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Optimizing Voice and Breathing After Total Laryngectomy: Guidelines for Stomal Attachment Selection

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Optimizing Voice and Breathing After Total Laryngectomy: Guidelines for Stomal Attachment Selection

Meaghan Benjamin MA, CCC-SLP
Disclosures

The following individuals have financial relationship or relationship affiliations to disclose:

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Learning Objectives

- Identify 3 factors influencing appropriate selection of intraluminal and peristomal devices.
- Identify problems and describe solutions related to achieving an adequate seal.
- Describe the procedure for applying and removing adhesive baseplates and intraluminal attachments.
Post-Laryngectomy Rehabilitation

- Best practice embodies an interdisciplinary team approach to treating the whole patient
  - Patient Education
  - **Pulmonary Rehabilitation**
  - Voice Rehabilitation
  - Troubleshooting
  - Quality of Life (QOL) Issues

Post Laryngectomy Effects on Breathing

Lost functions of the upper airway:
- Heating
- Filtering
- Humidity
- Pulmonary resistance
HME Success = Good Stomal Attachment

- **Peristomal Attachments**
  - Attachment to skin around stoma
  - Base plates, valve housings, custom housings, tapes, glues/adhesives

- **Intraluminal Attachments**
  - Attachment within the stoma
  - Provox® LaryButton™, Provox® LaryTube™, Barton-Mayo™ (BM) button

- **Intraluminal + Peristomal Attachments**
  - Provox® LaryTube™ with Blue Ring with baseplate
  - Kapi-Gel™ washer with button/tube

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**Patient Factors:**

- Time since surgery
- Stomal topography
- Skin Irritation or breakdown
- Stomal stenosis
- Ease of ability to apply
- Other Factors
Assessing Stomal Topography

1. Is the stoma deep set?
2. Are the SCMs prominent?
3. Are the clavicular heads prominent?
4. Stomal symmetry? Size? Shape?
5. What is the position of the TEP?
6. Peristomal Terrain?
Skin Considerations

Patients at Risk for Severe Skin Reactions

**Treatment Factors:**
- Higher dose, higher risk
- IMRT reduces risk
- Using boost agent/technique
- Concomitant chemo/XRT
- h/o previous XRT, targeted or hormonal tx

**Patient Factors:**
- High BMI & smoking were highest risks
- Age
- Skin type
- Genes
- Alcohol consumption
- Other comorbidities
- Showed higher levels of pain & **sleep disturbance**
Skin irritation due to repetitive application of adhesive tape: the influence of adhesive strength and seasonal variability

Fumio Tokumura¹,², Kazuo UmeKage³, Masashi Sado³, Saburo Otsuka⁴, Shin Suda⁵, Masaharu Taniguchi⁶, Akira Yamori⁷, Atsushi Nakamura⁸, Jun Kawai⁹ and Keiji Oka⁹


Dermal peeling force increases with each subsequent application
Dermal peeling force worse in winter vs. summer - ? sweating in summer
Transpidermoid water loss
Amount of stripped corneocytes correlated with degree of skin irritation
More deep skin furrows in summer

Sequelae of Skin Conditions

Chronic Pain
Loss of work
Withdrawal from normal activities
Decreased quality of life
**Loss of sleep**
Road Map to Situational Use:
One Size does not fit all

Provox® Adhesive Base Plates

Five different types
- FlexiDerm™
- XtraBase™
- Stabilibase™
- OptiDerm™
- OptiDerm Stabilibase™

Two different shapes
- Oval / round and “plus” size options
  (except for XtraBase & Stabilibase)

Life: dependent on the patient
Provox® STABILIBASE

- Firm base
  - Vertical stabilizing bars
    - Support during speech
  - Flexible sides
    - Easy applying
- Conical design
  - Deep set stomas
- 3 piece peel-off liner
- Larger area Flexiderm type adhesive
  - Longer device life?
- Fits a variety of stoma shapes
  - Fits flat stomas
  - Fits deep stomas

Skin Preparation and Base Plate Application

Skin Barrier  Base Plate Application

Courtesy of Saint Louis University Cancer Center – Dennis Fuller
What is a Hydrocolloid?

- For moist wounds to retain moisture
- Doesn’t typically require frequent changing
- Creates non-breathable environment under the dressing
- Artificial blister
- Designed to stick to healthy skin as it should adhere to skin around the damaged skin/wound
- Intention is to promote healing of uninfected wounds (pressure ulcers, burns)
- Impermeable to bacteria
- Problems:
  - lifting on the edges
  - may trap microbes
  - Allergic reactions
- Provox® Optiderm™ is a hydrocolloid

Provox® Optiderm™ Immediately Post-OP
What is a Hydrogel?

- High water content
- Delivers moisture to the wound/skin
- Hydrophilic polymers that are soluble in water and swells with water/fluid
- Designed to provide moisture and wick away moisture from wound
- High glycerin component
- Cool, comfortable and soothing
- Good for the following types of wounds:
  - Dry or dehydrated wounds
  - Partial or full-thickness lesions
  - Abrasions or severe scrapes
  - Minor burns
  - Wounds with granulated tissue development
  - Radiation skin damage

Tips:
- Clean skin with mild soap and water
- Avoid using alcohol as it breaks down the matrix

Provox® Luna

- Comfortable
- Soothing to the skin
- Superior lung humidification
- No prep – apply to clean, dry skin

HME optimized for humidification

Hydrogel baseplate
Reasons include discomfort, skin irritation, and lack of knowledge regarding the importance of compliant HME use.

THIS IS PROVOX LUNA

Designed to help patients …
- Sleep comfortably
- Soothe their skin
- Improve their lung health
Luna Basics

- A system to be used together
- Placed on clean, dry skin (Do not use prep/barrier/glue)
- Hydrogel soothes and calms irritated skin
- Soft and smooth for night-time comfort
- Made of hydrogel to soothe and cool the skin
- Superior humidification compared to other HMEs
- Low breathing resistance for easy night-time breathing
- Side openings to prevent occlusion while sleeping

Typical Attachments of Choice for Hard to Fit Stomas & To Use With Provox FreeHands Flexivoice System:

- Provox StabiliBase
- Provox StabiliBase OptiDerm (not optimal adhesion)
- PVC Valve Housing
- Provox XtraBase
- Provox LaryButton
Troubleshooting Accessories

Tracho-Foam® and Provox® Adhesive

**Choose Standard/Large disc smaller diameter than the Provox adhesive baseplate**

- Peel backing from Provox baseplate, place on flat surface with adhesive side up
- Peel paper backing away from one side of disc, do not touch adhesive
- Apply adhesive side of disc to adhesive side of baseplate
- Line up inner rings with one another, press disc and baseplate together, removing air bubbles or wrinkles
Skin Cleaned and Prepped

Tracho-Foam® and Provox® XtraBase®
Discrete ring and transparent base
Supports the adhesive and prevents the stoma from moving
Flat/Medium/Deep
Reusable

Fixation adhesive
Attaches the base to the chest
Disposable

The benefits

- Reduces stoma movement
- Improves voice quality
- Gives more people the freedom to speak hands-free
Freehands Support System with Stabilibase Adhesive Baseplate

Which Baseplate?

- Take a guess
- Soft disposable (flat peristomal area)
- Hard disposable (recessed peristomal area)
- Non-disposable baseplate/foam disc
  - Spread area around the stoma
  - Attach the baseplate by maximizing surface contact
  - Smooth out/no air bubbles
Fitting a Peristomal Attachment

- Clean peristomal skin with mild soap and/or cleaning towel & dry thoroughly
- Apply Skin Barrier & wait 2 minutes to dry
- Apply external adhesive (if indicated) & wait 4 minutes to dry
- Align inner ring with the bottom lip of stoma
- Attach the base plate/housing so it is in contact with the skin as much as possible
- Smooth out wrinkles/bubbles
- Wait 20-30 min prior to talking
- If unable to wear for 8+hrs → re-assess
- SUCCESS = PATIENCE + PERSISTENCE

Example of Stabilibase Baseplate Placement

Application of a Provox® StabilBase™ adhesive baseplate
Karina M. Jensen, M.A, CCC-SLP, Director, Medical Speech Pathology, Texas Health Care Otolaryngology & Facial Plastic Surgery Assoc, applies a Provox® StabilBase™ adhesive baseplate.
**Tips for Maintaining a Good Adhesive Seal**

- Clean the area around the stoma
- Dry area around the stoma with a lint free towel
- Improve the stickiness of adhesive: warming the baseplate or using a scant layer of additional glue
- Protect the skin with application of Skin Barrier wipe
- Provide additional stickiness by using a Skin Tac wipe
- If needed, apply extra glue to skin and let dry 3-10 minutes
- **Line up the inner ring of baseplate with the bottom lip of stoma**
- Apply base plate; avoid creases and bubbles
- **Massage or warm baseplate for 1 minute**
- **Try not to voice for 20 - 30 minutes**
- Lower speaking pressure when possible
- If develop skin irritation from baseplate, make sure to use the Luna baseplate at night

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**Adhesive/Baseplate Removal and Impact on Skin**

**Problem:** Skin stripping when removing baseplate stripping the top layer (epidermis) of skin every time use it.

**Solution:** Critical to remove the baseplate correctly

3. Removing the adhesive.

Proper skin care is important for your long term success in wearing an adhesive baseplate. It is especially important if you have sensitive skin. The following tips may be helpful:

- Remove the adhesive carefully.
  - For the Provac OptiDerm™ Adhesive, use Provoc Adhesive Remover at the edge and then under the adhesive while peeling the adhesive from the skin.
  - For Provac FlexiDerm™, XtraBase® or StabiliBase Adhesives, apply Provoc Adhesive Remover on top of the adhesive (the adhesive is porous) and then under the adhesive when peeling the adhesive from the skin.
- Some patients with very sensitive skin can get skin irritation from the use of skin protection products or adhesive removal wipes. If that is the case, discontinue the use of these products and consult your clinician or a dermatologist.
Intraluminal Attachments

Provox® LaryButton™

Soft, silicone material
- Easy to fold & insert
- Comfortable for pt
Available in 4 diameters & 2 lengths

Ideal stoma:
- Symmetric, round
- Contiguous stomal lip
- TEP position 7-15mm from tracheocutaneous juncture (TCJ)

Retains all Provox® HMEs and hands-free valves
Maintains stomal patency
Can use w/ or w/o Provox® TubeHolder™ or Provox® LaryClips™
Barton-Mayo™ Tracheostoma Button

- Silicone material
  - More rigid than LaryButton™
  - Fold in ½ to insert
  - Retained only by retention flange
- Available in 4 diameters & 3 lengths
- Must have the perfect stoma
  - Symmetric, round
  - Contiguous stomal lip
  - TEP position 7-15mm from TCJ
- Retains HMEs and hands-free devices

Provox® LaryTube™

Standard
- Maintains tracheostomal patency
- Houses HME
- Allows for customized fenestration to allow TE speech

Fenestrated
- Used in combination with voice prosthesis

Blue Ring
- Worn with adhesive base plate
- Supports stomal seal with Provox® FreeHands™ HME
- Used in acute post-op phase to avoid ties
Provox® Blue Ring LaryTube™ w/ Base Plate

Tube vs. Button?

**Button**
- Ideal stoma
  - symmetric, round
  - contiguous stomal lip
  - TEP position 7-15mm TCJ
- Stomal stenosis
- Pt. tolerant of something in the stoma

**Tube**
- Tracheal & stomal stenosis
- Flap reconstruction
- Redundant tissue around stoma
- Shallow tracheal lumen
Fitting Tube/Button

- Measure the diameter of the stoma
  - LaryTube™ /LaryButton™ sizing kit

- Determine appropriate length
  - Position of TEP
  - Redundancy
  - Presence & location of tracheal stenosis
  - Most common LaryTube length = 36mm
  - Most common LaryButton length = 8mm

Fitting Tube/Button

Insertion

Put Surgilube®/K-Y® Jelly around stomal lip
Fold LaryButton in ½ like a “taco”
Place into the stoma and let it open up
Possible Button Sizing Issues

- Fitting Assessment
  - Position of TEP?
  - Adequate blood flow to stoma?
  - Air exchange?
  - Comfort?
  - Pistoning?
  - Dislodgement?
  - Need for LaryClips™?
  - Insertion strap intact?

Provox LaryButton™ with LaryClip™
Peristomal vs. Intraluminal Attachment: How do I Choose?

Factors to Consider:

- Stomal Shape
  - Symmetry?
  - Contiguous stomal lip?
  - Position of TEP?

- Peristomal Topography
  - Prominent sternocleidomastoid (SCMs)?
  - Prominent clavicular heads?
  - Deep set stoma vs smooth peristomal skin?
  - Skin sensitivity?
  - Lymphedema?
  - Presence of flap?
  - Neck size & shape?
Situations and Combinations are Endless

- Sutures
  - Optiderm
  - Larytube
  - Larybutton
  - Combo

- Undergoing Radiation
  - Larytube
  - Larybutton
  - Hydrogel
  - Combo

- Skin Irritation
  - Optiderm
  - Hydrogel
  - Larytube
  - Larybutton
  - Combo
Stomal stenosis
- Larytube
- Larybutton
- Blue ring with baseplate

Deep Set Stoma
- Stabilibase
- Xtrabase
- Flexiderm with Trachofoam

Flexivoice
- Baseplate
- Larybutton
- Baseplate + Freehand Support

Sensitive skin & Flexivoice user
- Stabilibase by day
- Hydrogel/Luna at night
- Larybutton with clips

Determining Best Set-up
- Maintain a seal for 8 hours
- Complexity
- Comfort
- Ease of breathing/resistance
- Cost

It takes time and troubleshooting to find the best combination. Success requires commitment from both you and your patient.
In Summary

- Physiologic changes occur in the lungs as a result of neck breathing.
- Respiratory Changes have a significant impact on QOL.
- The introduction of an HME can improve respiratory status and pulmonary function while reducing mucus in neck breathers.
- Cost savings may be substantial.

https://www.youtube.com/watch?v=HEai28lcWVk

With permission from Alan Pummell