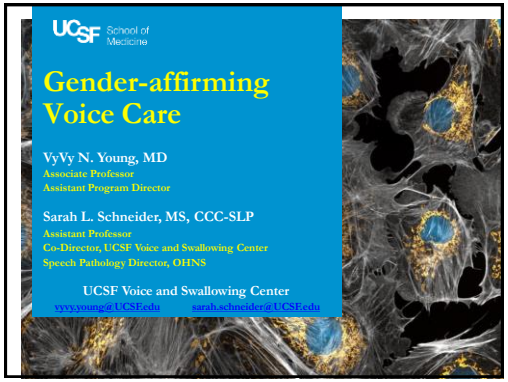
UCSF School of Medicine

Gender-affirming Voice Care

VyVy N. Young, MD
Associate Professor
Assistant Program Director

Sarah L. Schneider, MS, CCC-SLP
Assistant Professor
Co-Director, UCSF Voice and Swallowing Center
Speech Pathology Director, OHNS

UCSF Voice and Swallowing Center
vyvy.young@UCSF.edu sarah.schneider@UCSF.edu



Disclosures

- None

Objectives

- Describe voice concerns in transgender individuals
- Review management strategies for transgender voice including multi-disciplinary voice evaluation, voice therapy, and vocal fold surgery
- Briefly describe surgical techniques
  - Glottoplasty
  - Chondrolaryngoplasty

Vocal healthcare team

Ideal for any patient with voice concerns

- Multi-disciplinary
  - Otolaryngologist
  - Speech-Language Pathologist (SLP)
    - Voice-specialized or interested helpful

- Combination of different perspectives and expertise

Approaching the patient visit

- As with ALL patients:
  - Courteous
  - Professional
  - Respectful

- For transgender patients:
  - Ask about preferred name
    - May or may not be legal name
  - Ask about pronouns
- PRACTICE – so it won't feel so awkward to ask…

Transgender voice concerns

History / symptoms are key

- Where is the patient is their transition process?
  - Presenting full time or part time?
    - Friends? Family? Work? Everyone?
    - Important consideration for vocal demands/needs
    - Support
    - Ramifications on treatment
      - Ability to "practice" with their voice

Transgender voice concerns

History / symptoms are key

- Working with a team?
  - Primary care? +/- endocrinology?
  - Psychology/psychiatry/therapy/counseling?
    - Do they have support?
    - Important consideration before surgery
  - Other surgeons?
    - GRS = gender reassignment surgery
    - FFS = facial feminization surgery
  - Understand where they are in their process

Transgender voice concerns

History / symptoms are key

- What is bothersome about the voice?
  - Pitch
  - Raspiness
  - Vocal fatigue
  - Vocal effort
  - Decreased volume/projection
- What are the vocal demands?
  - Work
  - Social
  - Personal

Transgender voice concerns

History / symptoms are key

- Is patient misgendered?
  - What frequency?
  - What circumstances? (e.g. on phone, in person)
- What has the patient tried previously? Was it helpful?
  - YouTube videos
  - Speaking in higher pitch
  - Apps on phone

Patient assessment

- Voice
  - How does it sound?

- Complete head and neck physical exam
  - Focus on the neck
  - Areas of tenderness and tension
- Laryngeal exam with stroboscopy to evaluate anatomy and vocal fold vibration

Partnering with an SLP is important

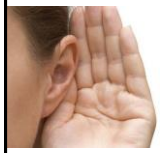
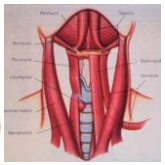
- Comprehensive evaluation
  - Voice and communication
- Appropriate selection of treatment for individual patient
  - Assess stimulability for voice therapy
- Teach skills to implement that change
- Optimize voice outcomes

Litts JK. Laryngoscope. 2015 Sep;125(9):2139-42
Gillespie AI et al. J Voice. 2016; 30(4):e9-507

What is Gender Affirming Voice Therapy?

Voice and communication therapy targeting shared goals to achieve gender affirming communication

Comprehensive Assessment


What do we hear ? What do we feel ? What do we see ?

Components of Communication

Voice
- Pitch
- Resonance
- Intonation
- Volume/Intensity

Language
- Syntax
- Vocabulary
- Pragmatics
  - Non-verbal communication

Speech
- Articulation
- Rate

Characteristics - Voice

Feminine ⟷ Masculine

- Pitch – average 220Hz (A3)
- Use intonation (pitch change) to emphasize
- Less extensive downward intonational shifts
- A greater proportion of upward shifts
- Fewer level intonation patterns

- Pitch – average 125Hz (B2)
- Use stress (intensity) to emphasize
- More extensive downward intonational shifts
- More monotone

Gender Neutral/Androgynous Pitch
150-185Hz

It is NOT all about the pitch!

- **Pitch**
- **Resonance**
- **Intonation**
- Intensity
- Rate of speech
- Articulation
- Language
- Non-verbal communication

Coleman et al 2012, Carew et al 2007, Gelfer and Schofield 2000

Pre vs Post Voice Therapy

Source – Filter Theory of Sound Production

Power Source

Vibratory Source

Filter – Resonator

Perceptual and Instrumental Evaluation

- **Standard methods of Perceptual Evaluation**
  - Quality change
    - Rough, breathy, strain
  - Breathing
  - Airflow
  - Resonance
- **Acoustic and Aerodynamic Testing**
  - Assess the sound signal
  - Evaluate airflow and air pressure
    - All during sustained vowels and speaking

Identify areas of tension

- Jaw
- Around the larynx
- Tongue
- Front of neck
- Shoulders
- Upper body
- Posture

Self-awareness and Stimulability

Important for the success of behavioral intervention

Self-awareness
- Is the person aware of voice and communication patterns?
- Can they identify differences in voice production patterns/quality?
  - With therapy and practice, can the skill develop?

Stimulability
- Are they able to make voice or speech changes?
- Can they tell the difference?

Setting Expectations/Aligning Goals

- Discussion between the patient, physician and SLP
  - Exam findings
  - Stimulability
  - Patient goals
  - Develop a treatment plan
- Varied circumstances and priorities
  - Clinician's responsibility to understand this
- Therapy goals must be patient specific to maximize vocal efficiency/health while meeting patient/therapy goals
- Counseling may need to take place to adjust expectations of therapy (i.e. pitch in relation to body, authentic communication)

Goals for Voice Therapy

- Find an authentic voice rather than a 'higher' / 'lower' voice
- Maximize vocal efficiency to avoid fatigue (reduce tension)
- Modify laryngeal behaviors
  - Alter pitch
  - Alter resonance
  - Balance airflow
  - Alter intonation patterns
- Increase self-awareness/self-monitoring for carryover

Therapy Techniques

- Resonant voice therapy
- Stretch and Flow Voice Therapy
- Semi-occluded Vocal Tract (SOVT)
- Conversation Therapy Training (CTT)

Duration of Therapy

- Patient specific and guided by progress and ability to meet therapy goals
- 4 sessions of voice therapy, 1x every other week
  - Understands and is consistent with replication of the mechanics of altering voice production
    - Airflow, resonance, tension management
    - Navigating pitch range
    - Varying intonation
- +/- 1x per month for 4-6 months
- +/- 1x every other month or discharge

Treatment options

Gender-affirming voice care

Vocal fold surgery

- Has the patient tried conservative measures first?
  - Voice therapy
  - Medical management
- AND has the patient been compliant with exercises and recommendations?
- Pearls:
  - Be cautious about proceeding directly to surgery first
  - Be wary of patients who "demand" surgery

Gender affirming laryngeal surgery

- Vocal fold surgery – to address pitch
  - Remember: does not impact **intonation, intensity, resonance, articulation, speech rate, language, patterns of speaking, nonverbal communication**
- Chondrolaryngoplasty (tracheal shave) – to address external appearance
  - Remove "Adam's apple"

Pomus Adamus or Adam's apple, a prominent thyroid notch, is a result of the effect of testosterone on the thyroid cartilage of the larynx. Until puberty, the

Gender affirming vocal fold (VF) surgery

Goal: elevate pitch

- Glottoplasty: shortens VF length
  - Open (historical?) vs endoscopic
  - Laser vs cold steel
- Cricothyroid approximation: increases VF tension
- Laser reduction glottoplasty: decreases mass

Song TE. *Otolaryng Head Neck Surg.* 2017

Gender affirming vocal fold (VF) surgery

Systematic reviews / meta-analyses

- Schwartz et al 2017
  - No RCTs
  - No prospective cohort studies
  - Inconclusive about which surgical treatment is best
- Song et al 2017 – VF shortening procedure resulted in greatest increase in pitch

Song TE. *Otolaryng Head Neck Surg.* 2017
Schwarz K. *Laryngoscope.* 2017

Vocal fold shortening surgery
Wendler glottoplasty

- Permanent alteration of anatomy
- Critical considerations
  - Patient selection
  - Appropriate and comprehensive informed consent
- Creation of new (more posterior) anterior commissure
  - Shorter length of vibrating vocal fold → faster vibration → higher pitch
  - Does not address other aspects of voice aside from pitch

Gender affirming vocal fold surgery
Wendler glottoplasty

- Techniques
  - CO2 laser vs cold steel
  - Endoscopic suture vs temporary injection anteriorly
- Additional laser "tightening" of vocal fold superior surface has been described
  - Decreases mass?
  - Creates scar?
  - ?Concern for associated hoarseness??
  - Personally do not recommend

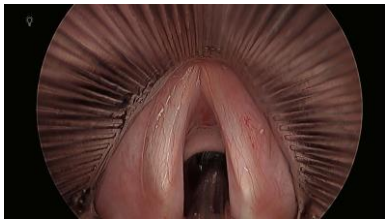
Wendler glottoplasty steps

- Microsuspension laryngoscopy
- Measure vocal folds
  - Plan web for anterior 40-50% of length
- Excise medial mucosal edge
- Directly approximate medial edges
  - Sutures
    - Absorbable suture: 4-0, 5-0, 6-0
    - Typically 2: one at posterior aspect of web, one more anteriorly
  - Augmentation material to medialize anterior aspect

Wendler glottoplasty
Laser

Photos courtesy of Mark Courey MD

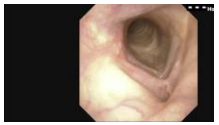
Wendler glottoplasty
Cold steel



Wendler glottoplasty
Results

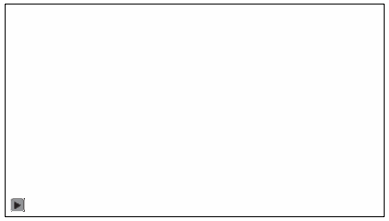
Favorable result

Suboptimal result



Wendler's glottoplasty

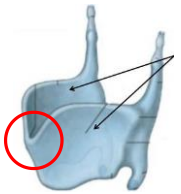
Warning: severe stiffness



Gender affirming laryngeal surgery

Chondrolaryngoplasty (tracheal shave)

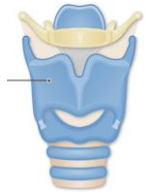
- Goal: remove "Adam's apple"
- Addresses external appearance
- Should not impact pitch
- Risk of disrupting anterior attachment of vocal folds
  - DISASTER



Chondrolaryngoplasty Steps

aka "Tracheal Shave"

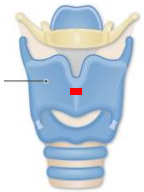
- Exposure
  - HIGH incision = cervicomental crease
  - Similar to thyroplasty
  - Show full height of thyroid cartilage
- Open perichondrium
  - Caution around superior aspect
  - Anterior and posterior face
  - Stay out of airway



Chondrolaryngoplasty Steps

aka "Tracheal Shave"

- Localize vocal folds
  - CRITICAL step for safety
  - Flexible laryngoscopy (through LMA)
  - Needle (22Ga) on hemostat
  - Enter airway above TVFs
  - Leave needle in place for optimal safety
  - **Pearl: it is always higher than you expect**



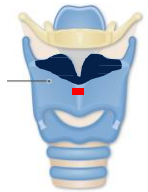
Chondrolaryngoplasty Steps

Needle localization

Chondrolaryngoplasty Steps

aka "Tracheal Shave"

- Remove cartilage through and through
  - 15 blade vs drill vs rongeur
  - Make sure to take down anterior "point" at notch
  - Stay above needle localization site
  - Consider smoothing down anterior edge for better contour (no "stepoff")



Chondrolaryngoplasty
aka "Tracheal Shave"

Pre

1 month post

Moral of the story: Slow and steady wins the race!

Actual moral: There are…

- No guarantees
- No easy roads
- No sure fire bets
- No one-size-fits-all

Summary

- Multidisciplinary approach with otolaryngologist & SLP together improves patient care
  - Better outcomes
  - Financially sound
- Targeted treatment planning based on pt's goals / needs

Summary

- **Voice therapy can achieve most pt's voice goals**
- **Vocal fold surgery less often needed**
  - Permanently alters anatomy
  - Careful pt selection with thorough informed consent
- Chondrolaryngoplasty (tracheal shave) targeted at addressing external appearance concerns

Questions?

VyVy Young MD
vyvy.young@ucsf.edu
Sarah Schneider, MS
sarah.schneider@ucsf.edu