Rhytidectomy

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Why should otolaryngologists study face lifting?
Rhytidectomy

- History
- Physiology and Anatomy
- Clinical Evaluation
  - Preoperative workup
  - Analysis of face
- Types of face lifts
  - Complications
History

- Few early historical details
  - Early 20\textsuperscript{th} century: Germans/French
  - Techniques guarded
  - Pre-antibiotic era– low profile
- SQ undermining
- Elliptical excisions of skin
History

- 1916: Passot’s first described subcutaneous face lifting
- 1950’s “classic facelift” (Swanker)
  - Skin only
- 1974: Tord Skoog describes subplatysmal dissection
- 1976: SMAS (superfical musculo-aponeurotic system) coined by Paul Tessier and anatomic relations described by Mitz/Peyronie
History

1970’s-80’s
- Anatomic studies of facial planes, musculature and physiology of the aging face

1990: Hamra described the deep plane

1990s –present: Deep plane, composite rhytidectomies, SMAS dissection, S-lifting, adjunctive procedures
Demographics

- Increasingly performed in men
  - 70s - 6%
  - 80s – 15%
  - Currently – 20%
Pathophysiology of the Aging Face

- Facial aging characteristics
  - Gravitational migration of tissues
    - Skin
    - Subcutaneous fat
    - Superficial fascia
  - Increasing prominence of NLFs
  - Downward-drooping jowls
  - Laxity of submental and anterior neck tissues
Pathophysiology of the Aging Face

- Vectors of tissue migration
  - Cheek and lower face
    - Platysma suspended by the SMAS
    - Both elongate with aging
    - Platysma, SQ fat, and skin descend vertically
  - Produces jowls and laxity in the submental and anterior neck regions
- 5 fat collections (Hoefflin, 1998)
  - Malar
  - Nasolabial
  - Jowl
  - Buccal
  - Submental
Pathophysiology of the Aging Face

- Midface
  - SMAS invests the lip levator muscles
  - Overlying malar fat pad slides vertically superficial to the SMAS
  - Causes increased prominence of the NLF
    - Gosain et al. (1996) – MRI study comparing the NLF in the young vs. old.
      - Conclusion – progressive thickening and ptosis of the lower cheek/malar fat and skin (not the muscular plan – i.e. SMAS)
      - SMAS does not migrate with age
Pathophysiology of the Aging Face

- 5 Osteofasciodermal or septal (ligaments) (Hoefflin, 1998)
  - Malar
  - Parotid
  - Masseteric
  - Zygomatic
  - Mandibular
Anatomy

- Five planes (Hoefflin, 1998)
  - **Superficial subcutaneous plane**
    - Epidermis, dermis, and thin layer of SQ fat
    - Dissection divides subdermal plexus of vessels
  - **Mid-subcutaneous plane**
    - Contains bulk of central facial fat
    - Some fat left on the platysma/SMAS
    - Divides axial arcuate vessels
  - **Supraplatysmal plane (i.e. supraSMAS plane)**
    - Dissection is immediately superficial to the platysma
    - Natural anatomic plane
    - Preserves the arcuate vessels
  - **Subplatysmal plane (i.e. subSMAS plane)**
  - **Subperiosteal plane**
SMAS

Subdermal plexus

Septocutaneous perforator

Musculocutaneous perforator
Anatomy

- SMAS
  - Superficial Musculo-Aponeurotic System
  - Distinct fibromuscular layer
  - Extends from the platysma to the Galea
Anatomy

- **SMAS**
  - **Properties**
    - Divides SQ fat into two layer
    - Connected to dermis by fibrous septa
    - Fat deep to SMAS is non-septated
    - Deep to the subdermal plexus and superficial to the major vessels and nerves
    - Acts to distribute force for the mimetic facial musculature
SMAS

- **Upper 3rd of face**
  - Thick
  - Galea
  - Temporoparietal fascia
    (i.e. superficial temporal fascia)
  - Frontalis m.
  - Orbicularis oculi m.

- **Middle 3rd of face**
  - Tightly adherent to,
  - Zygomaticus maj. & min.

- **Lower 3rd of face**
  - Platysma & lip depressors
SMAS

- **Platysma**
  - **Origin**: clavicles and 1st rib
  - **Insertion**: blends with the SMAS and lip depressors
SMAS
The Consultation

- History
  - Find patient desires/motivations
- SAFE
  - Self-image
  - Anxiety
  - Fear
  - Expectations
- Don’t operate if you don’t feel positive
- Compliance
Clinical Evaluation

- History
  - Relevant medical history
    - DM, tobacco use, CVD, psychiatric problems, steroid use, HTN, prior surgeries/scarring
      - Salivary or serum cotinine levels
    - Medicine use: ASA/NSAIDs, steroids, vitamin E, OTC herbal supplements (gingko biloba)
Physical Examination

- Anatomic Evaluation
  - Checklists may help

- Skin Characteristics

- Photos

The Upper Third

The Forehead
- Hair: coarse, fine, thin, thick, balding
- Hairline: low, normal, high, absent, surgically absent
- Sideburns: low, normal, high, surgically absent, surgically altered
- Eyebrow pattern: full, partially plucked, absent, surgically absent
- Rhytids
- Forehead-transverse: absent, shallow, deep, surgically altered—pattern
- Glabellar frown: absent, shallow, deep, surgically altered—pattern
- Headaches: never, rare, frequent, location
- Skin
  - Orbital rim: bare, hairbearing
  - Ptosis/brows + supratarsal (right and left): none, relaxed, ptotic

The Upper Eyelids
- Prior blepharoplasty scar: years postoperative, mm from lid margin, mm from browline
- Supraorbital fat: medial 0.1.2.3.4.+/mid 0.1.2.3.4.+/central 0.1.2.3.4.+ right and left
- Palpebral aperture at midpoint: R ___________ mm ___________ L
- Symmetric
- Asymmetric: description of asymmetry
- Levator function: ptosis, pseudoptosis, attenuation
- Supratarsal skin redundancy:
  - Wrinkled, but palpebral fold visible right and left
  - Palpebral fold obscured right and left
  - Hooded skin rests on lashes right and left
  - Hoods extend laterally right and left

The Lower Eyelids
- Scleral show: R ___________ mm ___________ L
- Tone of margin: good, fair, poor, surgical
- Eyelid margins: entropion, ectropion, senile, norm
- Retraction: R ___________ mm ___________ L
- Ectropion: R ___________ mm ___________ L
- Intraorbital fat: medial 0.1.2.3.4.+/mid 0.1.2.3.4.+/central 0.1.2.3.4.+ right and left
- Skin: smooth, relaxed, wrinkled, festoons
- Orbicularis oculi muscle: paralyzed, hypoactive, hyperactive, hypertrophic, normal
- Malar bags: absent, small, large
- Visual acuity: right and left corrective lenses, contacts, cataracts, implanted lenses, impaired/blindness
- Schirmer’s test: R ___________ mm ___________ minutes

Symptoms/history of keratitis

The Mid Third

The Face
- Facial configuration: round, oval, triangular, rectangular, skeletal, thin, normal, obese
- Facial cheek skin: thick, thin, atrophic, oily, dry, scarred
- Facial asymmetry
- Rhytids
  - Nasolabial: shallow/deep
  - Cheeks: parallel/committed
  - Perioral
  - Marionette/wrinkles
  - Vertical/horizontal
  - Jowls: 0.1.2.3.4.
  - Upper lip: elongated, margins thin, commissures downturned
  - Scars: nevi, papilloma, keratoses, malignancies, other
  - Previous face lift scars: coronal/frontal, temporal, preauricular (pre/posttragal), lobular (pulled), postauricular, mastoidal, occipital
  - Ears: protrusion, antihelical contour, lobules (small/normal/enlarged), lobular fold (absent/normal/scarred/pulled)
  - Parotid: absent, small, normal, large, masses

The Lower Third

The Chin and Jaw
- Chin and jaw: retruding, small, normal, large, senile deformity
- Adipose deposits: submandibular, submental (0.1.2.3.4.+)
- Submental gland: small, normal, large, ptotic, masses

The Neck
- Skin: smooth, relaxed, ptotic, scarred
- Rhytids: multiple, crepey, 0.1.2.3.4.
- Platysma: anterior cords (early, parallel [diverging, ptotic, 0.1.2.3.4.+]), secondary cords
- Lesions: keratoses, nevi, papillomas, other
Clinical Evaluation
Clinical Evaluation

- Less than ideal candidates
  - Discuss expectations in detail
  - Need for other procedures

- Ideal patient
  - Elastic skin
  - Distinct bony landmarks
    - High cheek bones
    - Strong jaw line
  - Little SQ fat
  - Good bone structure
    - Hyoid position
Ideal Face Lift Candidate

1. Lax skin
2. High cheek bones
3. Strong jaw line
4. High hyoid position and minimal fat
The Consultation

- Review printed photos with patient
- Computer imaging
- Discuss potential benefit of adjunctive procedures
Clinical Evaluation

- Adjunctive Techniques
  - Botox
  - Laser peel
  - Dermabrasion
  - Chemical peel
  - Neck treatment
  - Implants
  - Blepharoplasty
  - Brow/forehead lift
  - Midface lift
  - Rhinoplasty
Anatomic sites addressed by the face lift

- Lower facial rhytids
- Jowling
- Submental area
- Platysma banding
- Nasolabial folds

Anatomic sites not addressed by the face lift

- Forehead
  - Ptosis and rhytids
- Eyelids
  - Fat herniation
  - Dermatocholasis
- Midface +/-
- Perioral rhytids
- Nasolabial folds
Types of Face Lifts

- Skin only face lift
- Subcutaneous w/ SMAS face lift
  - Plication vs. imbrication
Types of Face Lifts

- Deep plane face lift
- Composite face lift
Types of Face Lifts

- Minimally invasive S-face lift
- Subperiosteal face lift
Clinical Evaluation

- Develop operative plan
- Plan adjunctive procedures
- Prescriptions (pain meds, antibiotics)
  - SinEcch, homeopathic Arnica Montana (Alpine Pharmaceuticals)
- Vitamin C
- Instruction sheet
SMAS Facelift

- Preop phisohex evening and morning
- Preoperative Marking
  - In holding with patient upright
    - NL folds, jowl lines, platysmal bands, 2 cm from oral commissure, angle of mandible, frontal branch course
    - Incisions including submental incision
    - Rubber band hair
- Anesthesia
  - MAC vs. general
SMAS Facelift

- Perioperative antibiotics
- Mayfield head holder
- Avoid paralysis
SMAS Facelift

Figure 6. Z-plasty in submental area.
The Neck
Incisions
Incisions

May cause loss of temporal hair tuft

Preserves temporal hair tuft (Kridel, 2003)
Beveling blade parallel to hair follicles

Beveling blade perpendicular to hair follicles
Incision placed several mm onto the conchal bowl
SMAS Facelift
Supra-platysmal dissection
SMAS Facelift
SMAS Facelift (plication)
SMAS Facelift (imbrication)
SMAS Facelift
SMAS Facelift

- Postop Care
  - Drain
  - Pain meds
  - HTN meds
  - Wound care
  - Instruction sheet
- Polyvinyl choride transparent film (i.e. Saran wrap)
  - Adherent
  - Covers all undermined areas
  - Easier contouring
  - Less noticeable
  - Monitoring
Deep Plane Facelift
Deep Plane Face Lift

- Red - Area of supra-SMAS undermining
- Yellow – Area of sub-SMAS undermining
- **Borders of sub-SMAS dissection**
  - Superior - orbicularis oculi and zygomaticus maj. and min.
  - Medial – ZM&M, NLF, buccal fat pad
  - Inferior – tail of parotid and masseter
  - Deep – parotidomasseteric fascia
Parotidomasseteric fascia
- NLF
- Direct excision
Nasolabial Fold

- Fillers (Gortex)
Face lifting does not treat the skin

- Consider
  - Chemical peel
  - CO2 laser resurfacing
- Debate as to timing of treatment w/ respect to the face lift
  - Fulton (1998) 25 cases of SMAS lift with simultaneous CO2 laser resurfacing or 20-30% TCA chemical peeling
  - Preconditioned skin with Vit A/glycolic acid 6-8wks
  - Nonsmokers
  - Antivirals
Rhytidectomy with CO2 laser resurfacing
Rhytidectomy with CO2 laser resurfacing
Composite Face Lift

- Hamra – “triad of face lift sequelae”
  - Unoperated forehead
  - Lateral sweep
  - Hollow eyes
- Zone I – cheeks and lower face
- Zone II – periorbital area
- Zone III – forehead area
- Vector of pull with a traditional SMAS face lift
Vectors of Pull
Composite Face Lift
- Composite face lift
Composite face lift
Composite face lift

SMAS face lift

Composite face lift (8mo)

Composite face lift Chemical peel
S-Lift

Minimal Access Cranial Suspension

- Devised for less dramatic facial rejuvenation
  - Local anesthesia
  - Less healing time/prolonged disfigurement
- Lower complication rates
- Less “operated on” look
Results of minimal access cranial suspension lift
Complications

- Complications (SMAS face lift)
  - Hematoma (8.5%)
  - Skin Slough (1-6%)
  - Ear lobe deformities
  - Infections
  - Widening of scars
  - Hairline changes (1%)
  - Nerve Injury (0.4-2.6%)
    - Greater auricular
    - Frontal/Marginal
Hematoma

- Prevention
  - Dressing is most important
  - Drains
Skin Slough

- 2.7% - 8.3% in non-smokers
- 7.5% - 19.4% in smokers
Ear lobule deformities

“Pixie ear” deformity
Avoidance of the pixie ear deformity

- Avoid infa-auricular skin tension
- Careful placement of perilobular incision
- Mattress stitch at free edge of lobule to underlying soft tissue
Hair line mal-alignment
Nerves at risk in face lifting
Nerves at risk
SMAS Facelift
SMAS Facelift
Face lift after irradiation

- Anecdotical evidence that it is safe \textcite{(Rudolph and Wolf, 2003)}

- Affects of XRT on skin
  - Ischemia?
  - Delayed or poor healing (damage to fibroblasts)

- Higher energy XRT used today
  - Skin sparing effects
Subperiosteal Face Lift

- Usually combined SOOF (sub-orbicularis oculi fat)
- Improved midface rejuvenation
- Mechanically more effective
- Benefit in treatment of facial nerve paralysis
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