

Grommets Adenoids Tonsils Evidence base

Y Bajaj D Albert
GOSH

Pain after

- Preoperative preparation
 - Managing expectations
 - Mcdonalds
 - Preoperative sedation
 - Smooth induction
 - Sevo vs propofol
 - Peroperative topical
 - Operative technique
 - Fentanyl
 - Iv fluids
 - Postop
 - Paracetamol
 - Steroids
 - Risk paper
 - NSAIDS
 - Risks
 - supps
 - Codeine
 - risks
 - Topical
 - Chewing gum
 - What works for you
 - No magic formula
 - Talk to your patients
 - Not just about pain
-

- ❑ **Comparison between Bipolar Diathermy Tonsillectomy and Cold Dissection Tonsillectomy.**

- ❑ [Alam MM](#), [Atiq MT](#), [Mamun AA](#), [Islam MA](#).

- ❑ Dr Md Monjurul Alam, Associate Professor, Department of ENT, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh; E-mail: entdralam@gmail.com.

- ❑ **Abstract**

- ❑ A prospective study was carried out in the department of otolaryngology-Head & Neck Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU) and Bangladesh Medical college Hospital, Dhaka. From January, 2007 to January, 2009 to compare between Bipolar Diathermy Tonsillectomy and Cold Dissection Tonsillectomy. Two hundred patients were divided equally into two groups- bipolar diathermy tonsillectomy and cold dissection tonsillectomy. The two groups were compared in age and sex distribution but there was no significant difference ($p>0.05$) between the two groups. Operative time, operative blood loss, postoperative pain, diet intake, activity level and complications were compared in the two groups. Operative time and blood loss was significantly less in the diathermy group which was highly significant ($p<0.001$). No significant difference ($p>0.05$) in the postoperative pain was observed. Percentage of normal diet taken was higher in the diathermy group on the 1st day and lower on the 7th day while the difference was not statistically significant ($p>0.05$). No significant difference ($p>0.05$) was noted between the two groups in terms of postoperative activity and postoperative blood loss. Operative blood loss & time was significantly less in bipolar diathermy tonsillectomy. So it is a safe technique and can be used safely with less morbidity & complication.

- ❑ PMID: 21240172 [PubMed - in process]

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- ❑ Int J Pediatr Otorhinolaryngol. 2011 Jan;75(1):77-80. Epub 2010 Nov 10.
 - ❑ **Topical bupivacaine compared to lidocaine with epinephrine for post-tonsillectomy pain relief in children: a randomized controlled study.**
 - ❑ [Ozmen OA](#), [Ozmen S](#).
 - ❑ Uludağ University Medical Faculty, Department of Otorhinolaryngology, Bursa, Turkey. oaozmen@yahoo.com
 - ❑ **Abstract**
 - ❑ **OBJECTIVE:** To compare the topical administration of bupivacaine hydrochloride, lidocaine hydrochloride with epinephrine and saline in alleviating post tonsillectomy pain.
 - ❑ **STUDY DESIGN:** A double-blind prospective randomized controlled clinical study.
 - ❑ **METHODS:** Between November 2008 and March 2009, 60 patients (32 males and 28 females) between ages of 1.5 and 15 years were recruited into the study. After informed consent was obtained from the parents, patients, admitted for tonsillectomy, were randomized into three groups using sealed envelopes. Group 1 (20 patients, mean age 5.2 ± 1.7) received topical lidocaine hydrochloride (20 mg/ml) with 0.00125% epinephrine. Group 2 (20 patients, mean age 6 ± 3.7) received topical 0.5% bupivacaine hydrochloride and group 3 (20 patients, mean age 6.7 ± 3.6) received topical saline.
 - ❑ **RESULTS:** The post-operative pain scores at 1h were similar among the groups ($p=0.29$). Pain scores in bupivacaine hydrochloride group were significantly lesser than the saline group at 5th, 13th, 17th and 21st hours, until the sixth day ($p<0.017$). Moreover, pain scores of bupivacaine hydrochloride group were superior to lidocaine hydrochloride group starting at 17 h, until fourth day ($p<0.017$). Pain scores of lidocaine hydrochloride group were lesser than saline group in the first and fifth days ($p<0.017$), whereas, there was no significant difference at other times.
 - ❑ **CONCLUSION:** Topical administration of bupivacaine hydrochloride proved to provide more efficient pain control than both saline and lidocaine without any drug related complication.
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- ❑ Eur Arch Otorhinolaryngol. 2010 Oct 2. [Epub ahead of print]
 - ❑ **The effect of ibuprofen on postoperative hemorrhage following tonsillectomy in children.**
 - ❑ [Yaman H, Belada A, Yilmaz S.](#)
 - ❑ Department of Otorhinolaryngology, Duzce Medical Faculty, Duzce University, Duzce, Turkey, hyaman1975@yahoo.com.

- ❑ **Abstract**

- ❑ The objective of the study was to evaluate the effect of ibuprofen on hemorrhage after tonsillectomy in children. All charts of children, who underwent tonsillectomy with or without adenoidectomy, were reviewed. The age at the time of surgery ranged between 3 and 16 years (mean age = 7.55 ± 3.01 years). Children were divided into two groups based on the drugs used for postoperative pain relief. Group I received paracetamol after surgery. Group II received ibuprofen after surgery. A total of 62 patients received ibuprofen and 109 patients were given paracetamol. Post-tonsillectomy hemorrhage occurred in seven (4.1%) children, primary hemorrhage was noted in five patients and secondary hemorrhage occurred in two patients. While 3 of 62 children (4.8%) who were given ibuprofen had postoperative hemorrhage, 4 of 109 patients (3.7%) who were given paracetamol had hemorrhage. There was no significant difference in hemorrhage rates between these two groups ($p > 0.05$).

Hemorrhage following tonsillectomy is rare and frequently occurs in the early postoperative period. There is no significant increased risk of hemorrhage after ibuprofen administration and it can be used safely for post-tonsillectomy pain

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- Paediatr Anaesth. 2010 Oct;20(10):944-50. doi: 10.1111/j.1460-9592.2010.03394.x. Epub 2010 Aug 24.
 - **Emergence delirium and postoperative pain in children undergoing adenotonsillectomy: a comparison of propofol vs sevoflurane anesthesia.**
 - [Pieters BJ](#), [Penn E](#), [Nicklaus P](#), [Bruegger D](#), [Mehta B](#), [Weatherly R](#).
 - Department of Anesthesiology, Children's Mercy Hospital and Clinics, Kansas City, MO 6410, USA. bjpieters@cmh.edu
 - **Abstract**
 - BACKGROUND: Emergence delirium (ED) is a frequent postoperative complication in young children undergoing ENT procedures and it may be exacerbated by sevoflurane anesthesia whereas propofol maintenance has been suggested to decrease the incidence of ED. The aim of this randomized, prospective, double-blind study was to evaluate the effect of sevoflurane vs propofol anesthesia on the quality of recovery after adenotonsillectomy.
 - METHODS: Forty-two patients were randomized to maintenance with either propofol or sevoflurane for adenotonsillectomy. At the conclusion of surgery, patients were extubated awake. ED and pain were assessed using the Pediatric Anesthesia Emergence Delirium (PAED) and the Children's Hospital of Eastern Ontario Scale (CHEOPS), respectively. Higher PAED scores (0-20) indicate greater severity of ED. Nursing and parental satisfaction, hospital length of stay, postoperative nausea and vomiting (PONV), anesthetic complications, and subsequent emergency room admissions were also assessed.
 - RESULTS: Median PAED score was 14 in the propofol group and 17 in the sevoflurane group (NS). Propofol was associated with less pain medication required during recovery and a lower incidence of PONV (5.3% vs 36.8%, $P < 0.05$). Nursing and parental satisfaction as well as time spent in recovery room was similar for the two groups.
 - CONCLUSION: Propofol anesthesia does not influence agitation after adenotonsillectomy, as measured by the PAED score. A PAED score of ≥ 10 was not useful in identifying patients with ED. However, propofol maintenance is associated with less need for pain medication in the recovery room and a lower incidence of PONV compared to sevoflurane anesthesia.

❑ **Post-tonsillectomy pain and bupivacaine, an intra individual design study.**

❑ [Hydri AS](#), [Malik SM](#).

❑ Department of ENT, Combined Military Hospital, Pano Aqil. draamerhydri@gmail.com

❑ **Abstract**

❑ **OBJECTIVE:** To compare whether an individual could appreciate the pain relief, if any, in either one of his/her tonsillar fossa topically suffused with a local anaesthetic (bupivacaine).

❑ **STUDY DESIGN:** Randomized controlled trial.

❑ **PLACE AND DURATION OF STUDY:** Department of ENT/Head and Neck Surgery, Combined Military Hospital, Peshawar, from January to June 2007.

❑ **METHODOLOGY:** Forty-six patients of either gender, aged 10-42 years undergoing tonsillectomy for recurrent tonsillitis were enrolled for this study. At the end of surgery, having secured haemostasis, one tonsillar fossa was randomly packed with a gauze piece soaked in 3 ml of 0.5% bupivacaine for 5 minutes, while the other was not. Effects of postoperative analgesia were assessed using visual analogue scale (VAS) up to 8 hours.

❑ **RESULTS:** Majority of the patients (85%, n=39) failed to experience an appreciable pain relief on the side of local anaesthetic (bupivacaine) application (p=0.006).

❑ **CONCLUSION:** Topical application of local anaesthetic (bupivacaine) confers no appreciable pain control in post-tonsillectomy patients.

❑ PMID: 20688020 [PubMed - indexed for MEDLINE]

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- ❑ Cochrane Database Syst Rev. 2010 Jul 7;(7):CD005607.
 - ❑ **Antibiotics to reduce post-tonsillectomy morbidity.**
 - ❑ [Dhiwakar M](#), [Clement WA](#), [Supriya M](#), [McKerrow W](#).
 - ❑ Department of Otolaryngology - Head & Neck Surgery, University of Edinburgh Hospitals, Edinburgh, UK.
 - ❑ Update of:
 - ❑ [Cochrane Database Syst Rev. 2008;\(2\):CD005607.](#)
 - ❑ **Abstract**
 - ❑ **BACKGROUND:** This is an update of a Cochrane Review first published in The Cochrane Library in Issue 2, 2008. Tonsillectomy continues to be one of the most common surgical procedures performed in children and adults. Despite improvements in surgical and anaesthetic techniques, postoperative morbidity, mainly in the form of pain, remains a significant clinical problem. Postoperative bacterial infection of the tonsillar fossa has been proposed as an important factor causing pain and associated morbidity, and some studies have found a reduction in morbid outcomes following the administration of perioperative antibiotics.
 - ❑ **OBJECTIVES:** To determine whether perioperative antibiotics reduce pain and other morbid outcomes following tonsillectomy.
 - ❑ **SEARCH STRATEGY:** We searched the Cochrane ENT Group Trials Register, Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2009, Issue 4), MEDLINE (1950 to 2009) and EMBASE (1974 to 2009). The date of the last search was 30 October 2009.
 - ❑ **SELECTION CRITERIA:** All randomised controlled trials examining the impact of perioperative administration of systemic antibiotics on post-tonsillectomy morbidity in children or adults.
 - ❑ **DATA COLLECTION AND ANALYSIS:** Two authors independently collected data. Primary outcomes were pain, consumption of analgesia and secondary haemorrhage (defined as significant if patient re-admitted, transfused blood products or returned to theatre, and total (any documented) haemorrhage). Secondary outcomes were fever, time taken to resume normal diet and activities and adverse events. Where possible, we generated summary measures using random-effects models.
 - ❑ **MAIN RESULTS:** Ten trials, comprising a pooled total of 1035 participants, met the eligibility criteria. Most did not find a significant reduction in pain with antibiotics. Similarly, antibiotics were mostly not shown to be effective in reducing the need for analgesics. Antibiotics were not associated with a reduction in significant secondary haemorrhage rates (relative risk (RR) 0.49, 95% CI 0.08 to 3.11, P = 0.45) or total secondary

codeine

- ❑ N Engl J Med. 2009 Aug 20;361(8):827-8.
- ❑ **Codeine, ultrarapid-metabolism genotype, and postoperative death.**
- ❑ [Ciszkowski C](#), [Madadi P](#), [Phillips MS](#), [Lauwers AE](#), [Koren G](#).

- ❑ **Warning over codeine use after tonsillectomy**
- ❑ August 19, 2009 **A report out of The University of Western Ontario, published in the *New England Journal of Medicine*, warns the use of codeine to treat pain following a tonsillectomy could prove fatal for some children. Dr. Gideon Koren, who holds the Ivey Chair in Molecular Toxicology at Western, zeroed in on the danger after investigating the death of a two year old boy following a relatively easy operation to remove his tonsils.**
- ❑ [Ads by Google](#)
- ❑ [Barracuda Spam Firewall](#) - 50,000 customers worldwide. No Per User Fees. Free Eval! - www.barracudanetworks.com
- ❑
- ❑ Koren is a pediatrics professor at both Western and the University of Toronto, and the Director of the Motherisk program at the Hospital for Sick Children in Toronto. Enlarged tonsils are usually treated with antibiotics, but Koren says tonsillectomies are still performed in the case of [sleep apnea](#), where the child stops breathing while asleep.
- ❑ In this particular case, the toddler had a history of snoring and sleep-study-confirmed sleep apnea. He was taken to an outpatient clinic, had the operation, and was taken home. The mother was given syrup of [codeine](#) and instructed how to administer it to her child for pain relief. On the second night after surgery, the child developed a fever and wheezing, and was found dead the next morning. Tests later showed the mother had given the proper dosage, and yet the child's body was found to have high levels of [morphine](#). The coroner asked Koren to look at the case.
- ❑ "The sudden death of a healthy child was quite sobering because tonsillectomies are done every day, all over North America," says Koren. "And more and more of them are done on an outpatient basis, with the child going home the same day." The child was found to have the ultra-rapid metabolism [genotype](#) which causes the body to metabolize codeine at a faster rate, producing significantly higher amounts of morphine.
- ❑ Last year Koren published research showing how mothers who are given codeine for pain following

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- ❑ J Anesth. 2010 Oct;24(5):705-8. Epub 2010 Jun 19.
 - ❑ **Analgesic efficacy of topical tramadol in the control of postoperative pain in children after tonsillectomy.**
 - ❑ [Akbay BK](#), [Yildizbas S](#), [Guclu E](#), [Yilmaz S](#), [Iskender A](#), [Ozturk O](#).
 - ❑ Department of Anesthesiology and Reanimation, Faculty of Medicine, Duzce University, Duzce, Turkey. buketkocaman@gmail.com
 - ❑ **Abstract**
 - ❑ PURPOSE: Pain control after tonsillectomy is still a controversial issue. Topical approaches have the advantage of pain control with good patient acceptability. Therefore, this study was conducted to evaluate the effects of topical tramadol on postoperative pain and morbidity in children undergoing tonsillectomy.
 - ❑ METHODS: A prospective, randomized, double-blind, controlled clinical study was designed. Forty children aged between 4 and 15 years, ASA I-II, scheduled for elective tonsillectomy and/or adenoidectomy were randomized into two groups. For patients in Group T (n = 20) swabs soaked with 2 mg/kg tramadol diluted in 10 ml saline were applied to both of their tonsillar fossa for 5 min; in the control group (n = 20) swabs soaked with 10 ml saline were applied. Postoperative pain scores, bleeding, nausea, vomiting, abdominal discomfort, constipation, pain in the throat, painful swallowing, fever, otalgia, trismus, and halitosis were recorded at the first, fifth, thirteenth, seventeenth, twenty-first, and twenty-fourth postoperative hours and the week after tonsillectomy.
 - ❑ RESULTS: Pain scores were found to be significantly lower at the 21st hour and on postoperative day seven in the tramadol group compared with the control group (p < 0.05). Mean daily pain scores ranged from Day 1: 0.34 (±0.21) to Day 7: 0.11 (±0.08) in the tramadol group and Day 1: 0.53 (±0.14) to Day 7: 0.42 (±0.15) in the control group. There were no significant differences in morbidity between the groups (p > 0.05).
 - ❑ CONCLUSION: Topical 5% tramadol with its local anesthetic effect seems to be an easy, safe, and comfortable approach for pain management in children undergoing tonsillectomy.
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□ J Med Assoc Thai. 2010 May;93(5):558-65.

□ **A randomized controlled trial for perioperative morbidity in microdebrider versus cold instrument dissection tonsillectomy.**

□ [Pruegsanusak K](#), [Wongsuwan K](#), [Wongkittithawon J](#).

□ Department of Otolaryngology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand. pkowit1964@yahoo.com

□ **Abstract**

□ **BACKGROUND:** Tonsillectomy is a common procedure in children. It could produce moderate to severe post operative pain and morbidity. Preserving tonsillar capsule attached to pharyngeal constrictor muscle by microdebrider technique may reduce pain when compared to conventional cold dissection technique.

□ **OBJECTIVE:** To compare the postoperative pain, perioperative, and postoperative morbidity between the microdebrider-assisted intracapsular tonsillectomy (MT) and cold instrument dissection tonsillectomy (CT).

□ **MATERIAL AND METHOD:** Forty children with ages between 3-14 years old in Songklanagarind Hospital with tonsillar hypertrophy were randomly assigned to have MT and CT in each group. Data of perioperative morbidity, time to start taking food, LOS, treatment satisfaction, post operative pain, and amount of analgesia were recorded for 7 days. Post operative complication was also followed-up.

□ **RESULTS:** There were no statistical significantly differences between groups in operation time, time to start taking food, LOS, and amount of postoperative analgesia and treatment satisfaction score. The MT had significantly more blood loss during operation (54.3 +/- 35.45 mL) than the CT (14.78 +/- 18.71 mL) ($p < 0.001$). The MT had significantly less post operative pain score on postoperative day 2 (2.50 +/- 1.15 and 1.05 +/- 0.83) and 3 (1.70 +/- 0.80 and 1.05 +/- 0.76) ($p < 0.05$) but no difference on day 0, 1, 4, 5, 6. Pain score after analgesia was significantly better in the MT on day 0 (2.45 +/- 0.94 and 3.40 +/- 1.47) ($p = 0.024$) but no difference on day 1-6. There were no significant differences in fentanyl use for break through pain, immediate and delayed complications between the groups.

□ **CONCLUSION:** MT is an effective alternative procedure for children with tonsillar hypertrophy and results in improved postoperative pain but have more intraoperative blood loss.

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- ❑ Cochrane Database Syst Rev. 2010 Jan 20;(1):CD007806.
 - ❑ **Oral rinses, mouthwashes and sprays for improving recovery following tonsillectomy.**
 - ❑ [Fedorowicz Z](#), [Al-Muharrraqi MA](#), [Nasser M](#), [Al-Harthy N](#).
 - ❑ Lidocaine spray appeared to be more effective than saline spray at reducing the severity of pain but only until the third postoperative day. A small number of
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Introduction

- ❑ Many articles on various aspects of these 3 operations
 - ❑ Need to know about some of the key articles
 - ❑ To score 7/8 in the exam, need to mention some of these in the answers
 - ❑ Summarising some of the key articles here
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Grommets (VTs)

- ❑ Gates et al, 1987, NEJM; 317: 1444-51
 - ❑ One of the earliest and largest RCTs
 - ❑ 578 children aged 4-8 yrs
 - ❑ 4 arms- M's, M's+VT's, A's+M's, A's+VT's
(no true controls, M's alone is regarded as control)
 - ❑ Outcomes- hearing improvement and reinsertion rates
 - ❑ Results:
 - VT's and A's+VT's improve hearing
 - A's+M's and A's+VT's improve hearing and reduce rate of reinsertion more than VT's alone
 - Benefits of adenoidectomy are independent of adenoid size
 - Children who underwent adenoidectomy had less time with effusion and longer time to recurrence
 - ❑ Conclusion: Ads should be considered when surgery is indicated for OME in children 4-8 yrs of age
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Pittsburgh papers

- ❑ Paradise et al JAMA, 1990, 263;2066-73. Efficacy of adenoidectomy for recurrent otitis media in children previously treated with tympanostomy tube placement results of parallel randomised and non-randomised trials
- ❑ First large RCTs in under 3s
- ❑ M's+VT's more effective than control or M's alone for OME
- ❑ Paradise 2001- found no additional benefit of early vs late VT's on development at age 3 (early vs late was 6 months gap)

Maw's papers

□ Maw AR IJPO 1983;6:239-46

Otitis media with effusion and adenotonsillectomy- a prospective randomised controlled study

□ Maw et al Acta Otol 1988,454; 202-7

Surgery for the tonsils and adenoids in relation to secretory otitis media in children

□ Results: Adenoidectomy improves resolution of chronic effusions

Maw's papers

□ Maw BMJ 1993, 306; 756-760

Spontaneous resolution of severe chronic glue ear and the effect of adenoidectomy, tonsillectomy and insertion of ventilation tubes

□ 12 yr follow up

□ Results

- Significant improvement with As and VTs compared with VTs only or no surgery
-

Maw's papers

□ Maw Lancet 1999, 353;960-3

Early surgery compared with watchful waiting for glue ear, effect on language development in pres school children

- Important study- showing benefit in not just hearing, but also in development of speech and language (measured objectively) at 9 mths. This difference disappeared at 18 mths
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Cochrane review

- ❑ Lous et al, Cochrane database.2005:CD001801
 - ❑ Grommets for hearing loss associated with otitis media in children
 - ❑ 13 RCTs included
 - 7 RCTs- randomised within a child, one ear with VT and other without- amongst these in 3 trials all children had adenoidectomy and other 4 children randomised to ads or no ads
 - 6 RCTs- randomised to have bilateral VT or watchful waiting- amongst these 5 trials none had ads and in 1 were randomised to ads or no ads
 - ❑ Results
 - ❑ Children with VT without ads spent 32% less time without effusion during the first year after insertion (only 3 studies provided data)
 - ❑ Hearing-
 - VT alone will improve hearing level by 9db at 6 months, 6db at 12 mths and 4 db at 24 mths
 - Ads has additional effect of 3-4 db at 6 mths and 1 db at 12 mths
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TARGET

- ❑ Medical research council multicentre otitis media study group. Clin Oto 2003;28:146-53. The role of ventilation tube status in hearing levels in children managed for bilateral persistent otitis media with effusion
- ❑ UK multicentre study (13 centres)
- ❑ Looked at VTs alone or with adjuvant ads
- ❑ Eligibility criteria
 - 3.5 to 7 yrs with bilateral OME, Persistent after 12 week watchful waiting,
 - Hearing impairment of 20dbHL or worse
- ❑ Randomised to 3 arms
 - No surgery, bilateral VT, bilateral VT with ads
- ❑ Results
 - Hearing in non surgical group improves with time(natural resolution of OME)
 - Children with VTs marked improvement 3 mths post op of 12db compared to nonsurgical grp
 - Difference in 2 surgical groups & non surgical groups becomes almost negligible at 12 mths
 - Improvement in hearing with VT averaged over first year was 5.7db, in second year the difference in 2 groups became negligible. Averaged over 2 years the benefit from VT reduced to 3.1 db
 - Children in VT+ads grp better than VT only grp- adjuvant effect of ads was 2.3db at 1 yr and 3.3 db at 2 years.

Grommets & speech & language

- 3 RCTs have specifically looked at whether VT affects speech and language development
 - Paradise et al NEJM 2001; 344: 1179-87 Effects of early or delayed insertion of tympanostomy tubes for persistent otitis media on development outcomes at the age of three years
 - Rovers et al Arch Dis child 2001; 84:45-9. Randomised controlled trial of the effect of ventilation tubes on quality of life at age 1-2 years
 - Maw Lancet 1999, 353;960-3. Early surgery compared with watchful waiting for glue ear, effect on language development in pre school children
 - All obtained objective measures of speech & language and assessed hearing audiometrically
 - Conclusion
 - In general VTs are not indicated to aid speech and language development in children three years and younger
 - (RCTs on severely affected children are required, but difficult to achieve)
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Adenoidectomy +VT

- Additional benefit of ads was approx 2 db at 6 & 12 mths (Maw's papers)
 - Ads reduced the necessity for reinsertion of short term VTs
 - TARGET study confirms additional benefit of ads
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Grommets for Recurrent OM

- Casselbrandt ML et al, Paediatric infec dis, 1992, 278-86.

Efficacy of antimicrobial prophylaxis and of tympanostomy tube insertion for prevention of recurrent acute otitis media results of a randomized clinical trial

- 264 children with RAOM randomised to amoxy, placebo or VT's
 - Results:
 - VT's resulted in significantly less time with AOM than placebo
 - Amoxy reduced the number of new episodes of AOM compared to placebo
-

Grommets for Recurrent OM

- Kaledia et al Pediatrics 1991, 87; 466-74

Amoxycillin or myringotomy or both for acute otitis media results of a randomised clinical trial

- 536 children with RAOM randomised
 - Results
 - Amoxycillin therapy was effective and myringotomy was of no additional benefit
-

Grommets for Recurrent OM

- Rosenfield RM, Vaccine 2001; 134-9
Surgical prevention of otitis media
 - Meta-analysis of 5 RCTs
 - Results
 - VTs decreased AOM by 56% (1 episode per child per year)
 - VTs improved quality of life in 79% children, 17% trivial change and 4% worse
 - Conclusion
 - Surgical therapy of recurrent AOM has significant benefits
-

NICE guidelines for OME

- ❑ Persistent bilateral OME documented over a period of 3 mths with hearing level in better ear of 25-30db shd be considered for surgery- insertion of VTs
 - ❑ Hearing aids should be offered as an alternative
 - ❑ Adjuvant adenoidectomy is not recommended in the absence of persistent or recurrent URTI
-

Grommets sequelae

- Kay et al Otol & H N Surg 2001;124: 374-80. Meta analysis of tympanostomy tube sequelae

Displacement into middle ear	0.5%
Early postop otorrhoea	16%
Recurrent acute otorrhoea	7.4%
Chronic otorrhoea	3.8%
Tympanosclerosis	31.7%
Atrophy/retraction at the site of VT	25.5%
Chronic perforation short term VT	2.2%
Chronic perforation long term VT	16.6%
Cholesteatoma short term VT	0.8%
Cholesteatoma long term VT	1.4%

Adenoidectomy

- Robb, JLO, 2007; 121:209-14
Adenoidectomy: does it work?
 - Ads effective for OSA when combined with Ts
 - Ads alone improves nasal airflow
 - For OME in children over 3, ads+VT more effective than ads alone
 - Removal of ads over 3, does not have clinically significant effect on immune status
-

Adenoidectomy complications

Paradise et al JAMA 1999;282:945-53.

Adenoidectomy and adenotonsillectomy for recurrent acute otitis media: parallel randomised clinical trials in children not previously treated with tympanostomy tubes

Walker P, Laryngoscope 2001; 111: 2173-7.

Pediatric adenoidectomy under vision using suction-diathermy ablation

Any bleeding	0.5-8%
Bleeding requiring transfusion or return to theatre	0.5%
Transient VPI	5%
Permanent VPI	<0.1%

Tonsillectomy

- Several papers
 - Mostly related to surgical & peri-op techniques (hot/cold tech, pain, haemorrhage, steroids etc)
 - Most don't separate tonsillectomy and adenoidectomy
 - No true RCTs compared tonsillectomy to conservative treatment
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Adeno-tonsillectomy for OSA

- ❑ Suen et al. Arch OHNS, 1995;121,525-30. Adenotonsillectomy for the treatment of obstructive sleep apnoea in children
 - ❑ Erler et al. Treat. in Respi med.2004;3:107-22.
Obstructive sleep apnea syndrome in children: a state of the art review
 - ❑ Obrien et al, Pediatrics 2004;114:44-9
Neurobehavioural implications of habitual snoring in children
 - ❑ TAs is treatment of choice for otherwise healthy children with OSA
 - ❑ Improvement in OSA in 90% cases
 - ❑ Improvement in behaviour, quality of life, growth
-

Tonsillectomy for recurrent tonsillitis

- ❑ Evidence of efficacy sparse¹
- ❑ Systematic review-little evidence for tonsillectomy for recurrent throat infection²
- ❑ Cochrane review-No evidence from RCTs to guide clinicians in formulating guidelines for tonsillectomy³
- ❑ No good evidence - benefit from tonsillectomy for recurrent sore throat in children is sustained for more than 2 years after surgery

1. van Staaïj BK et al. Adenotonsillectomy for upper respiratory infections: evidence based?. *Archives of Diseases in Childhood*. 2005; **90**: 19-25. Summarizes the findings of the Netherlands RCT and a comprehensive review of current evidence.
 2. Marshall T. A review of tonsillectomy for recurrent throat infection. *British Journal of General Practice*. 1998; **48**: 1331-5.
 3. Burton MJ et al. *Tonsillectomy versus non-surgical treatment for chronic/recurrent acute tonsillitis*. *Cochrane Database System Reviews*. 2007; **7**: CD001802.
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Paradise study (1984)¹

- Entry criteria-
 - 7 episodes in the year prior to the study
 - 5 or more in the preceding 2 years
 - 3 or more in each of the preceding 3 yrs
- Randomised- surgical & non-surgical
- Tonsillectomy-efficacious for 2 yrs (Efficacy measured by reduction in the number and/or severity of throat infections) In 1st and 2nd years 92 & 84% surgical subjects developed no episodes of throat infection compared with 34 & 41% controls. Differences in 3rd year were not significant
- Many children treated non-surgically improved spontaneously

1. [Paradise JL et al. Efficacy of tonsillectomy for recurrent throat infection in severely affected children. New England Journal of Medicine. 1984; 310: 674-83.](#)

Another Paradise study¹

- 2 RCTs- surgical with non-surgical,
 - for children with recurrent throat infection,
 - with less stringent entry criteria (3 or more attacks per yr)

- Incidence of throat infection was lower in the surgical groups during 3 yrs follow-up

- Benefits were marginal

1. Paradise JL et al. Tonsillectomy and adenotonsillectomy for recurrent throat infection in moderately affected children. *Pediatrics*. 2002; **110**: 7-15.
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Netherlands study¹

- ❑ Good quality RCT in Netherlands
- ❑ Study included those with mild symptoms
- ❑ Adenotonsillectomy compared with waiting
- ❑ Outcome measures
 - health-related quality of life
 - frequency of episodes of pyrexia
- ❑ Conclusion
 - adenotonsillectomy had no major clinical benefits over watchful waiting in children with mild upper respiratory symptoms

1. van Staaik BK et al. Adenotonsillectomy for upper respiratory infections: evidence based?. *Archives of Diseases in Childhood*. 2005; **90**: 19–25. Summarizes the findings of the Netherlands RCT and a comprehensive review of current evidence.

Tonsillectomy in adults

- ❑ RCT in adults in Finland
- ❑ 36 underwent immediate tonsillectomy, control group – 34 patients – remained on a waiting list
- ❑ Follow-up- 90 days
- ❑ Streptococcal pharyngitis recurred in 24% of the control group and in 3% of the tonsillectomy group
- ❑ Conclusion
 - Adults with a history of recurrent streptococcal pharyngitis were less likely to have further streptococcal or other throat infections or days with throat pain if they had their tonsils removed¹
- ❑ Morbidity associated with the operation must be considered and may outweigh any benefits²

1. Alho O-P et al. Tonsillectomy versus watchful waiting in recurrent streptococcal pharyngitis in adults: randomised controlled trial. *British Medical Journal*. 2007; **334**: 939.
 2. Little P. Recurrent pharyngo-tonsillitis. *British Medical Journal*. 2007; **334**: 909.
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Other evidence

- Results of QOL before & after operation suggest that tonsil disease has a marked adverse effect on QOL and there is significant benefit from surgery¹

1. Goldstein NA et al. child behavior and quality of life before and after tonsillectomy and adenoidectomy. *Archives of Otolaryngology, Head and Neck Surgery*. 2002; **128**: 770–5.
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Scottish tonsillectomy audit¹

- Large scale postal audit of post op satisfaction after tonsillectomy
- Results
 - Over 5000 patients
 - Very high satisfaction rates (>95%)
(post-op questionnaires are rated as weak evidence with average satisfaction of 80% for any intervention whether effective or not (Rosenfield, evidence based medicine in otolaryngology))

1. [Blair RL et al. The Scottish tonsillectomy audit. The Audit Sub-Committee of the Scottish Otolaryngological Society. Journal of Laryngology and Otology. Supplement. 1996; 20: 1-25.](#)
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SIGN guidelines¹ (1999)

□ Indications for tonsillectomy

Patients should meet all of the following criteria:

- sore throats are due to tonsillitis
- five or more episodes of sore throat per year
- symptoms for at least a year
- episodes of sore throat are disabling and prevent normal functioning

□ Following specialist referral

- 6 month period of watchful waiting is recommended to establish the pattern of symptoms and allow the patient to consider the implications of operation

□ Once a decision is made for tonsillectomy, this should be performed as soon as possible to maximise the period of benefit

1. Scottish Intercollegiate Guidelines Network. Management of sore throat and indications for tonsillectomy. SIGN publication No. 34

New SIGN guidelines 2010

- Watchful waiting is more appropriate than tonsillectomy for children with mild sore throats.
 - Tonsillectomy is recommended for recurrent severe sore throat in adults.
 - Indications for consideration of tonsillectomy for recurrent acute sore throat in both children and adults:
 - sore throats are due to acute tonsillitis
 - the episodes of sore throat are disabling and prevent normal functioning
 - seven or more well documented, clinically significant, adequately treated sore throats in the preceding year or
 - five or more such episodes in each of the preceding two years or
 - three or more such episodes in each of the preceding three years.
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National Prospective Tonsillectomy audit

- ❑ Report published 2005
 - ❑ 40,514 patients- largest ever tonsil study
 - ❑ Overall 0.6% primary and 3% secondary haemorrhage rates
 - ❑ 0.9% patients were returned to theatre within 28 days of op
 - ❑ Risk of haemorrhage related to surgical technique
 - ❑ 'hot' surgical technique for both dissection and haemostasis had risk of haemorrhage three times larger than cold steel tonsillectomy
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Summary for tonsillectomy

- ❑ Evidence for current practice is poor.
 - ❑ Improvements following surgery are small.
 - ❑ No evidence - benefits of tonsillectomy for recurrent sore throat are beyond 2 yrs.
 - ❑ Risks of surgery must be balanced against potential benefit.
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