Effect Of Voice Therapy In Unilateral Vocal Fold Paralysis

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What is the aim of treatment of UVFP

Improve glottal competence essential for:
- Voice production
- Protective swallowing functions

What is expected from voice therapy

- Improve voice quality (softer confidential speaking voice).
- Breathing control.
- Eliminate undesirable compensatory hyperfunctional behaviors (rough strained voice).
- Learn pt compensatory strategies (head turning and digital pressure).
- Prevention of aspiration & swallowing rehabilitation.
Techniques of Voice therapy in UVFP

- **Hard glottal attack and pushing**: to narrow the glottis by building air pressure without letting air out then release the vowel.
  - Avoided dt supraglottic hyperfunctional
  - Used only for 1 week at initial treatment

- **Modified pushing**: isometric pushing with vowel stretching and gliding lower pitch (encourage contraction of thyroarytenoid ms)
  - Vocal pitch controlled mainly by length, mass and tension of VF which depend mainly on thyroarytenoid ms
  - Vocal intensity controlled mainly by glottal resistance and airflow.

  Yamaguchi 1993

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**Techniques of Voice therapy in UVFP**

**Smith accent method**

- Abdomino-diaphragmatic breathing.
- Accentuated rhythmic vowel play and later articulation.
- Body and arm movements.

Softer breathy voice is much better than louder, strained and effortful voice

Kotby 1996
Khidr 2003
Techniques of Voice therapy in UVFP

How accent method improve glottal competence:
Enhance Bernoulli effect

*Sustained phonation* produced by holding theVF in the air stream which cause VF vibration

**Aerodynamic-myoelastic theory**
depend on the principle of *Bernoulli’s effect*:
Increase flow at constriction leads to decrease pressure perpendicular to the flow
Patient presents with mild dysphonia.
Techniques of Voice therapy in UVFP

- Compensatory strategies
- Half swallow boom
- Resonant voice therapy
- Twang method
- Confidential voice therapy
- Vocal function exercises
- Appropriate tone focus
- Lip and tongue trills
- Eliminate undesirable compensatory hyperfunctional behaviors

Techniques of Voice therapy in UVFP (swallowing rehabilitation)

- Postural change
- Diet modification
- Avoid talking while eating
- Supraglottic swallowing
- Super-Supraglottic swallowing
Treatment plan

- Initial voice therapy
- EMG at 6 months to detect denervation with either observation and voice therapy or
- Surgery if:
  1. Persistent significant symptoms after medical voice therapy
  2. Urgent need for voice improvement
  3. Significant aspiration

Factors affecting treatment decision in UVFP

- Patient concern and voice requirement.
- Overall voice quality.
- Objective voice and laryngeal assessment
- Patient general condition.
- Ease and cost of treatment.
- Predictability of outcome.

Benninger 2007
Efficacy studies

<table>
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<th>Therapy female</th>
<th>Surgery female</th>
<th>Therapy male</th>
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<td>100%</td>
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<td>92% (11/12)</td>
<td>88% (7/8)</td>
<td>71% (10/14)</td>
<td>88% (7/8)</td>
</tr>
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Heur et al 1997

Efficacy studies

- 12 pt medialization
- 18 pt with voice therapy

Both show improvement in voice quality and change in MFR & leak flow [Colton and Casper 1996](#)

- In both studies: higher pre treatment flow rate in surgery case; so excessive MFR from incomplete glottic closure are good predictor of the need for surgery.
Conclusions

- Voice therapy is the first line of therapy in UVFP.
- Voice therapy is alternative and equal to surgery in 80% of cases.
- Proper initial pre-treatment assessment including diagnostic voice therapy is essential to select the best line of treatment.

Thank you