



## **Transgender Voice Surgery**

### **Introduction**

- Voice is a large part of one's identity, regardless of transgender or cisgender status.
- Being misgendered based on voice or having a voice that is not congruent to one's sense of self can significantly affect quality of life.
- Gender-affirming voice therapy and surgery are options available for transgender patients.
  
- References:
  - Hancock AB, Krissinger J, Owen K. Voice perceptions and quality of life of transgender people. *J Voice*. 2011 Sep;25(5):553-8.

### **Indications and Contraindications**

- Voice feminization surgery is designed to raise the pitch of the patient's voice by altering the tension, decreasing the mass, or shortening the length of the vocal folds.
- It is important for the patient to understand that stereotypical gender perception of voice is based on much more than pitch, but that surgery only addresses this one facet of communication.
- Most, if not all, patients benefit from voice therapy prior to making the decision to proceed with surgery. Therapy can address additional components of communication including resonance, intonation, syntax, and non-verbal communication cues.
- If, after therapy, the decision is made to proceed with surgery, the patient should have reasonable expectations set for surgical results, as well as expectations for post-operative recovery and rehabilitation.
- References:
  - Morrison SD, Crowe CS, Rashidi V, Massie JP, Chaiet SR, Francis DO. Beyond Phonosurgery: Considerations for Patient-Reported Outcomes and Speech Therapy in Transgender Vocal Feminization. *Otolaryngol Head Neck Surg*. 2017 Aug;157(2):349.

### **Treatment Method**

- Surgery to elevate pitch can be divided into 3 categories based on mechanism:
  - Increase vocal fold tension
    - Cricothyroid approximation (CTA)
  - Shorten vocal fold length
    - Cold knife glottoplasty
    - Laser-shortening glottoplasty (Wendler's glottoplasty)
  - Decrease vocal fold mass
    - Laser reduction glottoplasty
- In the meta-analysis published by Song and Jiang, the largest increase in fundamental frequency was seen with the endoscopic shortening technique, with a pre- to postoperative mean difference of 78.98 Hz (95% confidence interval [CI], 60.76-97.21).



CTA led to the second highest increase, with a mean difference of 44.97 Hz (95% CI, 36.08-53.86), and laser reduction was characterized by the smallest increase, with a mean difference of 36.89 Hz (95% CI, 20.06-53.72).

- Surgery to decrease pitch is not typically necessary due to the effect of testosterone hormone therapy. If needed, Isshiki Type III thyroplasty can be performed.
- References:
  - Song TE, Jiang N. Transgender Phonosurgery: A Systematic Review and Meta-Analysis. *Otolaryngol Head Neck Surg.* 2017 May;156(5):803-808.
  - Nygren U, Nordenskjöld A, Arver S, Södersten M. Effects on Voice Fundamental Frequency and Satisfaction with Voice in Trans Men during Testosterone Treatment-A Longitudinal Study. *J Voice.* 2016 Nov;30(6):766. e23-766.e34.

### **Management of Complications**

- Complications that were shared among all surgical techniques include reduced loudness, decreased vocal range, decreased clarity/pitch instability/irregularity of voice, and either no change in pitch or a less than desired increase in pitch.
- For vocal fold shortening glottoplasty, granulation tissue and suture line dehiscence were reported.
- For CTA, specific complications include lowering of the pitch over time, scarring/puckering of the skin at the incision, dysphagia, and temporary subcutaneous emphysema.
- Reported complications of laser reduction glottoplasty include patients with failure to elevate pitch or even deepening of pitch.
- Management of complications may include voice therapy, steroid injections, vocal fold augmentation, and additional surgery such as vocal fold shortening after lowering of pitch with CTA.
- References:
  - Song TE, Jiang N. Transgender Phonosurgery: A Systematic Review and Meta-Analysis. *Otolaryngol Head Neck Surg.* 2017 May;156(5):803-808.