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Tonsillectomy/Tonsillotomy/Adenoidectomy - Techniques

Dr. med. Séverine Niederer-Wüst
Oberärztin

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Topics

- Tonsillectomy
- Tonsillotomy
- Adenoidectomy
- Techniques
- Conclusion

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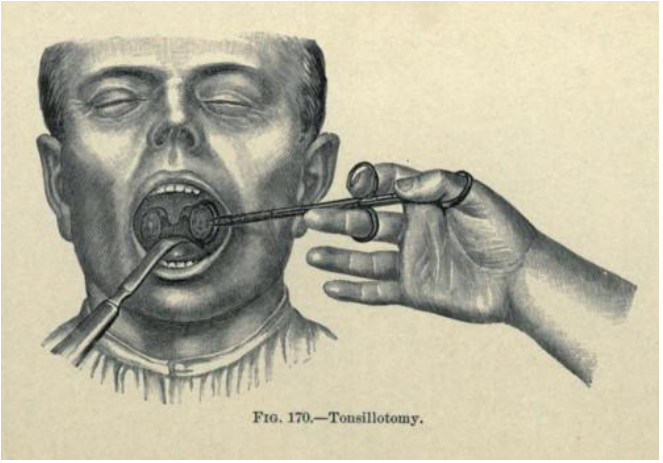

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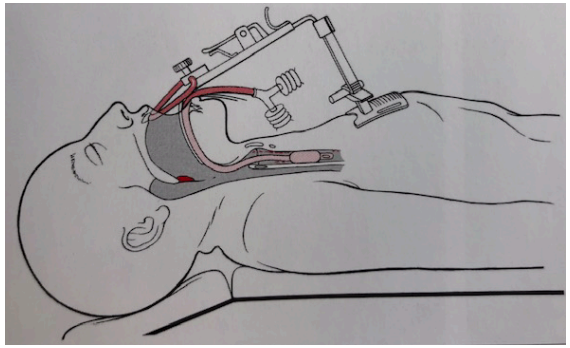
Preparation

1. General anaesthesia
   - Orotracheal intubation with a RAE-Tubus or laryngeal mask
   - Taped to the patient's chin in the midline
2. Position
   - Head extended
     - Cave Trisomie 21, Achondroplasie,…
   - Eyes taped closed
3. Antibiotic prophylaxis not necessary
   - To be considered in complex cases (immune deficiency,...)



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Tonsillectomy- Extracapsular (complete) tonsillectomy

- Insertion of a mouth gag
- Infiltration
- Medialisation of the tonsil
- Incision of the mucosa at the margin of the superior anterior tonsillar pillar
- Dissection along the extracapsular plane
  - Finding the proper plane is essential
- Extraction of the tonsils
- Examination of the fossae for further bleeding

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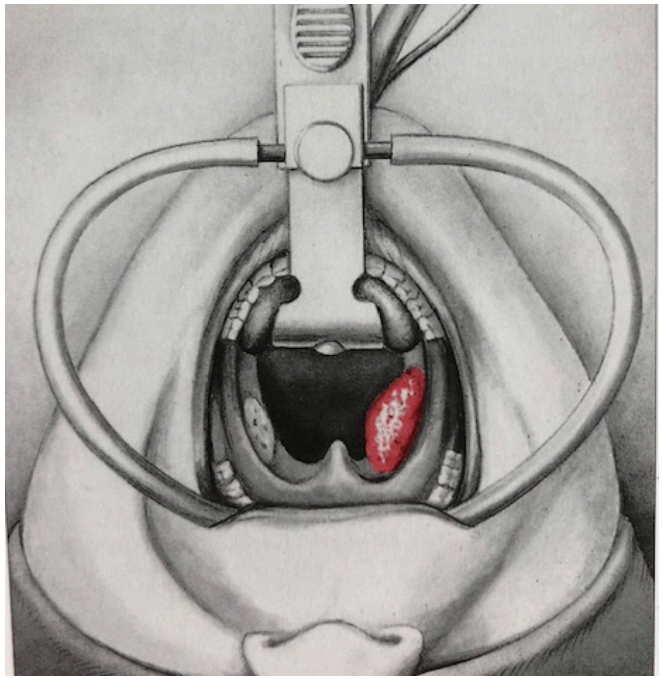
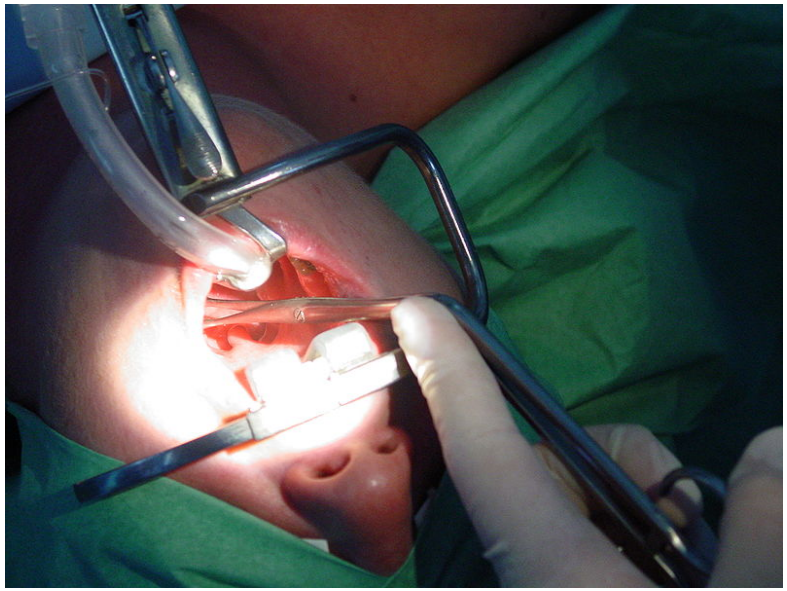
- Insertion of a mouth gag





Theissing et al. HNO-Operationslehre, Thieme

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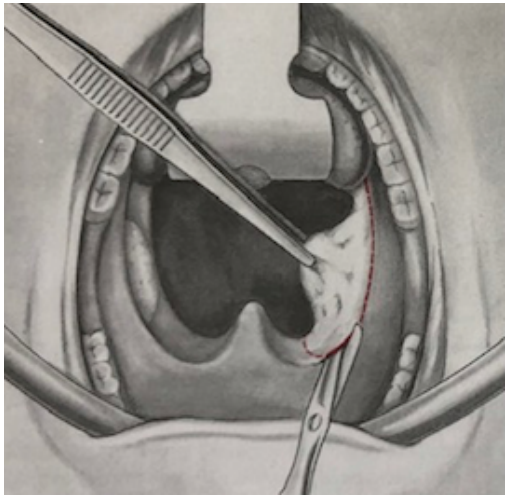
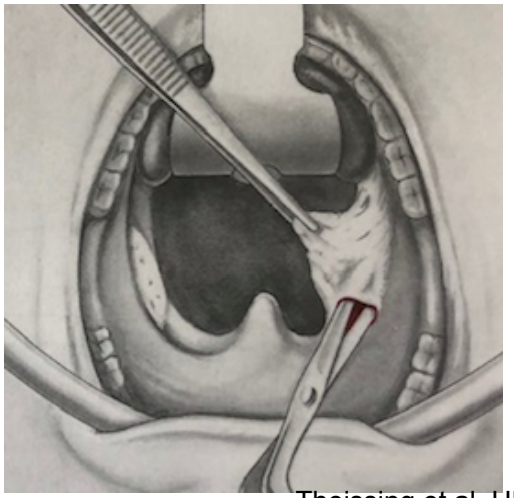
- Medialisation of the tonsil



- Incision of the mucosa at the margin of the superior anterior tonsillar pillar



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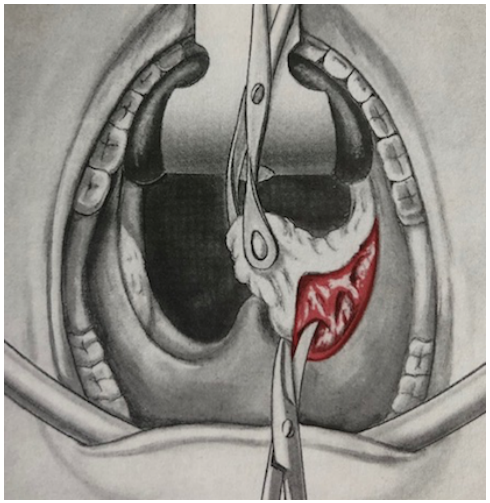
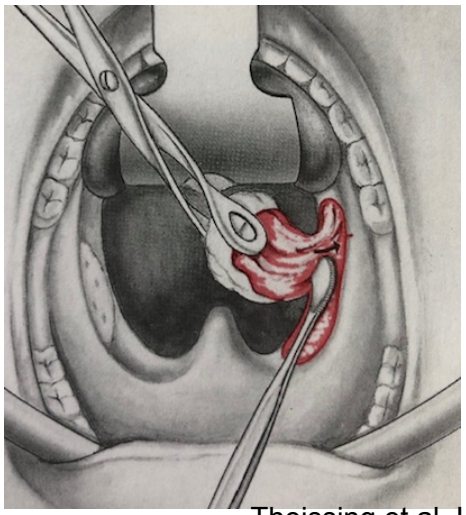
- Dissection along the extracapsular plane
  - Finding the proper plane is essential



- Extraction of the tonsils



Theissing et al. HNO-Operationslehre, Thieme

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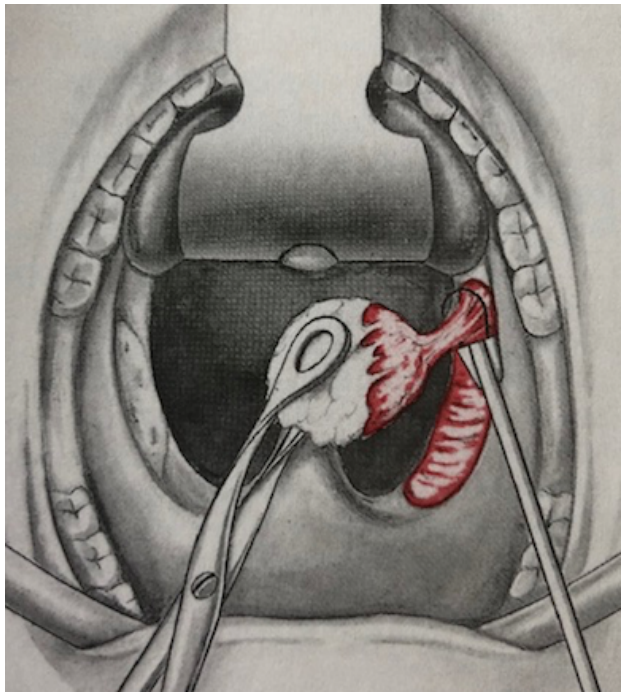
- Examination of the fossae for further bleeding



Theissing et al. HNO-Operationslehre, Thieme

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Tonsillotomy - Intracapsular (partial) tonsillectomy

- Insertion of the mouth gag
- Medialisation of the tonsil
- Near complete removal of tissue, leaving a rim of tonsil tissue overlaying the capsule
- Examination of the tonsils for further bleeding

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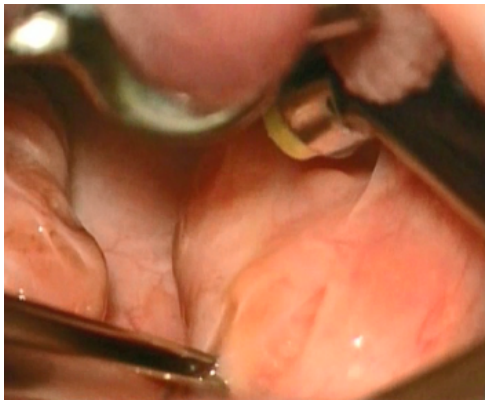
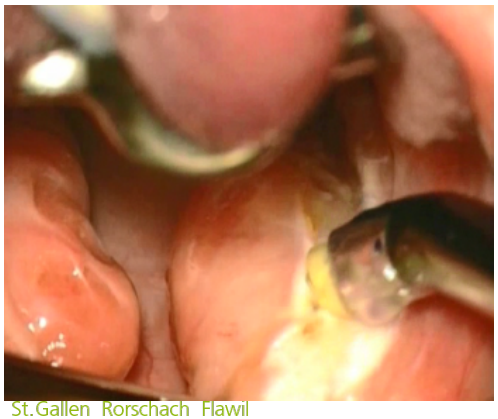
Tonsillotomy - Intracapsular (partial) tonsillectomy

- Insertion of the mouth gag



- Medialisation of the tonsil



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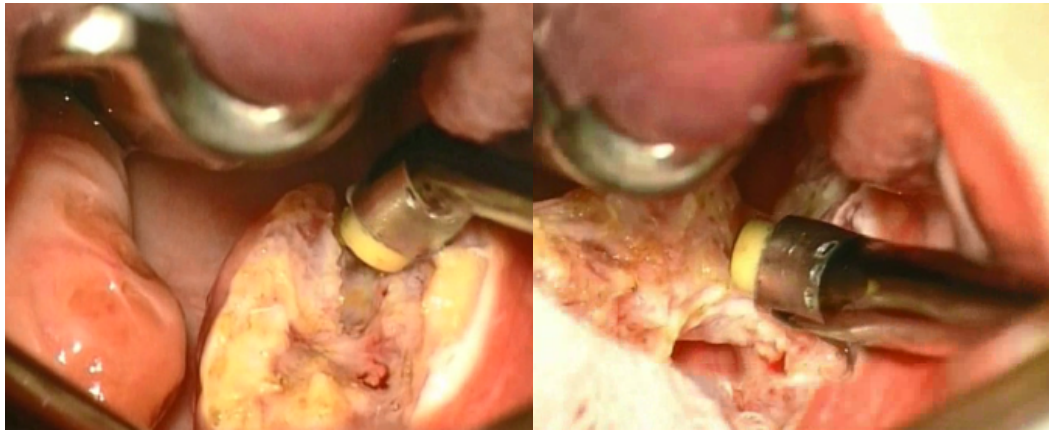
- Near complete removal of tissue, leaving a rim of tonsil tissue overlaying the capsule



- Examination of the tonsils for further bleeding

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Tonsillotomy-Tonsillectomy

Pro

- Less pain
- lower risk of bleeding
- more rapid return to normal activity and diet
- equivalent results for OSAS

Contra

- potential for regrowth (0.5%-6.0%)
- peritonsillar abscess
- recurrent tonsillitis
- Lack of longterm data for the effectiveness

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Adenoidectomy

- Palatal retraction using catheters inserted through the nose to the pharynx
  - Visualization
- Seating the instrument into the tissue superiorly at the vomer and shaving off the adenoid tissue
  - Adequate removal of tissue from the nasopharynx and choanae
  - Avoid injury to the eustachian tube
- Hemostasis with adenoid packs or use of suction electrocautery

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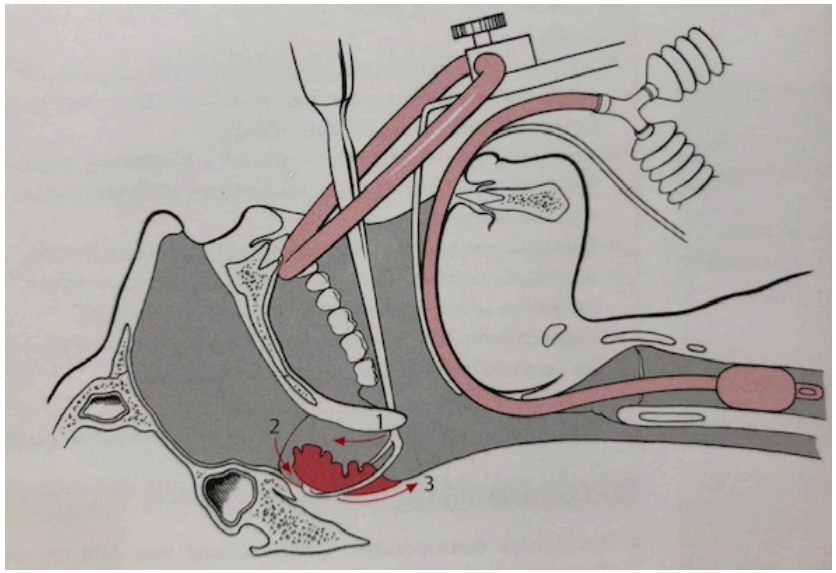
- Palatal retraction using catheters inserted through the nose to the pharynx

→ Visualization is key



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- Seating the instrument into the tissue superiorly at the vomer and shaving off the adenoid tissue
  - Adequate removal of tissue from the nasopharynx and choanae
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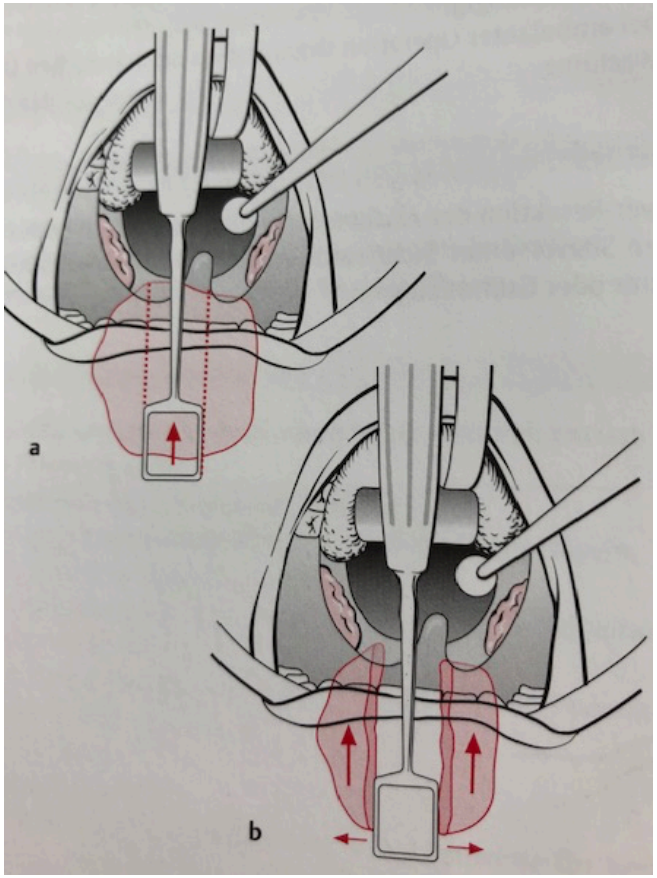

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- Hemostasis with adenoid packs or use of suction electrocautery

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Methods

2007 survey of members of the American Academy of Otolaryngology, Head & Neck Surgery and the American Society of Pediatric Otolaryngology

- 55% electrocautery
- 25% coblation
- 10% cold steel

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Methods

Cold Methods

- Dissection
- Harmonic scalpel
- Microdebrider
- Cryosurgical

Hot Methods

- Electrocautery
- Coblation
- Laser
- Radiofrequency

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Methods

Tonsillectomy

- Dissection
- Electrocautery
- Harmonic scalpel

Tonsillotomy

- Coblation
- Microdebrider
- Laser

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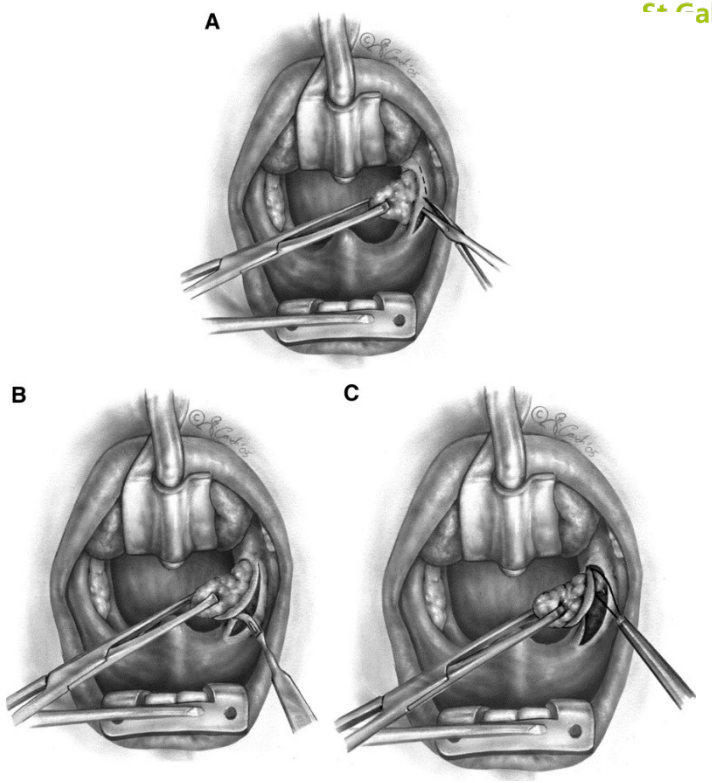
Cold Methods

- «sharp» Dissection



Messner A. Tonsillectomy. Operative Techniques in Otolaryngology. 2005

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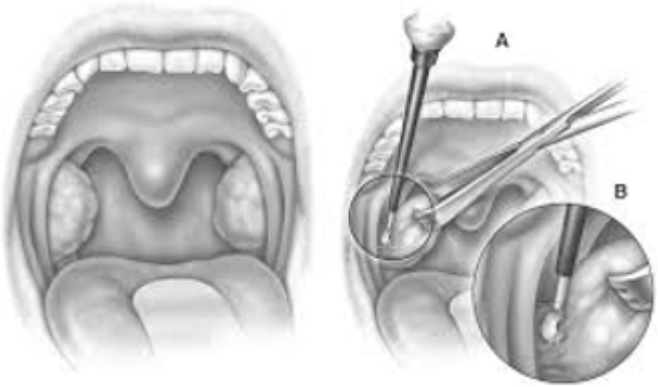
Cold Methods

Harmonic scalpel

- Ultrasonic energy to dissect the tissue
- Minimal thermal damage
- No benefit over electrocautery techniques



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Cold Methods

Microdebrider

- Powered rotatory shaver with continuous suction
- Used only in tonsillotomy and adenoidectomy
  - Preservation of the tonsil capsule, anterior and posterior tonsillar pillars
- higher intraoperative blood loss
- expensive

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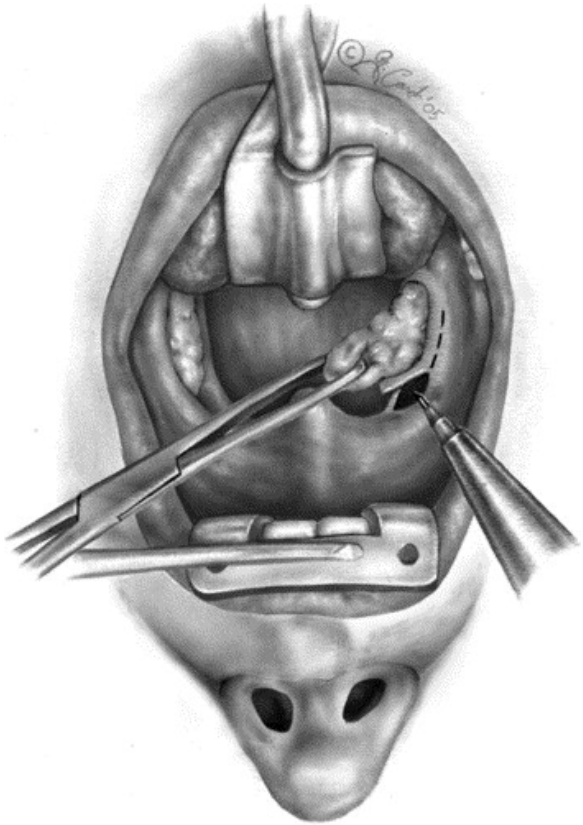
Hot Methods

Electrocautery

- Monopolar cautery technique
- Intraoperativ hemorrhage is reduced by the cauterization of the vessels
  - Thermal injury of the surrounding tissue (400°)
  - More discomfort postoperatively



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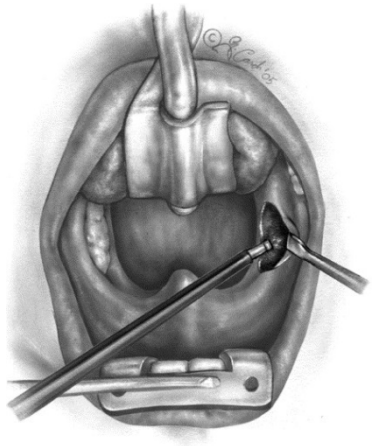
Hot Methods

Coblation

- Tonsillectomy is performed by producing an ionized saline layer that disrupts the molecular bonds without using heat (Temperature 45-85 °)
- Less pain, faster healing, less postoperativ care
- Intracapsular tonsillectomy or tonsillotomy
- expensive



Messner A. Tonsillectomy. Operative Techniques in Otolaryngology. 2005
Exclusively COBLATION plasma technology, smith&nephew

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Methods Adenoidectomy

Cold
- residual adenoid tissue
- bleeding (curette too deep)

Microdebrider
- Precise
- Complete removal of tissue
- Less risk of dissection in the fascial plane

Suction eletrocautery
- Lower rate of regrowth
- Decreased intraoperative hemorrhage
- Less operative time

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Techniques Outcome

cold

- Less postoperative pain
- Cheaper

hot

- Faster
- Less intraoperative blood loss

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Conclusions

Otolaryngol Head Neck Surg. 2017 March ; 156(3): 442–455. doi:10.1177/0194599816683915.

Postoperative Bleeding and Associated Utilization Following Tonsillectomy in Children: A Systematic Review and Meta-Analysis

David O. Francis[1], **Chris Fonnesbeck**[2], **Nila Sathe**[3], **Melissa McPheeters**[3], **Shanthi Krishnaswami**[4], and **Siva Chinnadurai**[1]

[1]Department of Otolaryngology, Vanderbilt University Medical Center

[2]Department of Biostatistics, Vanderbilt University Medical Center

[3]Department of Health Policy, Vanderbilt Evidence-based Practice Center, Institute for Medicine and Public Health, Vanderbilt University Medical Center

[4]Vanderbilt Evidence-based Practice Center, Institute for Medicine and Public Health, Vanderbilt University Medical Center

- we found relatively low rates of PTH, with higher rates associated with total tonsillectomy vs. partial and with similar rates among commonly used techniques (e.g., cold dissection, coblation)
- Evidence in this review does not support the superiority of one approach (partial vs. total) or any one technique over another.

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Operative Techniques in Otolaryngology (2005) 16, 224-228

ELSEVIER

Operative Techniques in Otolaryngology

FEATURE ARTICLES

Tonsillectomy

Anna H. Messner, MD

From the Departments of Otolaryngology/Head & Neck Surgery and Pediatrics, Lucile Packard Children's Hospital at Stanford, Stanford University, Palo Alto, California.

- a total tonsillectomy with the coblation unit may have slight advantages over electrocautery tonsillectomy.
- The studies on outcomes of surgeries completed with the harmonic scalpel do not show any definitive advantage to the scalpel.
- It is not clear which technique, if there is one, results in the lowest rate of postoperative hemorrhage.
- there is not a difference in the bleeding rates between extracapsular and intracapsular tonsillectomy.
- various techniques varies in price although the largest cost factor in any tonsillectomy is the operating time.

Cochrane Library

Cochrane Database of Systematic Reviews

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Coblation versus other surgical techniques for tonsillectomy (Review)

Pynnonen M, Brinkmeier JV, Thorne MC, Chong LY, Burton MJ

- The coblation technique may cause less pain on postoperative day 1, but the difference is small and may be clinically meaningless. By postoperative day 3, the difference decreases further and by postoperative day 7 there appears to be little or no difference.
- We found similar rates of primary bleeding but we cannot rule out a small increased risk of secondary bleeding with coblation.

Otolaryngol Head Neck Surg. 2017 March ; 156(3): 456–463. doi:10.1177/0194599816683916.

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Comparative Effectiveness of Partial Versus Total Tonsillectomy in Children: A Systematic Review

Nila Sathe, MA, MLIS[1], **Sivakumar Chinnadurai, MD, MPH**[2], **Melissa McPheeters, PhD, MPH**[1], and **David Francis, MD, MS**[2]

[1]Department of Health Policy; Vanderbilt Evidence-based Practice Center, Institute for Medicine and Public Health, Vanderbilt University Medical Center, Nashville, TN

[2]Department of Otolaryngology, Vanderbilt University Medical Center, Nashville, TN

- Data do not allow firm conclusions regarding the comparative benefit of partial versus total removal
- neither surgical technique or extent of surgery appear to affect outcomes markedly. Partial tonsillectomy conferred moderate advantages in return to normal diet/activity but was also associated with tonsillar regrowth and symptom recurrence.

Commentary

AMERICAN ACADEMY OF OTOLARYNGOLOGY–HEAD AND NECK SURGERY FOUNDATION

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http://otojournal.org
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Why Is There No Statement Regarding Partial Intracapsular Tonsillectomy (Tonsillotomy) in the New Guidelines?

Sanjay R. Parikh, MD[1,2], Sanford Archer, MD[3], Stacey L. Ishman, MD, MPH[4,5], and Ron B. Mitchell, MD[6]

- Tonsillotomy is an evolving technique for the treatment of tonsillar hypertrophy and may offer some benefits over TT, particularly for length of recovery and secondary hemorrhage rates.
- Further prospective outcomes studies for PIT are needed to determine generalizability and applicability to guideline development

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Literature & Pictures

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