Facial Injectables

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Disclosures

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Neuromodulators
Treatment Goals for Botulinum Toxin Therapy

- Effacement of hyperfunctional rhytides
- Recontour facial proportions and achieve symmetry
Injectable Botulinum Toxins

- Produced by various strains of *Clostridium botulinum*
- Serotype A
  - onabotulinumtoxinA = BOTOX® Cosmetic
  - abobotulinumtoxinA = Dysport®
  - incobotulinumtoxinA = Xeomin®

onabotulinumtoxinA, abobotulinumtoxinA, and incobotulinumtoxinA are FDA-approved for cosmetic use (glabellar lines); onabotulinumtoxinA approved for crow’s feet
Know Your Anatomy!
Complications

- Brow Ptosis
- Eyelid Ptosis
- Asymmetry
- Bruising (Hematonia)
- Headache
TREATMENT GOALS FOR DERMAL FILLERS

- Volume restoration
- Recontour facial proportions and achieve symmetry
WHICH DERMAL FILLER TO USE
Vascular Complications of Injectables
Vascular Complications

- Background
- Mechanisms
- Findings
- Prevention & Treatment
- Personal Experience
- Blindness
Background

- Soft-Tissue Fillers
- Widespread use in the 1980s with advent of bovine collagen
- In North America, second-most popular nonsurgical aesthetic procedure behind botulinum toxins (Botox)
- The popularity of soft-tissue fillers in part due to their favorable side effect profile
- Adverse effects from soft-tissue filler injection are generally mild and self-limited

Adverse Events from Soft-Tissue Augmentation

**Early (Within 1 Week)**
- Injection site reactions
  - Bruising
  - Swelling
  - Erythema
- Infections
- Nodules / asymmetry
- Hypersensitivity
- Vascular compromise

**Delayed (Can Be Years Later)**
- Infection
- Granuloma formation
- Biofilm formation

Vascular Compromise

- Most ominous adverse event
- Partial or complete interruption of vascular supply by extravascular compression
- Complete occlusion of vascular supply from intravascular injection
  - Subsequent necrosis and scarring are potentially permanent sequelae

Vascular Compromise

- All soft-tissue fillers can lead to vascular compromise, including:
  - Hyaluronic acids
  - Calcium hydroxylapatite
  - PMMA
  - PLLA
  - Collagen
  - Fat
Mechanisms

- Not completely understood
- **Extravascular**
  - Results from vessel compression due to injectable filler
  - Secondary inflammation and edema can further put pressure on vessels
- **Intravascular**
  - Results from direct injection of the filler into the vasculature causing obstruction and damage to the wall of the blood vessels
  - This presentation may be immediate and has also been reported with a delayed presentation at 6 hours post-injection

Findings

- Typically, the first indication of vascular damage after filler injection is painless blanching
  - This can be subtle and may go unnoticed
- Over the next couple of days, progression to a painful, violaceous, reticulated patch may occur
- A necrotic eschar may develop on top of an ulcer with subsequent scar formation
- Treatment should be instituted at first sign of this complication to prevent necrosis and scarring

Incidence

- Presented as 0.001% in the literature, but believed to be higher (the “elephant in the room”)
  - Underreported
  - Fillers are now being injected into deeper planes of the face, which poses greater risk of vascular occlusive events
Prevention

- There are a number of preventative strategies that can reduce the risk of occlusion
  - Choose a reversible hyaluronic acid filler
  - Exercise caution when injecting high-risk areas
  - Aspirating before injecting
  - Use low volumes of product
  - Use a cannula technique
Personal Experience

- Age: 28
- Date of Incident: May 2016
- Treatment Area: Tear Trough
- Product: Biphasic HA

Findings:
- Blanching to right cheek
- Violaceous reticulated patch

Treatment:
- Hyaluronidase
- Aspirin
- Massage
- Warm packs
- Nitroglycerine paste
Blindness

- **Mechanism**
  - Arterial pressure can be overcome and retrograde movement of material into the more proximal arterial network can occur
  - Then embolization of the ophthalmic artery can deprive the retina of oxygen and lead to blindness

Angiographic findings of a hyaluronic acid-injected patient. A 39-yr-old woman after hyaluronic acid injection in the glabella and nasal dorsum. (A) Fundus photograph reveals segmented and attenuated retinal vessels. (B) Fundus fluorescein angiography shows markedly compromised retinal and choroidal perfusion.
Blindness

- High-risk areas
  - The glabella
  - The forehead
  - The nose
  - The periorbita

“Complications Following Injection of Soft-Tissue Fillers” Cemile Nurdan Ozturk MD, Yumeng Li BS, Rebecca Tung MD, Lydia Parker MD, Melissa Peck Piliang MD, James E. Zins MD
Blindness

- **Treatment**
  - Document vision
  - Evaluate pupils
  - Retro or PeriBulbar High-Dose Hyaluronidase Injection
  - Oral aspirin

Final Thoughts
Thank you!