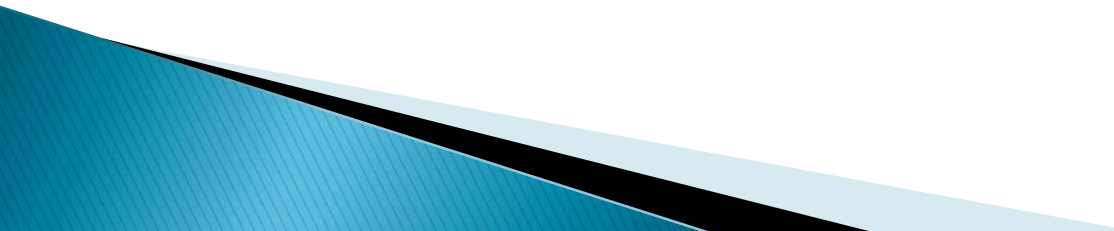


Tubes, Tonsils and Adenoids in the 21st Century

M. Scott Major, M.D.
Wasatch ENT and Allergy

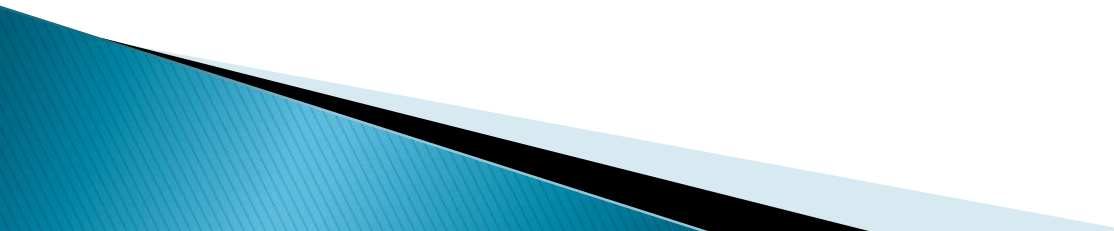
Disclosure

- ▶ This presentation has no commercial content, promotes no commercial vendor and is not supported financially by any commercial vendor. I receive no financial remuneration from any commercial vendor related to this presentation.
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Objectives

At the conclusion of this presentation, attendees will be able to:

- ▶ Describe current indications for myringotomy tube placement as well as adenotonsillectomy in both children and adults.
 - ▶ Discuss new technology relating to tube construction to prevent biofilm formation.
 - ▶ Understand and describe the newer technologies which have been introduced to decrease tissue trauma and expedite healing following adenotonsillectomy.
 - ▶ Discuss newer concepts aimed at assisting in wound healing of the tonsillar bed.
- 

Tympanostomy Tubes

- ▶ Insertion of tympanostomy tubes is the most common ambulatory surgery performed on children in the United States
- ▶ Clinical practice guidelines in the United States to address specific indications for surgery
 - Otolaryngology–Head and Neck Surgery, 2013 Jul;149(1 Suppl):S1–35.
 - ages 6 months to 12 years

Tympanostomy Tubes

▶ Indications

- children with bilateral OME for 3 months or longer (chronic OME) and documented hearing difficulties
- children with recurrent AOM who have unilateral or bilateral middle ear effusion at the time of assessment
 - No discrete “number of infections” given
- reevaluate, at 3- to 6-month intervals, children with chronic OME who did not receive tympanostomy tubes, until the effusion is no longer present

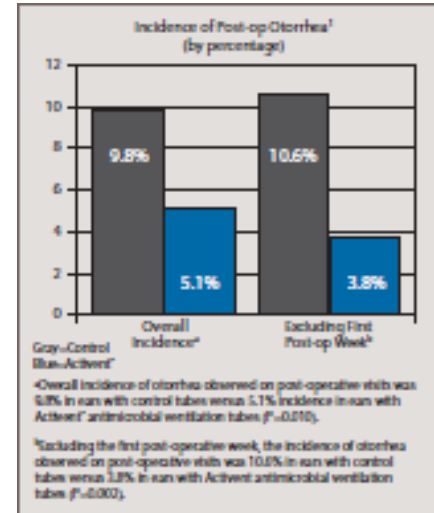
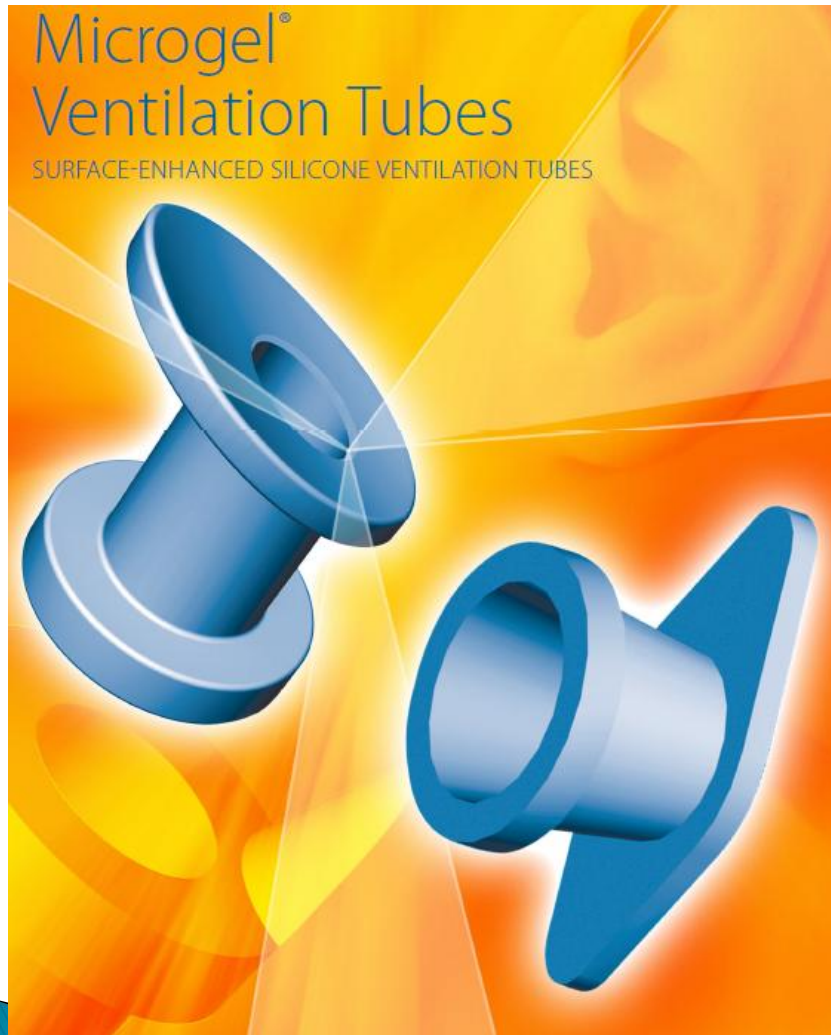
Tympanostomy Tubes



▶ Biofilm formation

- Biofilm (*P. aeruginosa* and *S. aureus*) has been implicated in post-tube otorrhea and ongoing infections
- Tympanostomy tube surface modifications have been promoted as a means of reducing biofilm formation, otorrhea, and occlusion
 - Silicone tubes with polyvinylpyrrolidone (PVP) and/or silver oxide shown to decrease biofilm
 - [Int J Pediatr Otorhinolaryngol.](#) 2013 Feb;77(2):223–7

Tympanostomy Tubes



Demonstrated effective
in reducing postoperative
otorrhea^{1,3}

Clinical data show a significant reduction in the incidence of postoperative otorrhea in ears implanted with ActiveVent antimicrobial ventilation tubes compared with conventional tubes.

Tympanostomy Tubes

- ▶ Postoperative care
 - Water precautions
 - Clean water acceptable
 - Plugs for untreated water exposure
 - Post-tube otorrhea
 - Ototopicals
 - oral antibiotics
 - Biofilm formation
 - Adenoidectomy indications



Tonsillectomy

▶ Indications in children

- Clinical practice guidelines

Otolaryngol Head Neck Surg. 2011 Jan;144
(1Suppl):S1–30.

▶ Recurrent infections

- 6–7 episodes in past year
- 4–5 episodes per year over the past 2 years
- 2–3 episodes per year over the past 3 years
- Episodes = sore throat + at least 1 of the following:
 - Temperature > 100.9
 - Cervical adenopathy
 - Tonsillar exudate
 - Culture positive Group A streptococcus



Quality of Life after Tonsillectomy in Children with Recurrent Tonsillitis

- ▶ 58 children evaluated 6 months and 38 children 1 year after tonsillectomy
- ▶ • Tonsil and Adenoid Health Status Instrument (TAHSI)
- ▶ • Child Health Questionnaire–PF28 (CHQ–PF28)
- ▶ • Statistically significant improvement of all 6 subscales of TAHSI: breathing, infection, health care utilization, cost of care, eating, swallowing
- ▶ • Significant improvement in several subscales of the CHQ–PF28: physical functioning general health impact, parental impact, family activities

Goldstein NA, et al. Otolaryngol Head Neck Surg. 2008;138:S9–16.

Tonsillectomy

▶ Indications

- Obstructive breathing/OSA
 - History and Physical Examination
 - “heroic snoring”
 - Comorbid conditions
 - Enuresis
 - Poor school performance
 - Behavioral problems
 - Dysphagia
 - Polysomnography
 - Undefined in children



Behavior, Cognition, and Quality of Life After Adenotonsillectomy for Pediatric Sleep-Disordered Breathing: Summary of the Literature

- ▶ Children 0–18 years who had tonsillectomy
- ▶ Articles had to address QOL, behavior, cognitive function, or school performance
- ▶ 232 articles with 25 meeting study criteria
- ▶ “All studies showed improvement in one or more of the specified outcomes measures including general or disease specific quality of life, behavioral problems including hyperactivity and increased aggression, or neurocognitive skills.”
- ▶ Limited correlation between outcomes measures and PSG

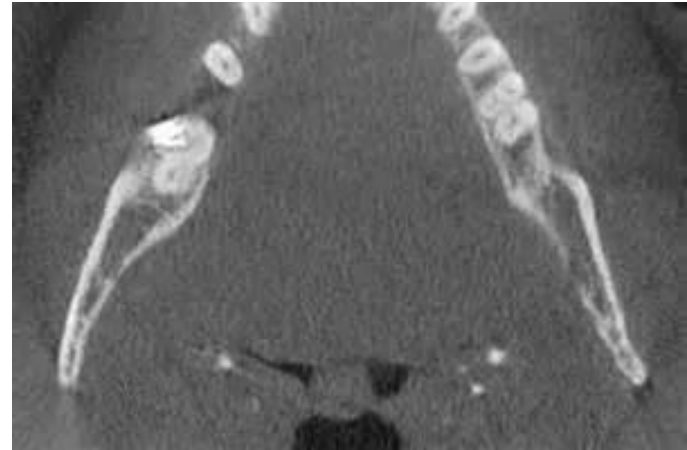
Garetz LS. Otolaryngol Head Neck Surg. 2008;138:S19–S26.

Tonsillectomy

▶ Indications

◦ Chronic tonsillitis

- Almost constant, low grade sore throat
- Production of tonsiliths
- Halitosis
- Minimal, brief improvement with medical therapy



Tonsillectomy

- ▶ Chronic tonsillitis
 - Actinomyces colonies

Tonsil Stones?
Home Remedy!



Banish Tonsil Stones
Get Up, Clear and Permanent Relief!

*Safe, Natural,
and Proven Cure
For Disgusting
Tonsil Stones!*

[Click Here](#)

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TONSIL STONES
WITH A
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Guide to Personal Care and
Oral Hygiene

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Tonsillectomy

- ▶ Chronic Tonsillitis



- ▶ Common in adolescents and adults
 - Ages 12-?

Quality of Life after Tonsillectomy in Children with Recurrent Tonsillitis *

- ▶ 58 children evaluated 6 months and 38 children 1 year after tonsillectomy
- ▶ Tonsil and Adenoid Health Status Instrument (TAHSI)
- ▶ Child Health Questionnaire–PF28 (CHQ–PF28)
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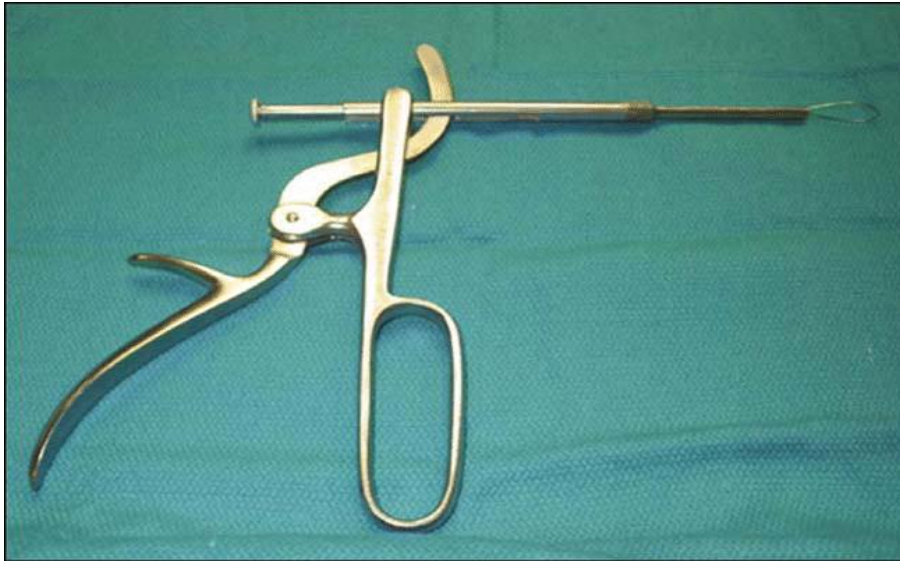
* *Goldstein NA, et al. Otolaryngol Head Neck Surg. 2008;138:S9–16.*

Tonsillectomy Methods

- ▶ Approach to improve postoperative recovery
 - Limit size of wound
 - Decrease thermal injury
 - Partial (intracapsular) tonsillectomy
 - Marginal gains overall
 - Clinical studies show some improvement in number of days
 - Recent Intermountain study of approx 19,000 tonsillectomies
 - No appreciable difference in number of days or degree of pain scores

Tonsillectomy Methods

- ▶ “Cold Steel”
 - Infrequently done today
 - Vessels individually ligated, wire snare
 - Recovery comparable to electrocautery

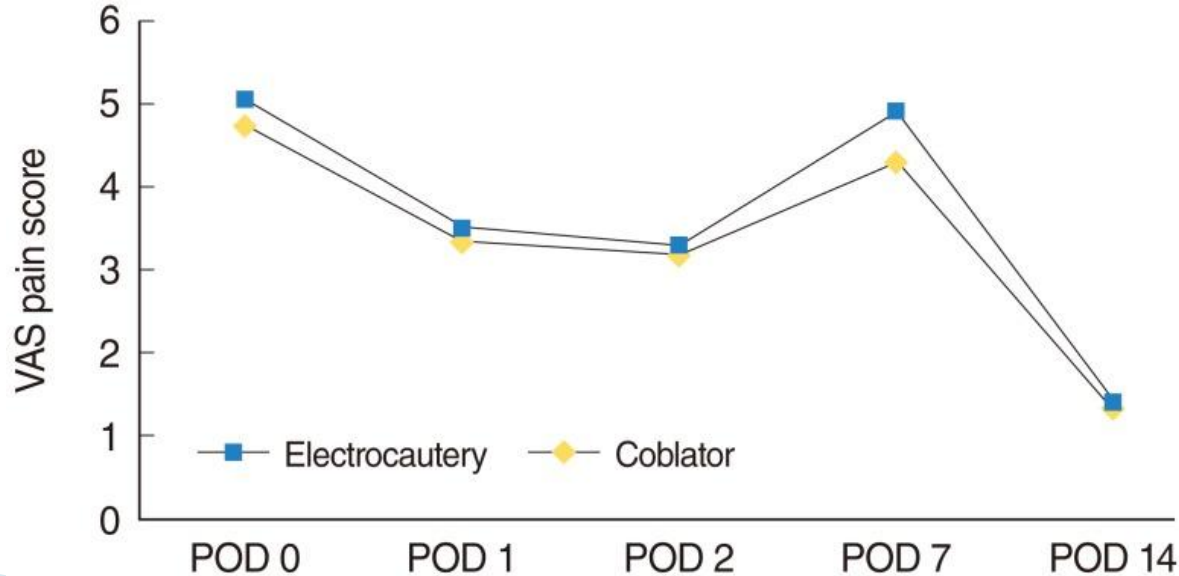


Tonsillectomy Methods

- ▶ Electrocautery technique
 - Most common over past 20 years
 - Other methods compared to this (gold standard?)
 - Low rate of post-operative bleeding
 - Inexpensive
 - Pain rates (max and duration) comparable to newer methods
 - Thermal injury more pronounced

Tonsillectomy Methods

- ▶ Radiofrequency (“coblation”)
 - Lower temperatures should allow for faster healing and less pain
 - Continuous radiofrequency energy
 - “Statistical tendency” towards improved pain scores



Tonsillectomy Methods

- ▶ Radiofrequency-coblation

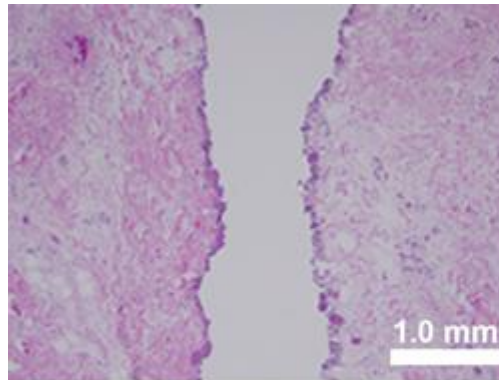


Tonsillectomy Methods

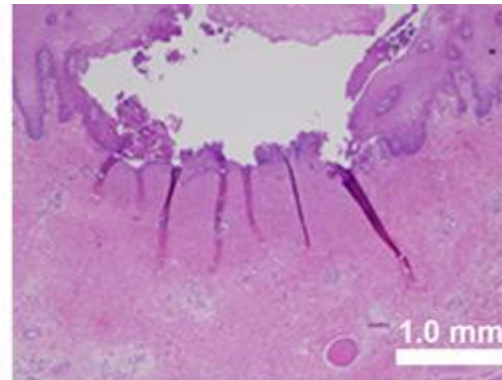
▶ Radiofrequency

◦ Peak Plasma blade

- Insulated tip-less collateral damage
- Lower cutting temperature
 - Short pulses of RF energy
 - Plasma is an electrically conductive cloud comprising water vapor and ions



PEAK PlasmaBlade
COAG 6



Evac
COAG 3

Tonsillectomy Methods

- ▶ Harmonic scalpel
 - Ultrasonic energy to vibrate blade
 - 55,000 cycles/sec
 - Energy transferred to tissue
 - Cutting
 - coagulation



Tonsillectomy Methods

▶ Microdebrider

◦ Intracapsular

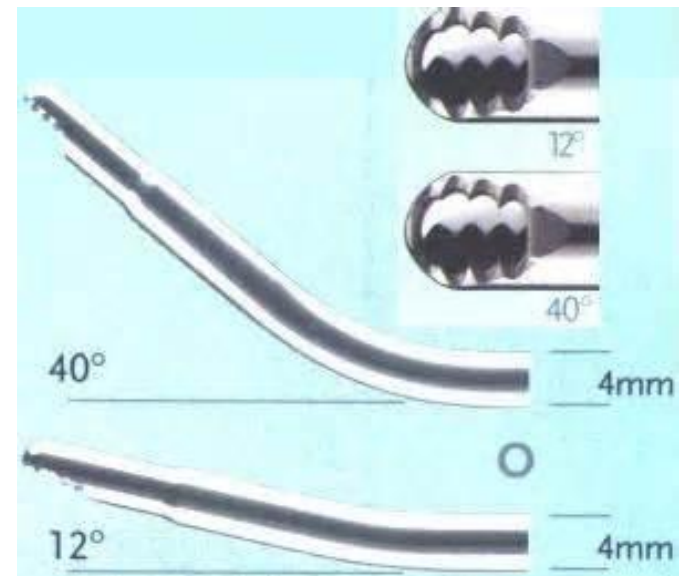
Capsule of tonsil left intact and adherent to fossa

- Residual tonsil tissue
 - Risk of regrowth
 - Future surgery risk
 - Bleeding
- Indicated for hypertrophy only

◦ Extracapsular

- Much more difficult

◦ Adenoidectomy



Tonsillectomy

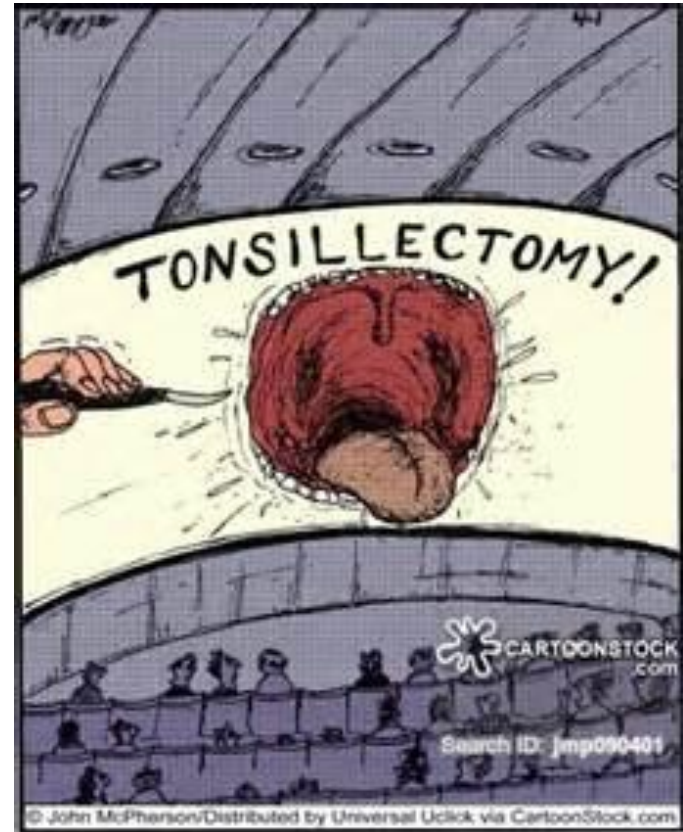
▶ Recovery

- Children 2–12 y/o
 - Typically 6–7 days
- Adolescents and adults
 - Typically 10–12 days
- Eschar present in fossae
 - Releases around POD 7
 - Looks awful!
- Soft diet
- Narcotics
- Ibuprofen ok



Future Directions

- ▶ Newer Technologies
 - ?
- ▶ Focus on wound healing
 - Coverage of open fossa
 - Ongoing study



IMAX films that bombed.