HOW IS DONE
(Techniques, Surgical anatomy, Indications)
Chemical denervation, Dermal fillers

Constantinos Laskarides DMD, DDS, PharmD, FICD
ORAL & MAXILLOFACIAL SURGERY
Associate Professor, TUFTS UNIVERSITY
Attending Surgeon, TUFTS MEDICAL CENTER
Diplomate, American Board of Oral & Maxillofacial Surgery
Fellow, American Association of Oral & Maxillofacial Surgeons
Fellow, American College of Oral & Maxillofacial Surgeons
American Society for Aesthetic Plastic Surgery
2012 Statistics

Most popular nonsurgical procedures (Doctors)
- Botulinum Toxin Type A: 3,257,913
- Hyaluronic Acid: 1,423,705
- Laser Hair Removal: 883,893
- Microdermabrasion: 498,821
- Chemical Peel: 443,824

Most popular nonsurgical procedure (TOTALS: Drs, PAs, RNs)
- Botulinum Toxin Type A: 4,125,179
- Hyaluronic Acid: 1,806,806
- Laser Hair Removal: 1,224,920
- Chemical Peel: 718,465
- Microdermabrasion: 672,430

$6.7 billion - surgical procedures
$2 billion - injectables procedures
$1.8 billion - skin rejuvenation procedures
$483 million - other nonsurgical procedures (laser hair removal and laser treatment of leg veins)

Cosmetic surgical procedures
- Breast Augmentation: 330,631
- Liposuction: 313,011
- Abdominoplasty: 156,508
- Eyelid surgery: 153,171
- Rhinoplasty: 143,801
Surgical Anatomy Forehead and Periocular Region

- **Frontalis**
  - Origin-epicranial aponeurosis at level of coronal suture
  - Lifts the eyebrows
  - Surprise, fear
  - Nerve-temporal branches of facial nerve
The frontalis also inserts onto fibers of the procerus, corrugator, and orbicularis oculi muscles. This muscle group is responsible for the horizontal wrinkles of the forehead as well as for elevation of the brow. The frontalis muscle should not be completely paralyzed, which will result in inadvertently depressing the brow.
Surgical Anatomy Forehead and Periocular Region

• Only small amount of Botox should be injected into the lower fibers of the frontalis to avoid brow ptosis
• Avoid injecting close to the lateral brow to avoid lateral brow ptosis
• Aware of the hyperfunctional frontalis muscle that actually supports a ptotic upper eyelid
Blepharoptosis
(Upper eyelid ptosis)

- margin fold distance (MFD)
- margin reflex distance 1 (MRD-1) 4-4.5mm
- margin reflex distance 2 (MRD-2)
- palpebral fissure (PF [MRD-1 + MRD-2]) ~10
- horizontal fissure distance (HF)
- intercanthal distance (ICD).
Surgical Anatomy Forehead and Periocular Region

• Inadvertent involvement of levator palpebrae superioris by Botox causes lid ptosis
The corrugator muscle

- Brow adductor. Compresses the skin between the eyebrows
- Frown, concern, concentration (glabella crease)
- Deep to both the procerus and frontalis muscles. Injection of this muscle will inevitably paralyze some of the fibers of the other 3 muscles.
- Nerve - Zygomatic and temporal branches of facial
Surgical Anatomy Forehead and Periocular Region

Procerus muscle
- Transverse wrinkles
- Angry scowl
- Paralysis will relax the “snout” contraction
- Nerve - Zygomatic and temporal branches of facial
Surgical Anatomy Forehead and Periocular Region

Orbicularis Oculi

- Function: Sphincter of eyelids; palpebral part involuntary
- Squinting, smiling, winking
- Nerve - Temporal and zygomatic branches of facial
Surgical Anatomy Nasal Region

**Levator Labii Superioris Alaeque Nasi**
- Dilates the nostril and elevates the upper lip
- Sneering, “bunny lines”
- Nerve - Buccal branch of facial nerve
Depressor anguli oris

- Pulls the corner of the mouth downward
- Injection will lift corners of mouth
- Nerve - Mandibular branch of facial nerve
Depressor Labii Inferioris

- Pulls the lower lip down and out
- Medial injections may cause inward curl of lower lip
- Nerve - Mandibular branch of facial nerve

Surgical Anatomy Lower Face
Orbicularis oris

- Sphincter of mouth, purses lips and puckers lip edges.
- “smoker lines”
- Nerve - lower zygomatic, buccal, and mandibular branches of the facial nerve
Platysma
- Flat, superficial neck muscle
- Forms longitudinal bands
- Nerve - cervical branch of the facial nerve
Indications

- **Dynamic rhytides** occur in areas of dynamic motion, and these types of lines may be improved with botulinum toxin.
- Relaxation of muscles that will result in enhanced esthetics
Indications

- Upper face
  - Glabellar rhytids
  - Lateral canthal rhytids (crow’s feet)
  - Upper nasal rhytids (bunny lines)
  - Horizontal forehead rhytids
  - Lateral eyebrow lift
  - Asymmetric brows
Glabella
Forehead
Lateral eyebrow lift
• off label
• usually females
• 2 units
Crow’s feet
Indications

• Midface
  – Lower nasalis rhytids (nasal flare)
  – Perioral rhytids (lipstick lines)
  – Facial asymmetry
• Lower face
  – Melomental folds, drooping labial commisure
  – Peau d’orange chin (mentalis strain)
  – Gummy smile
  – Lower facial asymmetry
• Neck
  – vertical platysmal folds
Zone I: Glabella
15-20 units
Fanning Technique

Zone II: Forehead
10-15 units
Percutaneous Technique

Zone IIIA: Upper Lateral Eye
5-7 units per side
Fanning Technique

Zone IIIB: Middle Lateral Eye
5-7 units per side
Fanning Technique

Zone IIIC: Lower Lateral Eye
5-7 units per side
Fanning Technique
bevel tip up

Legend

$\times =$ percutaneous injection

$\rightarrow =$ fanning injection
# Treatment strategy

<table>
<thead>
<tr>
<th>Area</th>
<th>glabella</th>
<th>forehead</th>
<th>upper lat. periocular</th>
<th>middle lat. periocular</th>
<th>lower lat. periocular</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Muscles involved</strong></td>
<td>Corrugator &amp; procerus</td>
<td>Frontalis</td>
<td>upper lat. Orbicularis oculi</td>
<td>middle lat. Orbicularis oculi</td>
<td>lower lat. Orbicularis oculi</td>
</tr>
<tr>
<td><strong>No. Units</strong></td>
<td>15 - 20</td>
<td>10 - 15</td>
<td>5 - 7</td>
<td>5 - 7</td>
<td>5 - 7</td>
</tr>
</tbody>
</table>
Other uses

- Use of intradermal Botulinum toxin to reduce sebum production and facial pore size. AR Shah
  
  *J. Drugs in Dermatology, 2008 7:9, 847-850*

  (sebum production affected by acetylcholine, parasympathetic muscle relaxes arrector pili muscles)
Treatment planning

- understanding of patient desires and expectations
- evaluate the area to be treated, prior treatments, medical history, allergies, pain tolerance.
- evaluate the wrinkle, depth of the fold or groove to be treated, volume of filler needed, skin type, as well as any pre-existing asymmetry.
- choose the correct filler
Treatment

- Photographs
- Face is cleansed with disinfectant
- Patient seated in an upright position. Lying down may alter effects of gravity
- Magnification can be useful to aid in the appreciation of subtle contour abnormalities.
- Ice packs, topical anesthetics, field block, and peripheral nerve block possible
Treatment

1. Tear Troughs
2. Naso-labial Folds
3. Marionette Lines/ Jowls
4. Midface/Cheeks
5. Upper and Lower Lips
Wrinkles, folds, and contour irregularities of the face—oblique (medical term).
Treatment

The outer diameter of a 26-gauge needle is 0.45 mm.
Treatment

Thickness of dermis in different areas of face
Nasolabial folds

1. 
2. 45°
3.
Tear troughs
Mesotherapy for skin rejuvenation

- smooth formulation of HA without particles, which helps it distribute evenly and smoothly under the skin
- replenish the hyaluronic acid lost through ageing
- hydrates the skin and improves its elasticity and tone
- micro-puncture technique that involves injecting very small amounts into the superficial papillary dermis, about 1-2cm apart
- Restylane Vital, Juvederm Hydrate