Adenoidectomy outcomes in pediatric rhinosinusitis: a meta-analysis
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CRD summary
This review concluded that adenoidectomy reduced caregiver-reported symptoms of chronic rhinosinusitis in most pediatric patients. Overall, this review may have been vulnerable to multiple important sources of bias and error, therefore, the authors conclusions should not be regarded as reliable.

Authors' objectives
To evaluate the effectiveness of adenoidectomy in the management of medically refractory pediatric chronic rhinosinusitis.

Searching
Trials reported in English were identified through a search of MEDLINE, EMBASE and databases in The Cochrane Library in September 2007. References of retrieved articles were reviewed and search terms were reported.

Study selection
Studies with sample sizes greater than five patients that reported the effectiveness of adenoidectomy alone in children with rhinosinusitis under 18 years were eligible for inclusion. Any method of adenoidectomy was accepted. Articles that reported on adenoidectomy and tonsillectomy were excluded. Five cohort studies and four case-series studies were included. Included studies had an average sample size of 46 (range 10 to 121). The primary outcome was improvement following adenoidectomy based on subjective report of the caregiver.

Follow up duration ranged from one to nine months. Mean age of patients was 5.8 years (range 4.4 to 6.9 years). Diagnosis was made in two studies by recurrent sinus symptoms and in the remaining seven studies by failed antibiotic therapy with or without CT scan. Reported techniques were mostly curette; one study used electrocautery.

The authors did not state how many reviewers performed the eligibility assessment.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Data on success of adenoidectomy (% improvement in symptoms) was extracted. Two independent reviewers extracted data and resolved disagreements with a third reviewer.

Methods of synthesis
The pooled effect size and corresponding 95% confidence intervals (CI) were calculated using a random-effects model.

Results of the review
Nine studies (n=403) were included in the review: five cohort studies and four case-series studies. Average sample size was 46 (range 10 to 121).

Caregivers reported symptomatic improvement in 220 out of 366 (60%) patients following adenoidectomy (range 47% to 96%). Meta-analysis showed an effect size of 69.3% (95% CI: 56.8% to 81.7%, p< 0.001; eight studies). Sensitivity analyses that excluded three studies conducted by the same author showed an effect size of 83.4% (95% CI: 74.5% to 92.2%, p< 0.001; five studies).

Authors' conclusions
Adenoidectomy reduced caregiver-reported symptoms of chronic rhinosinusitis in most pediatric patients. Given its simplicity, low risk profile and apparent effectiveness, adenoidectomy should be considered first-line therapy for
medically refractory, uncomplicated pediatric rhinosinusitis.

**CRD commentary**

This review addressed a clear question supported by appropriate inclusion criteria. A limited number of relevant electronic databases were searched, it did not appear that attempts were made to identify unpublished studies and the inclusion of only English-language studies may mean that important information was missed. Data on publication bias was not reported. Appropriate methods were used to minimise reviewer errors and bias in the extraction of data, but it was unclear whether similar steps were taken in study selection.

The included studies were either cohort design of case series, and these are subject to various potential biases. The authors claimed that included studies were of moderate to good quality, but did not appear to consider the validity of included studies (without which it was not possible to know whether the quality of included trials was adequate). The authors reported that most caregivers reported improvement in symptoms following adenoidectomy although two included studies reported that less than 50% of patients improved following adenoidectomy. The forest plot presented was difficult to interpret as there was no scale and the summary estimate appeared to sit in the middle of the success line (this was not defined). Heterogeneity appeared not to have been reported or investigated. Pooling of studies in a meta-analysis may not have been appropriate given that the authors reported differences between studies in terms of study design and patient population.

Overall, this review may have been vulnerable to multiple important sources of bias and error, therefore, the authors conclusions should not be regarded as reliable.

**Implications of the review for practice and research**

**Practice:** The authors stated that adenoidectomy should be considered first-line therapy for medically refractory pediatric rhinosinusitis.

**Research:** The authors did not state any implications for research.

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