Botox Injection for Frey’s Syndrome

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Intracutaneous Botulinum Toxin An injection for Frey’s Syndrome

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(aka auriculotemporal syndrome or gustatory sweating)

Click on video below to activate - audio begins after 4 seconds:

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General Considerations

Frey’s syndrome is due to parasympathetic nerve fiber regrowth innervating sweat glands and blood vessels in the facial skin. Produces gustatory sweating, warmth and flushing in the preauricular and temporal area.

1. Etiology
   a. Frequent sequelae of parotidectomy
   b. Other traumatic causes: Incision and drainage of parotid abscess, post submandibular gland removal, mandibular condylar fx, and obstetric trauma caused by forceps
   c. Nontraumatic causes: sympathectomy, autonomic neuropathy in DM, herpes zoster infection, and metabolic diseases

2. Indications for treatment with intradermal botox injection
   a. Desire to avoid the sometimes annoying and possibly socially embarrassing dripping of fluid occurring with meals

3. Contraindications include:
   a. Changes to the skin that prevent safe manipulation/injection (infections/inflammation)
   b. Anatomic changes preventing safe administration to the dermis of the skin (such as proximity of facial nerve in thin damaged skin)
   c. Potential for acquired resistance due to antibody formation (very unlikely with the doses used)

4. Description of technique
   a. May show video below to the patient and identify it is done in the clinic without general anesthesia unless ‘piggy-backed’ on to another procedure such as that demonstrated with general anesthesia needed for another purpose.
   b. Usually do not use general or local anesthesia. For patients in a year or so after parotidectomy, the region to be injected may not have sensation. As sensation returns, it is reasonable to consider application of topical lidocaine (such as topical EMLA cream) if the patient desires
   c. Describe anticipated effect to last one year (much longer than intramuscular injections) with repeated treatment may be needed

5. Preoperative Preparation
   a. Evaluation
      i. Identify history of sweating and erythema/flushing of facial skin over parotid bed or neck that occurs during eating
   b. Minor's starch iodine test.
      i. The ipsilateral face is painted with iodine and allowed to dry.
      ii. Starch powder is dusted onto the face
      iii. The patient is given a sialogogue (lemon slice, lemon juice, crackers, or any materials that cause the gustatory sweating in an individual patient).
      iv. Dark blue staining reveals the area of gustatory sweating.
      v. Sequential photographs should be taken at short time intervals and recorded to document areas of sweating.

6. Intradermal botox injection
a. Ipsilateral face is then cleaned prior to injection.
b. Diagram areas of hyperhidrosis based on photos and residual erythema of face.
c. Alternatively, blotting paper or iodine-sublimated office paper can also be used.
   i. Infrared thermography Initially get temp rise from vascular response, then cooling from sweating. Quantitative.
d. Consent
   i. Describe the procedure - injection of Botox with small needle into the dermis in area of hyperhidrosis localized by the starch-iodine test
   ii. Describe alternative treatments
      1. Antiperspirants
         a. 1% glycopyrolate lotion
         b. 3% Scopolamine cream - potential for blurred vision, dry mouth, urinary retention
         c. Topical aluminum salts - skin irritation
   iii. Describe expected sequelae
      1. Reduction is gustatory sweating for ~12 months
      2. First injection can last much longer (11-27 months)
   iv. Describe potential complications
      1. Bleeding, infection, reaction to local anesthesia
      2. Specific: pain related to injection, indiscriminate injection into facial muscles can result is paresis (we have not observed it), acquired resistance to toxin effects
      3. Unsuccessful or recurrence of Frey's Syndrome
         a. Can repeat Botulinum toxin injection

7. Nursing Considerations
   a. Room Setup
      i. In Oto clinic room
      ii. Patient positioned upright in chair
      iii. Polaroid camera w/ film not longer available! Hence, digital camera will also suffice
      iv. Materials for starch iodine test: betadine swabs, corn starch, sialogogue (lemon slice or drop)
   b. Instrumentation and Equipment
      i. 27 gauge needle, 1 cc syringe, larger needle and syringe to draw up and mix Botox
   c. Medications
      i. Botulinium A toxin - dilution used is 2.5 U/0.1ml
         1. Dose required for denervation is related to target area
         2. No standard dose that is equally effective for all patients
         3. Most commonly inject a total of 25 to 40 units per session
         4. Toxic dose is greater than 2900U per 70 kg person
   d. Prep and Drape
i. Remove any residual starch-iodine
ii. Clearly plan where injections will go
iii. Drape towels over patient's clothing and leave area of injection exposed
iv. Use alcohol pad to wipe area prior to injection.

8. **Anesthetic Considerations**

   a. Induction
      i. Due to small needle and intradermal injection local anesthetic is generally not required
   b. Positioning
      i. Patient positioned seated upright in clinic chair with area to be injected fully exposed.

9. **Operative Procedure**

   a. Identification
      i. Note area to be injected by review of photographs possible marking on face/neck with waterproof marker. Detailed diagram marked out on white board.
   b. Injection
      i. Intradermal injection with 27 gauge needle placed into the dermis up to the hub.
      ii. Botulinum A toxin injected slowly intradermally as the needle is withdrawn.
      iii. Amount to be injected pre-determined, normally 0.2 - 0.4 cc for a total of 5 - 10 units per needle placement (usually 3 to 4 separate needle placements)
      iv. Repeat as necessary in areas of gustatory sweating identified
      v. Initial treatments after parotidectomy often are painless due to lack of sensation in areas affected. Reinnervation over time may make the needle placement uncomfortable.

10. **Postoperative Care**

    a. Discharge to home after procedure
       i. Minimal bleeding related to insertion of needle should self-tamponade, wipe with alcohol swab if necessary.
       ii. Follow up as necessary in clinic as outpatient
       iii. One to three days is average time for effects to be seen, most marked at 2 weeks
       iv. Mild pain of injection does not require analgesics

11. **Followup 3 months after Botox injection (click on image to start video with audio)**

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12. **Suggested Reading**