SNORING & OSAHS SURGERY

International Workshop

“Skin Lined” Tracheostomy (15 min)
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&
ENT-MaxilloFacial
Joint Commission

“Skin-Lined” Tracheostomy

BACKGROUND

O.S.A.H.S Patient

Immediate Post-Surgical Time:
TEMPORARY Tracheotomy


Lifelong Therapy:
PERMANENT Tracheotomy
Temporary/Permanent Tracheotomy: EFFECTIVENESS for O.S.A.H.S

- **Kuhlo et al. Study:**
  - PERMANENT TRACHEOTOMY IN PICKWICKIAN PATIENTS

- **Partinen et al. Study:**
  - 198 Patients
  - 71 Pts: TRACHEOTOMY 127 Pts: WEIGHT LOSS
  - Follow-up (5 yrs): 14 deaths in CONSERVATIVE GROUP

- **Ledereich et al. Study:**
  - 101 Patients
  - 30 Pts: PERMANENT TRACHEOTOMY 71 Pts: OTHER SURGICAL THERAPIES
  - Follow-up (5 yrs)
  - EDS: 3% PERMANENT TRACHEOTOMY 35%: OTHER SURGICAL THERAPIES

- **Cohen et al. Study:**
  - 63 Pediatric Patients
  - 13 Pts: TRACHEOTOMY 50 Pts: OTHER SURGICAL THERAPIES
  - Clinical Success: 100% TRACHEOTOMY 59%: OTHER SURGICAL THERAPIES
Temporary/Permanent Tracheotomy: EFFECTIVENESS for O.S.A.H.

<table>
<thead>
<tr>
<th>Author</th>
<th>Pts</th>
<th>Follow-up (months)</th>
<th>Age (yrs)</th>
<th>AHI Pre</th>
<th>AHI Post</th>
<th>Success %</th>
<th>Definition of Success</th>
<th>EBM Grade</th>
</tr>
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<tbody>
<tr>
<td>Guilleminault et al. (1981)</td>
<td>50</td>
<td>9–72</td>
<td>12–66</td>
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<td>No data</td>
<td>100</td>
<td>A1 &lt;5</td>
<td>Retro</td>
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<td>Haapaniemi et al. (2001)</td>
<td>7</td>
<td>30–108</td>
<td>41–64</td>
<td>56.3% (LOS)</td>
<td>82.9% (LOS)</td>
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<td>Retro</td>
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<td>Kim et al. (1998)</td>
<td>23</td>
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<td>22–77</td>
<td>58,20</td>
<td>19,80</td>
<td>73,90</td>
<td>AHI &lt;20</td>
<td>II-3</td>
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<td>Thatcher et al. (2003)</td>
<td>79</td>
<td>3–240</td>
<td>25–70</td>
<td>81</td>
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<td>100</td>
<td>No data</td>
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<td>All</td>
<td>159</td>
<td>3–240</td>
<td>12–77</td>
<td>96,20</td>
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“Skin-Lined” Tracheostomy SKLT

- Permanent Tracheotomy
- Long Term Tube Free Tracheostomy (“LTTFFT”)
- Myocutaneous Fenestration
- Tracheal Permanent Permanent Fenestration
### “Skin-Lined” Tracheostomy Surgical Procedures

<table>
<thead>
<tr>
<th>Author</th>
<th>Skin Flaps</th>
<th>Tracheal Flaps</th>
<th>Stiches</th>
<th>Valve Function</th>
</tr>
</thead>
</table>

### “Skin-Lined” Tracheostomy Selecting Criteria

**Temporary Tracheotomy**

For the post-operative securing of the airways after:

- Laryngeal surgery
- Tongue Base surgery
- Surgery on upper and lower Jaw

**Permanent Tracheotomy**

As ultima ratio for:

- Therapy failures with CPAP or BIPAP (RDI>30; LOS<60%; BMI> 30 Kg/m²)
- Surgically not curable Pharyngeal Obstruction
- Patients who cannot receive Intubation
  - M.S.A.
  - L.A.S.
  - Inveterate Tracheal Stenosis

Or for children with:

- Congenital malformations, which cannot be surgically corrected or can be surgically corrected only after puberty
“Skin-Lined” Tracheostomy

SURGICAL STEPS


Testut & Jacob, 1933
Longer flaps
- More superficial trachea
- Difficult for surgeon
+ Appearance for patient

Shorter flaps
- Shorter stoma,
- Deeper trachea
- Difficult for surgeon
- Appearance for patient

courtesy of M Lucioni, 2002

“Skin-Lined” Tracheostomy

SURGICAL STEPS

“Skin-Lined” Tracheostomy

SURGICAL STEPS

“Skin-Lined” Tracheostomy

SURGICAL STEPS

courtesy of M Friedman, 1994


courtesy of DNF FAIRBANKS, 1994

“Skin-Lined” Tracheostomy

SURGICAL STEPS

“Skin-Lined” Tracheostomy

SURGICAL STEPS

Permanent tracheotomy was the first surgical procedure proposed for the treatment of severe obstructive sleep apnoea syndrome and is still the only surgical option that ensures, even in very severe cases, complete elimination of apnoea and, in turn, clinical remission. Improved knowledge of the causes of obstructive sleep apnoea syndromes and the increasing therapeutic options (instrumental, medical and surgical) have resulted in cases requiring tracheotomy as the only indispensable therapeutic option becoming more rare. At present, the only indications are in very occasional conditions of life-threatening obstructive sleep apnoea syndromes and in patients on whom continuous positive airway pressure is not tolerated or is not effective (severe deoxygenation or hypercapnia, severe respiratory disorder index, severe obstructive sleep apnoea syndrome-related arrhythmias, severe excessive daytime sleepiness, heart diseases or ischaemic encephalopathy exacerbated by obstructive sleep apnoea syndromes, obstructive pneumopathy exacerbated by obstructive sleep apnoea syndromes, severe obstructive sleep apnoea syndromes with few chances of resolution with other surgical procedures or failure of the latter). Moreover, it is the only therapeutic solution in rare nocturnal laryngeal stridor due to multisystemic atrophy (in which obstructive sleep apnoea syndrome is due to nocturnal laryngospasm of neurologic origin). Therapeutic tracheotomy must be permanent (tracheostomy) and, therefore, preferably carried out with a specific technique (skin-lined tracheotomy), able to guarantee greater stability, less risk of granulation tissue, wider opening of the tracheostomy, sufficient reversibility. In our experience, very few patients (10 cases) with sleep disorder breathing have been submitted to skin-lined tracheotomy. Of these, the majority were submitted to surgery for severe apnoea due to nocturnal laryngospasm on account of multisystemic atrophy (n = 7), while only 3 cases of obstructive sleep apnoea syndromes were submitted to skin-lined tracheotomy, i.e., 0.7% of the 424 patients operated on for obstructive sleep apnoea syndrome and 1.7% of the 175 operated on for severe, or very severe, obstructive sleep apnoea syndromes (RDI > 40). Skin-lined tracheotomy was not followed by important complications and expected results were achieved with immediate disappearance of daytime symptoms and considerable improvement in nocturnal apnoea. Besides sleep-related disorders, numerous clinical situations with indications for a permanent tracheotomy may benefit from the skinlined technique, such as severe laryngeal or tracheal stenoses, laryngeal diplegias, myasthenia gravis, lateral amyotrophic sclerosis, intractable aspiration, severe emphysema.
“Skin-Lined” Tracheostomy

OUR EXPERIENCE

4 OSAS (5.4% of 525 SDB patients)
(1.3% of 305 patients suffering from severe OSAHS - mean AHI: 67.3 mean BMI: 37.3 – CPAP failure)

12 Nocturnal Laryngeal Stridor in MSA

Lateral Amyotrophic Sclerosis
21
37 overall

“Skin-Lined” Tracheostomy
Conclusions

- Greater Stability
- Wider Opening Shunt
- Lower Risk of Granulation Tissue
- Quick Procedure
- Reversibility
THANK YOU FOR YOUR ATTENTION ... and