

Total Laryngectomy Rehabilitation: Lets Talk About It

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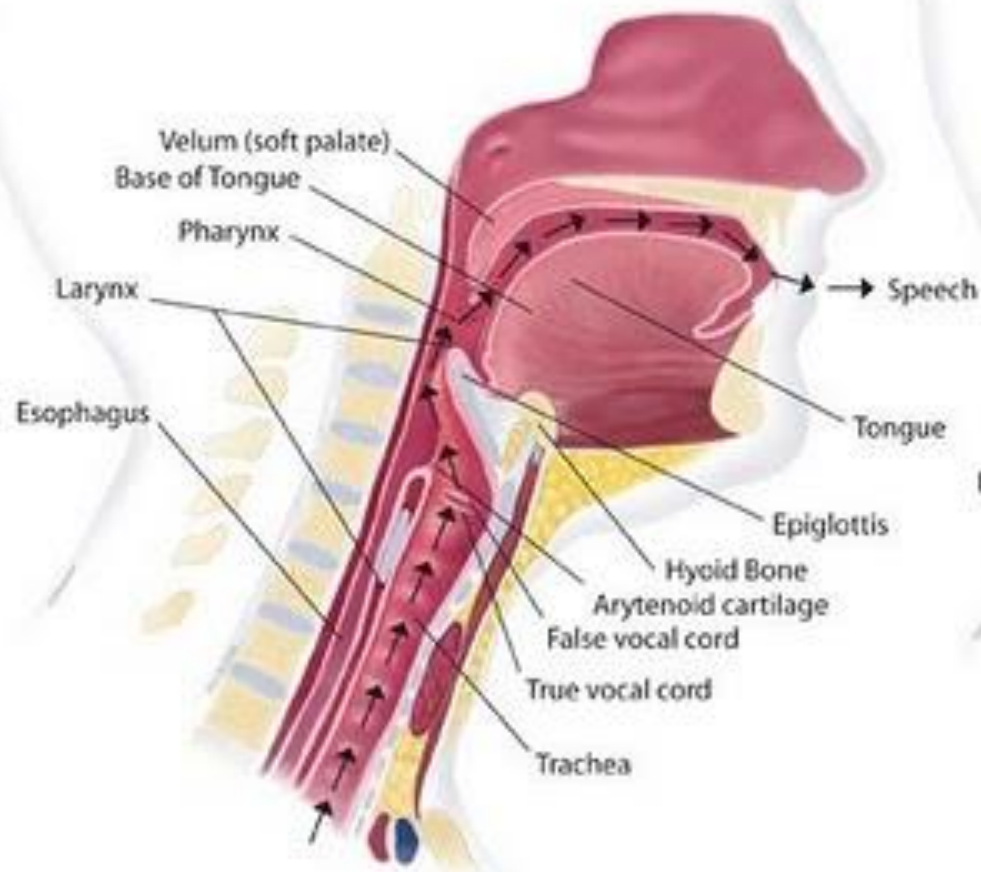
Disclosures

- Past Atos Medical Clinical Consultant

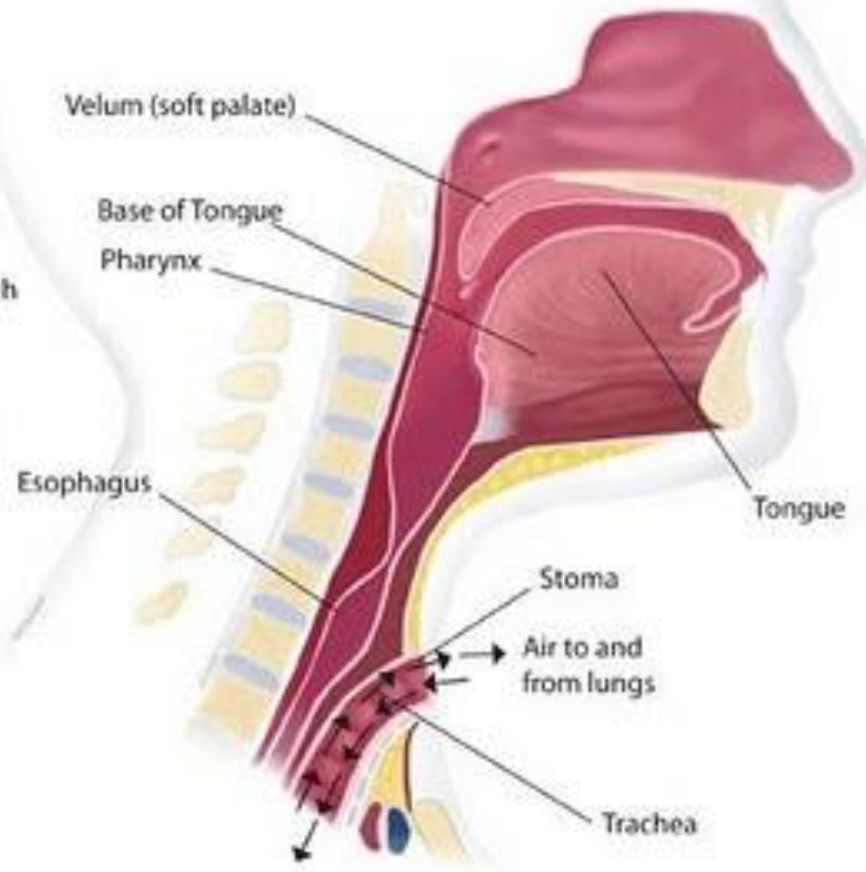
Outline

- What is a total laryngectomy (TL)?
- Voicing options for TLs
 - Electrolarynx
 - Esophageal speech
 - Tracheoesophageal prosthesis

Pre-Laryngectomy



Post-Laryngectomy



Post TL changes

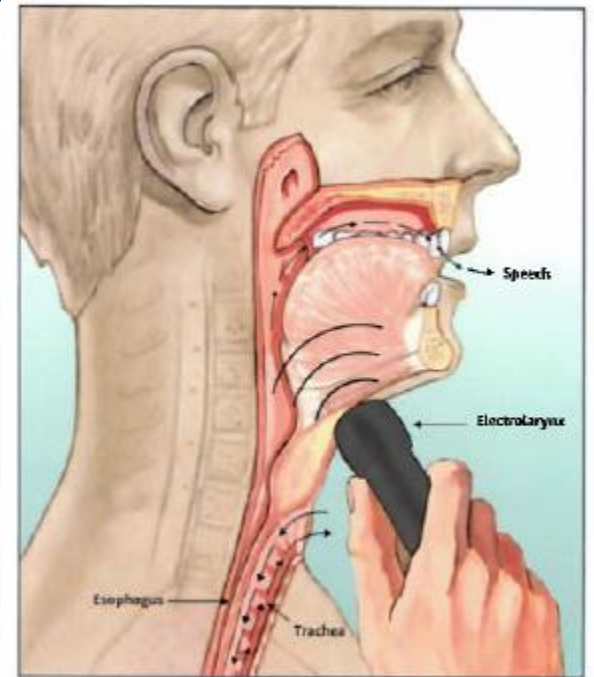
- Respiration
- Swallowing
- **Speaking**
- Other

Voicing methods following TL

- Most commonly used
 - Electrolarynx
 - Esophageal speech
 - Tracheoesophageal puncture (TEP)
- Less commonly used
 - Jaw harp
 - Pneumatic devices
 - AAC

Electrolarynx (EL)

- External sound generator
- Battery-powered
- Diaphragm vibrates in a case
- Sound transmitted into the mouth through cheek, neck, or intraoral adapter
- Variety of models



EL placement



Short-term goals

- Device selection
- How it works
- Placement
- On/off timing
- Articulation
- Rate
- Avoiding stoma blast
- Prosody
 - Pitch
 - Loudness
 - Stress
- Eliminate Distractors

Long-term goals

- Intelligible speech
 - Family
 - Clinician
 - Strangers

Electrolarynges

- Pros

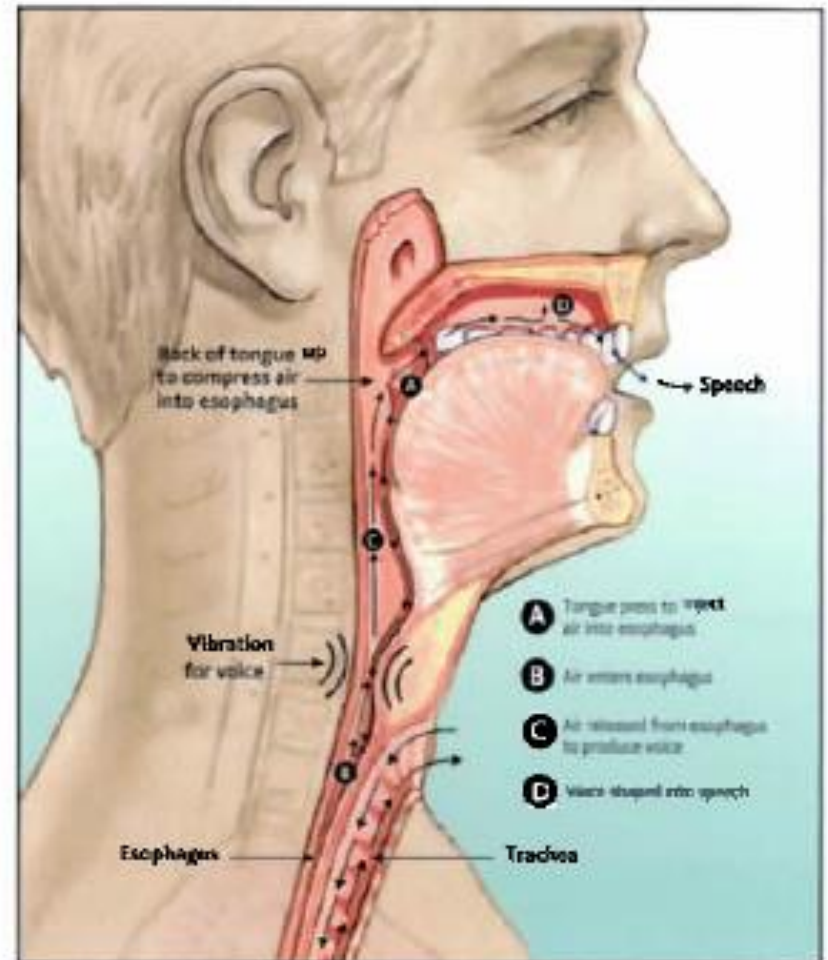
- Simple to teach
- Many brands
- Rapid learning curve
- Volume control
- For some, pitch control

- Cons

- Robotic
- Not hands-free
- Not everyone can use
- Can break
- Batteries
- Calls attention to itself

Esophageal speech (ES)

- Oldest method
- Only *intrinsic* method of speaking
- Historically, the method of choice



ES sound source

- The PE segment
- Comprises multiple sound sources
 - CP and inferior constrictors
 - Length varies from 4/5” to 1.5”
- To make sound: air must be present, vibrated and expelled
 - Tissues must be flaccid enough to allow air in but tense enough to vibrate

Components of ES

- Air intake – must learn to feel it
- Eructation – vibration
- Expulsion – shaping the voice into speech

ES goals

- 100% consistency with sound production/air trapping
- Monosyllabic words progressing to prolonged phrases with goal of 8-15 syllables/~4 seconds per air charge
- No visible/audible signs of intake
- No excess stoma noise
- Good inflection/intonation
- Some ability to vary loudness

Barriers to ES

- VPI
- Glossectomy
- Lingual and/or labial paresis
- Spasm
- Hypertonic PE segment/stricture
- Hypotonic PE segment

Example of esophageal speech



ES Pros and Cons

- Pros

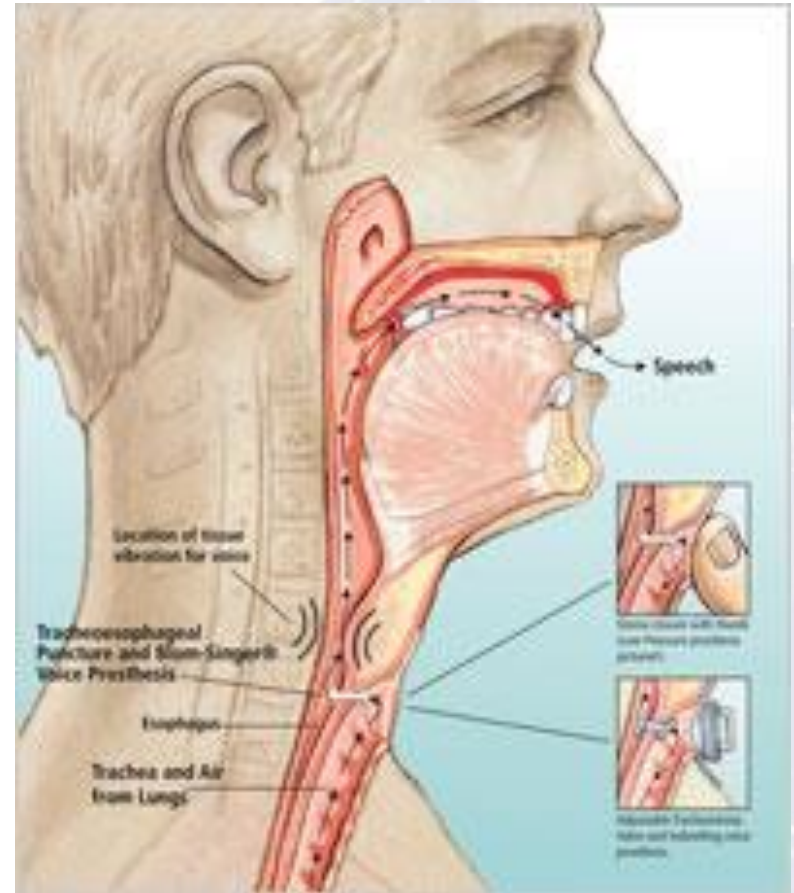
- More natural than EL
- Hands-free
- No equipment needed
- No surgery required
- No batteries
- No breakable parts
- Can't drop (in toilet)
- High success rate when other options not available

- Cons

- Time consuming to learn/some cannot learn
- PE segment only holds 40-80 cc of air
- Short phrases
- Distractors (clunking, stoma blast, excessive head and body movements)
- Difficult after a meal
- Often not loud enough/no intensity control
- No pitch control

Tracheoesophageal Puncture

- What?
 - A controlled fistula between the posterior trachea and the anterior esophageal wall
- Why?
 - To use pulmonary power to support esophageal phonation



Tracheoesophageal Prosthesis (TEP)

- Prosthesis with a one-way valve
- Prosthesis keeps the puncture patent
- Valve is closed to prevent aspiration of esophageal contents
- Valve opens to allow exhaled pulmonary air into the PE segment upon stoma occlusion
- PE segment vibrates to produce sound

Primary vs secondary puncture

- Primary
 - TEP placed at the time of TL surgery
 - TEP can be inserted or a red rubber catheter
- Secondary
 - TEP placed after the initial surgery
 - 3+ months post-op or post-RT/CRT
 - Same day procedure

Optimal conditions

- Healthy common wall
- The patient is physically and cognitively able to care for prosthesis
- Motivated
- Realistic expectations
- Stoma size > 2.5 cm
- Passes insufflation test (if secondary)

TEP Goals

- Stoma occlusion
- Suprasegmentals (inflection & stress)
- Speak quietly
- Articulate clearly
- Hands-free valves
- Cleaning
- Emergency precautions
- Changing TEP independently

Pros and Cons of TEPs

- Pros

- If good, the most natural sounding voice
- Usually a fast learning curve
- Can use for feeding if done primarily

- Cons

- A connection from esophagus to trachea
- Prosthesis requires care and replacement
- Hands-free valves difficult to use
- LOTS of trouble-shooting
- Can be hard to close when problems

Example of TEP speech



Types of TEPs

- Non-Indwelling

- Thin retention collars
- Tab stays on
- Patient removes & replaces
- InHealth & Atos
- SLP determines candidacy

- Indwelling

- Thick retention collars
- Tab is cut
- SLP or OHNS removes & replaces
- InHealth & Atos



TEP changes

- Indwelling TEP (SLP maintained) needs to be replaced approximately every 2-6 months
 - In office minimally invasive procedure
- Non-indwelling TEP (patient maintained) TEP is changed as needed

Hands Free Options



Voicing rehabilitation summary

- No one perfect method for everyone
 - Individual preference
- Pros and cons of each
- Do not have to choose 1 method
- Some start with one and end with another
- Stay flexible and keep striving for improvement

Questions?
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