DISCLOSURES

- Dr. Chapas: Consults for Solta, Syneron, Allergan, Galderma, Merz, DUSA, L’Oreal
  Investigator for Watson, DUSA, Restorsea, Alastin, Endymed, Syneron, Galderma, Athenex, SkinCeuticals, Dr. Rogers Restore, Endo Pharmaceuticals, Inc.

- Dr. Chwalek: Consults for Merz
GOALS

- Increasing popularity of cosmetic dermatologic procedures also increases the greater number of complications from these procedures.

- As dermatologists we must:
  - Take measures to avoid these complications
  - Prompt recognition when they happen
  - Treat effectively to minimize long term sequelae
# TOP 10 COSMETIC PROCEDURE COMPLICATIONS

<table>
<thead>
<tr>
<th>INJECTABLES</th>
<th>LASER</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRUISING</td>
<td>BURNS</td>
</tr>
<tr>
<td>EYELID/EYEBROW PTOSIS</td>
<td>INFECTIONS</td>
</tr>
<tr>
<td>THE “SPOCK”</td>
<td>PARADOXICAL REACTIONS</td>
</tr>
<tr>
<td>LUMPS AND BUMPS</td>
<td>OCCULAR COMPLICATIONS</td>
</tr>
<tr>
<td>VASCULAR OCCLUSION</td>
<td>BODY CONTOURING IRREGULARITIES</td>
</tr>
</tbody>
</table>
Post-procedure Ecchymoses

- Reported in up to 68% of injectable filler treatments\(^1\)

- Always occur:
  - At the most inconvenient time
  - To family members
  - Staff members
  - Physician patients

BRUISE PREVENTION

• AVOID for 2 weeks prior to injections: NSAIDS, Vitamin E, Omega 3-fatty acids, gingko biloba, ginseng, or garlic and alcohol. **DO NOT STOP ANTICOAGULANTS, ASA OR ANTIPLATELET THERAPY FOR COSMETIC PROCEDURES**

• Injections techniques: vein light, blunt tip cannula, anterograde injections, slow flow with smaller alliquots

• No controlled clinical studies have shown a benefit to oral arnica or bromelain in bruise prevention prior to facial injections
Pulsed Dye Laser (PDL) Can Reduce Bruised Appearance

- DeFatta et al (2009)
  - 20 patients s/p cosmetic surgical facial procedures treated POD 5-6 with PDL settings: 595nm, 10 mm spot size, 6 J/cm², 6 ms, cryo spray 30ms, 20 ms prior to pulse. 3 passes.
  - 63% improvement within 48-72 hours later

  - 10 adults with traumatic forearm bruises treated 2-3 days later PDL settings: 595nm, 10 mm spot size, 7.5 J/cm², 6 ms, cryo spray 30ms, 20 ms prior to pulse.
  - 62% improvement at 24 hrs, 76% improvement at 48 hours

PDL treatment of post filler ecchymoses

2 days post PDL, 595 nm, 10 mm, 7.5 nm, 6 ms
2 passes
Healing Phases of Bruises

- **Extravasated Blood Cells (OxyHb, Red)**
  - Immediate – Few hours
  - PDL Tx
  - Natural Healing

- **Extravasated Blood Cells (deoxyHb, Blue)**
  - 2-48 hrs
  - PDL Tx
  - 2-5 days

- **Cell breakdown (metHb, Purple-Black)**
  - 5-7 days
  - PDL Tx
  - DeFatta’s Study

- **Further Decomposition (Verdin, Green)**
  - 7-10 days
  - Karen’s study

- **Denatured (colorless) Erythematous (Pink-red)**
  - 3-7 days Post-Tx

- **Fully Cleared**
  - 2-4 Weeks

- **Further Decomposition (Bilirubin, Yellow)**
Don’t Make a Bad Situation Worse

- PDL is not without risks
- Levine and Geronemus (1995) reviewed 500 cases of PDL treatment of vascular lesions and found:
  - 0.1% atrophic scarring
  - 0.04% dermatitis
  - 1% hyperpigmentation
  - 2.6% transient hypopigmentation

3 days S/P MFUS + HA dermal filler
Tx’ed with 595 nm, 6.5 J/cm², 6 ms, 10 mm

4 days later
5 weeks post PDL

S/P 3 nonablative fractional txs

S/P 1 ablative fractional tx
SUMMARY

- Post-procedure bruising can be treated from 2 hours to 6 days post procedure.
- Consider depth of bruising as superficial bruising can be treated earlier than deep bruising.
- Use conservative settings on dark or concentrated bruises to avoid complications.
NEUROMODULATOR COMPLICATIONS
LID PTOSIS

Backroom Botox made my face grotesque!
By Mackenzie Dawson October 12, 2015

Adverse Events: eyelid ptosis (1.8%), eyelid sensory disorder (2.5%)
LID PTOSIS

**WHY:** Neuromodulator diffusion after placement too inferiorly within the corrugator.

**PREVENTION:** Keep injections 1 cm above orbital rim.
Evaluate forehead compensation for lid/brow laxity prior to treatment.

**TREATMENT:** apraclonidine (0.5%), naphazoline, phenylephrine 2.5%, all alpha adrenergic agonist ophthalmic eye drops stimulate the Muller’s muscle to elevate the lid. Dose is 2 drops 2-3 x/day to affected lid until ptosis resolves. HAVE ON HAND!

- Weakens Muller muscle and the levator palpebrae superioris that raises the lid
BROW PTOSIS

- The dreaded “HEAVY BROW”

**WHY:**
- Frontalis is the only brow elevator
  - Too high of a dose injection too low on corrugators or frontalis
  - Diffusion to frontalis when treating corrugator

**PREVENTION:**
Keep corrugator injections small and >1cm above orbital rim and medial to mid-pupillary line and frontalis > 2 cm above mid-pupillary line.

- NO massage
- Consider 2 stage procedure

**TREATMENT:**
Time
“SPOCK” BROW

Mephisto brow or “Dr. Spock” brow occurs when the patient activates the frontalis and causes lateral elevation of the brow. Treat with 1-2 units of Botox/Dysport at peak of brow where lines appear strongest.
LUMP AND BUMPS

- **NONINFLAMMATORY**
  
  **POOR TECHNIQUE**
  - Usually present within days or weeks of injection
  - Pea size or smaller
  - Single or few
  - Eye and lips (filler migration)
  - Too much filler
  - Too superficial
  - Wrong product

- **INFLAMMATORY**
  
  **Infectious**
  - Acute: Staph, Strep, HSV
  - Late onset: *M. chelonae*
  
  **Foreign Body/Chronic:**
  - Granulomatous
  - Biofilms
  - Reactions can be localized or systemic
Inflammatory Lumps and Bumps

• PREVENTION

SKIN PREP:
- Remove makeup and cleanse face
- Etoh, Hypochlorous acid

Rx PROPHYLAXIS: valacyclovir

Treatment: Avoid infected tissue

Post tx AVOID: Facial trauma, dental surgery, sinus surgery immediately after injection

Inflammatory Lumps and Bumps: Dx/Tx

- If fluctuant and acute:
  - I and D, Cx for bacteria and fungus.
  - Start 1st gen cephalosporin or trimethoprim-sulfamethoxazole if MRSA suspected
  - No hyaluronidase

- If inert and delayed:
  - Hyaluronidase injection
  - 2 week trial of dual antibiotic therapy: 3rd generation macrolide and quinolone
  - If no response: monthly intralesional corticosteroids/5 fluorouracil
  - Final option: surgical excision-tissue for PCR/FISH

Hyaluronidase (HYAL)

- Naturally occurring enzyme that degrades HA
- Hydrolyzes HA by splitting the β1,4-glucosaminidic bond between C1 of the glucosamine moiety and the C4 of the glucuronic acid.

Hyaluronic acid
### Commercially Available Hyaluronidase

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>SOURCE</th>
<th>PRESERVATIVE</th>
<th>OTHER</th>
<th>SKIN TESTING</th>
<th>FORMULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphada se</td>
<td>Bovine</td>
<td>Thimerosal</td>
<td></td>
<td>Yes</td>
<td>Solution 150 Units/mL</td>
</tr>
<tr>
<td>Vitrase</td>
<td>Ovine</td>
<td>None</td>
<td>Lactose</td>
<td>Yes</td>
<td>Solution 150 Units/mL</td>
</tr>
<tr>
<td>Hylenex</td>
<td>Recombinant human DNA</td>
<td>None</td>
<td>Albumin</td>
<td>Yes</td>
<td>Solution 200 Units/mL</td>
</tr>
</tbody>
</table>
Adverse Effects of Hyaluronidase

- Local site reactions are most common.

- Fewer than 0.1% have urticaria or angioedema.

- Anaphylaxis has never been reported after subepidermal injection.
Skin Testing

- Amphadase (bovine), Vitrase (ovine), Hylenex:
  - 0.02mL (3 Units of a 150 Unit/mL solution) intradermally
  - positive reaction within 5 minutes
  - persists for 20 to 30 minutes with itching

- Caution in patients with history of allergy to bee or vespid stings.
  - 1 of 8 biologically active components in bee venom.
Technique for Non-urgent Dissolution

- Perform skin testing
- Inject 5-10 Units of HYAL for each 0.1 ml of HA. Longer lasting, more cross-linked fillers may require more.
- Significant reduction in 24 hours but may take up to 2 weeks\(^1\).
- Endogenous HA will regenerate rapidly and patient should not be concerned

2 weeks after 10 units of HYAL
VASCULAR OCCLUSION

**ARTERIAL OCCLUSION**
- Anterograde:
  - pain, blanching distal to injection site
- Retrograde followed by anterograde
  - Dizziness, blindness, CVA, pain

**VENOUS OCCLUSION**
- livedo, lack of pain

Beleznay et al. Dermatol Surg 2015;41:1097-1117
PREVENTION

- Know your anatomy and danger zones. Greatest risk near the angular artery and supratrochlear artery
- Cannulas
- Aspiration
- Slow retrograde injections
- Avoid volumes larger than 0.1 ml unless in avascular area such as bone
TREATMENT

- Train staff to recognize warning signs:
  - Skin blanching
  - Livedo
  - **Pain**
  - Blanchable pupura
  - Skin breakdown

- When treated within 48 hours, better chance of full resolution
Current Recommendations

- HYAL immediately to entire ischemic area, no skin testing needed.
- Inject a minimum of 200 units and massage, repeat hourly until evidence of clearing of livedo, blanching, violaceous discoloration.
- Warm compresses
- ASA
- Nitropaste?
Conclusions

- As dermatologists we will likely see and be asked to treat complications from increasingly popular cosmetic procedures.

- Preventing, recognizing and effectively treating this complications are essential to the practice of dermatology.