necessary, and the superficial temporal vessels and temporal branch are safe, below the superficial temporal fascia, deep to the plane of dissection.

1.4.1 Retaining Ligaments of the Temple

If a temple lift or lateral browlift is planned in addition to a facelift, one must understand the anatomy of a collection of temporal retaining ligaments (▶ Fig. 1.10). Whether one is planning an open coronal or a closed foreheadplasty, the goal is to raise the descended outer brow and temple while maintaining the position of the medial brow.12 The lateral brow has multiple attachments that have been given different names and described as different types of structures by many authors.13,14 These structures have been named adhesions, and not true ligaments, as they do not pass as a single structure from the bone or deep fascia to the skin; however, the ultimate effect produced is quite similar. The lateral third of the eyebrow is held in position by the temporal ligamentous adhesion, which extends posteriorly along the temporal crest as the temporal line of fusion, or superior temporal septum. Medially, this adhesion extends toward the supraorbital nerve and forms the supraorbital ligamentous adhesion. Laterally, from the supraorbital rim, the adhesions extend toward the posterior portion of the zygomatic arch in the form of the inferior temporal septum. More directly, at the supraorbital rim, the periorbital septum forms areas of more dense adhesions that assist in brow restraint. As the periorbital septum is traced from the superior to the lateral orbit, it forms an area of increased density called the lateral brow thickening of the periorbital septum. As it continues around the outer orbit just above the lateral canthus, it forms the lateral orbital thickening of the periorbital septum. Complete division of the adhesions at the lateral brow is necessary for successful repositioning of the lateral brow. Most important is division of the temporal line of fusion (superior temporal septum), the temporal ligamentous adhesion, the inferior temporal septum, and the periorbital septum of the superior lateral orbit. Care must be taken near the inferior temporal septum because the temporal branches of the facial nerve will be medial and inferior to this structure. This structure separates the temple into two areas. Superior to this septum, there are no vital structures and temple dissection can be carried out quickly and easily. Inferior to this division lie the temporal branches, which will travel parallel to the inferior temporal septum within the undersurface of the temporoparietal fascia. In addition, the sentinel vein and zygomaticotemporal sensory branches travel deep to superficially within the inferior zone. When medial-to-lateral dissection is done near the lateral orbital rim, it is useful to remember that there is a 2-cm “safe zone” lateral to the lateral orbital rim at the level of the zygomatic arch that curves superiorly toward the junction of the superior and lateral orbital rim (▶ Fig. 1.11). Ligaments around the orbit can be safely released in this safe zone without concern regarding injury to the temporal branches. Also, just medial to the temporal line of fusion (superior temporal septum), one must take care to preserve the deep branch of the supraorbital nerve, which lies between the galea and the periosteum and travels from the main trunk of the supraorbital nerve toward the temporal line of fusion. Past the midforehead, it is consistently found 0.5 to 1.5 cm medial to the temporal line of fusion.

Fig. 1.10 Illustration of temporal ligaments. ITS, inferior temporal septum; LBT, lateral brow thickening; LOT, lateral orbital thickening; PS, periorbital septum; SLA, supraorbital ligamentous adhesion; STS, superior temporal septum; TFN, temporal branches of the facial nerve; TLA, temporal ligamentous adhesion; ZFN, zygomaticofacial nerve; ZTN, zygomaticotemporal nerve.

Fig. 1.11 Safe zone for dissection near the lateral orbital rim.
1.5 Anatomical Considerations in Submental Dissection

Traditional neck-lift techniques do not adequately address many aspects of aging in the submental region. In most cases, simply performing preplatysmal lipectomy, with or without postauricular skin excision, is a suboptimal approach to neck rejuvenation. For many patients, subplatysmal fat accumulation, submandibular gland “ptosis,” and digastric muscle hypertrophy play a significant role in the aged appearance of the neck and require additional treatment. The surgeon who intends to address these issues must have a thorough knowledge of the subplatysmal, or deep, plane of the neck. Specifically, this area is anatomically defined as the submental and submandibular triangles (Fig. 1.12). The three sides of the submental triangle are the right and left anterior belly of the digastric muscle and the hyoid bone. This space contains the subplatysmal fat pad. The sides of the submandibular triangle are defined by the anterior and posterior belly of the digastric muscle and the mandibular border. This space contains the submandibular gland and facial vessels. Exploration of the subplatysmal space is indicated if preoperative assessment suggests the presence of a significant collection of subplatysmal fat, if large digastric muscles are noted, if large submandibular glands are identified, or if uncertainty exists as to the subplatysmal condition.

Cervical exploration begins with the submental skin incision. The skin flap is elevated in the subcutaneous plane, taking care to leave most of the preplatysmal fat on the platysma surface, which makes fat excision and sculpting easier later in the procedure, if required, and precludes the need for difficult and tedious excision of fat from the undersurface of the cervical skin flap. Unlike dissection of the cheek-skin flap, however, in which a conscious effort must be made to prevent the flap from becoming too thick, a slightly deeper dissection should be made in the neck to preserve a thicker layer of subcutaneous fat. Preservation of a thicker layer of fat on the skin flap helps to avoid a hard or overresected appearance in the cervicosubmental area and objectionable overexposure of underlying neck anatomy. Once skin-flap elevation is complete, the subplatysmal dissection is performed. The subplatysmal space is entered by incising the superficially situated fascia between the medial platysma muscle borders. This fascia is continuous with the superficial fascia in the face. A combination of blunt and sharp scissors technique is used to isolate each muscle edge. The muscle edge is then grasped and the dissection carried laterally, over the anterior belly of the digastric muscle hugging the underside of the platysma. If this dissection is carefully made, a well-defined, relatively avascular plane can usually be identified. Small communicating vessels are not infrequently encountered, however, especially near the medial muscle borders, and these should be carefully fulgurated and divided as required. Once the platysma has been raised, the deep space of the neck can be examined and modified as necessary.

Subplatysmal Fat

The key to obtaining an optimal result in the neck lies in understanding the specific distribution of fat in the submental region. Cervical fat is present in three distinct anatomical layers: preplatysmal, subplatysmal, and deep cervicosub muscular (“interdigastric”). In almost all cases, cervical lipectomy should be limited to the two more superficially situated locations.

In most patients undergoing neck rejuvenation, most cervical fat accumulation is present in a subplatysmal location, and little, if any, fat needs to be removed from the preplatysmal layer. Experience has shown that as patients age, fat stores generally shift from a preplatysmal to a subplatysmal location. For the typical patient undergoing a neck lift, the small amount of subcutaneous fat present must be preserved to maintain a soft, youthful, and attractive appearance.

The plane tangent to the anterior bellies of the digastric muscles should be used as a landmark for submental fat removal. Theoretically, all fat lying superficial to this plane should be removed if optimal contour is to be obtained. As a practical
matter, however, overall neck contour must be considered because it is the curvilinear plane across the submental region tangent to the borders of the mandible and the anterior bellies of the digastric muscles that ultimately determine attractive neck contour. If large submandibular glands or anterior bellies of the digastric muscles are present but not addressed, submental fat removal should be more conservative if accentuation of these problems is to be avoided. Fibrous fat in the prehyoid region also should not be arbitrarily removed, especially in women, as accentuation and masculinization of the larynx can occur. If prominent submandibular glands and digastric muscles are appropriately treated, however, more aggressive resection of submental fat can be done.

Centrally situated subplatysmal fat will be evident as a triangle-shaped fat pad with its base lying at the hyoid, and tip near the mentum (Fig. 1.13). Submental fat should be removed incrementally, as appropriate, and as determined by the position and size of the digastric muscles and the size of the submandibular glands. Fat removal should not be arbitrary, and close attention must be paid to the new contours that are created. Submental fat excision often results in division of tributaries of small pretracheal vessels; a long, shielded cautery forceps and good suction should be available to obtain adequate hemostasis when required. Fat situated deep to the plane tangent to the anterior bellies of the digastric muscles and beneath the deep cervical fascia (deep cervical or “interdigastric” fat) should rarely be removed.

### 1.5.2 Submandibular Glands

Preoperatively, it is important for the surgeon to evaluate the submandibular glands because these glands often contribute to the appearance of a full, “obtuse,” or “lumpy” neck. Submandibular glands are usually palpable as firm, well-circumscribed, mobile masses in the lateral submandibular triangle. They lie lateral to the anterior belly of the digastric muscle and medial to the ipsilateral mandibular border. Submandibular glands lying superior to a plane tangent to the inferior border of the mandible and the ipsilateral anterior belly of the digastric muscle do not disrupt neck contour and usually do not require treatment; however, glands that protrude inferior to this plane are likely to be problematic and warrant treatment if excess cervical fat is removed, the platysma muscle is tightened, and redundant skin is excised. The prominent submandibular gland is encountered as a subplatysmal dissection is carried lateral to the anterior belly of the digastric muscle (Fig. 1.14). The prominent gland appears as a smooth pink to tan mass covered by a smooth capsule. Reduction begins with incision of the capsule overlying the gland inferomedially, just lateral to the anterior belly of the digastric muscle.
The submandibular gland becomes evident once it is exposed in this manner because of its distinctive lobulated appearance. Its inferior portion can be grasped and easily separated from adjacent tissue inside its capsule using a gentle blunt-scissors spreading technique. Although all vital structures are outside the glandular capsule, care should be taken when mobilizing the gland superolaterally, as both the retromandibular vein and the marginal mandibular branch of the facial nerve are in close proximity in that area. Also, during excision of the excess portion of the gland, intraglandular vessels may be encountered; these can produce significant bleeding that must be controlled.

1.5.3 Digastric Muscles

A small subgroup of patients have an anterior belly of the digastric muscles that is large and bulky. This scenario is seen as linear paramedian submental fullness. Large anterior bellies of the digastric muscles are most easily seen in secondary facelift patients who have had prior aggressive cervicosubmental lipectomy. Excess submental fat or lax platysma muscle frequently hides large muscles in the patient undergoing primary procedures, and failure to identify these muscles may lead to unexpected and objectionable submental bulges postoperatively. In these patients, subtotal superficial digastric myectomy should be considered (Fig. 1.15). The final decision as to whether to perform partial digastric muscle resection is best deferred until the day of surgery, when the improvement produced by other modifications of the submental region can be evaluated. A tangential excision of the anterior belly of the digastric muscle is performed under direct vision through the submental incision after the subplatysmal space has been opened, the platysma muscle mobilized, and subplatysmal fat and protruding portions of the submandibular gland resected, if indicated. The redundant portion of muscle is gauged and isolated on a tonsil forceps by pushing the tips of the instrument through the muscle belly. The isolated segment is then excised with scissors or cautery by dividing the muscle near the mandible and the hyoid. The neck is reexamined, and the maneuver should be repeated until an improved contour is obtained, usually entailing excision of the superficial almost half to three-quarters of each muscle.