Troubleshooting & Difficult Cases

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Disclosure Statement

- In compliance with the American Academy of Otolaryngology-Head and Neck Surgery Foundation and with the Accreditation Council for Continuing Medical Education’s “Standards for Commercial Support of Continuing Medical Education”, Byron J. Kubik, MS, CCC-SLP discloses his partnership with Eric D. Blom, Ph.D. and ownership of Kubik Medical, LLC specializing in voice prosthesis customization.

“Problem: Leakage through voice prosthesis

Causes

1. “Duckbill” prosthesis contact against posterior esophageal wall

Solution

Albert Einstein

“If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions.”
Problem: Leakage through voice prosthesis

**Cause**
1. "Duckbill" prosthesis contact against posterior esophageal wall
2. Valve deterioration
3. Esophageal stenosis
4. Fungal colonization of the valve

**Solution**
1. Replace with "low profile" type voice prosthesis
2. Replace voice prosthesis
3. Esophageal dilation
4. a) Nystatin or Mycelex topical antifungal B.I.D.
   b) Voice prosthesis employing a material that may deter fungal colonization.

Problem: Leakage through voice prosthesis

**Cause**
1. "Duckbill" prosthesis contact against posterior esophageal wall
2. Valve deterioration
3. Valve "Flutter" due to negative esophageal pressure
4. Inverted valve

**Solution**
1. Replace with "low pressure type voice prosthesis"
2. Replace voice prosthesis
3. Esophageal dilation
4. a) Nystatin or Mycelex topical antifungal B.I.D.
   b) Voice prosthesis employing a material that may deter fungal colonization.
5. Replace with an increased resistance valve or one that has higher cracking pressure.
6. Inverted valve
Voice Restoration: Problems and Complications

**Problem: Leakage through voice prosthesis**

**Cause**
5. Valve “Flutter” due to negative esophageal pressure
6. Inverted valve

**Solution**
5. Replace with an increased resistance valve
6. Reseat the valve with the stick end of a cotton tip applicator

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**Problem: Leakage around voice prosthesis**

**Cause**
1. Voice Prosthesis is too long resulting in piston movement/tract dilation
2. Dilated puncture caused by radiation, chemotherapy, uncontrolled diabetes, new primary cancer or recurrence.

**Solution**
1. Resize to a shorter voice prosthesis
2. a) Medical diagnosis
   b) Snug flange-to-flange voice prosthesis fit such that the esophageal flange provides a “seal.”
Problem: Leakage Around Voice Prosthesis

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1. Voice Prosthesis is too long resulting in piston movement/tract dilation
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1. Resize to a shorter voice prosthesis
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Voice Restoration: Problems and Complications

ISHA Convention 2015
### Problem: Leakage Around Voice Prosthesis

**Cause**
1. Voice Prosthesis is too long resulting in piston movement/tract dilation
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**Solution**
1. Resize to a shorter voice prosthesis
2. a) Medical diagnosis 
   b) Snug flange-to-flange voice prosthesis fit such that the esophageal flange provides a "seal".
3. Esophageal dilation

### Problem: Small Tracheostoma

**Cause**
1. Stenosis

**Solution**
1. a) Fenestrated silicone laryngectomy tube.
   b) Surgical revision of tracheostoma (enlargement)
**Problem: Large Tracheostoma**

**Cause**
1. Natural trachea size/tracheomalacia

**Solution**
1. a) Surgical revision of tracheostoma (reduction)
   b) Adapter attached in/over tracheostoma to reduce occlusion diameter i.e. tracheostoma valve housing with or without HME, Barton Button, silicone laryngectomy tube.

**Problem: Flatulence**

**Cause**
1. Increased negative pressure in the esophagus during inhalation opens the voice prosthesis valve
2. Pharyngeal constrictor muscle hypertonicity

**Solution**
1. “Increased resistance” style voice prosthesis.
2. Botulinum neurotoxin injection.

**Problem: Granulation Tissue Formation**

**Cause**
1. Irritation / inflammation / tissue thickness (circumferential “donut”) associated with presence of foreign body i.e. voice prosthesis.

**Solution**
1. Surgical removal of granulation tissue i.e. circumferential “donut”
Problem: “Wet” Voice Quality

**Cause**
1. Accumulated secretions in the pharyngoesophagus.

**Solution**
1. “Clear the voice” using tracheoesophageal airflow.

Problem: Hypotonic Voice

**Cause**
1. Hypotonic P-E segment

**Solution**
1. a) Digital pressure
   b) Elastic neckband
### Problem: Hypertonic Voice

**Cause**
1. Excessive digital pressure against the tracheostoma
2. Increased voice prosthesis flap valve resistance caused by fungal colonization.
3. Tracheoesophageal tract stenosis

**Solution**
1. Patient education
2. Replace voice prosthesis and start antifungal strategies
3. Carefully dilate and remeasure the tracheoesophageal tract length
4. Botulinum neurotoxin injection

### Problem: Aphonia

**Cause**
1. Voice prosthesis occluded with mucus
2. Excessive digital pressure against the tracheostoma
3. Pharyngeal constrictor muscle spasm

**Solution**
1. Clean the voice prosthesis
2. Patient education
Voice Restoration: Problems and Complications

Problem: Aphonla

Cause
1. Voice prosthesis occluded with mucus
2. Excessive digital pressure against the tracheostoma
3. Pharyngeal constrictor muscle spasm

Solution
1. Clean the voice prosthesis
2. Patient education
3. Botulinum neurotoxin injection

Botox Protocol

Problem: Aphonla

Cause
1. Voice prosthesis occluded with mucus
2. Excessive digital pressure against the tracheostoma
3. Pharyngeal constrictor muscle spasm
4. Complete tracheoesophageal tract closure

Solution
1. Clean the voice prosthesis
2. Patient education
3. Botulinum neurotoxin injection
4. Re-puncture in 4-6 weeks

Contact Information
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