RESULTS. A total of 143 children had adenoidectomy for sinusitis, and follow-up data were available for 121 children. Adenoidectomy failed for 61 (50%) children, with data available from 55 who had subsequent endoscopic sinus surgery. The mean time between adenoidectomy and endoscopic sinus surgery was 24 months (range: 4.4–77.4 months). Children with asthma had a mean of 19 months between surgeries, whereas those without asthma had an interval of 28 months ($P = .04$). Children younger than 7 years of age had sinus surgery a mean of 15 months after adenoidectomy, compared with an interval of 27.5 months between surgeries for children ≥7 years ($P = .01$). The presence of allergy, severity of sinusitis as indicated by CT scans, and gender did not seem to affect the time of failure of adenoidectomy.

CONCLUSIONS. At least 50% of children with rhinosinusitis will benefit from an adenoidectomy without the need for subsequent sinus surgery. Children who have persistent sinusitis that requires endoscopic sinus surgery after adenoidectomy tend to be younger children and/or children with asthma, with a mean of 24 months between surgeries.

REVIEWER COMMENTS. Adenoidectomy is a simple procedure that is effective for treating children with rhinosinusitis whose conditions fail medical therapy, but a number of children do go on to have more extensive surgical procedures. The retrospective nature of this study and limited information on how sinusitis symptoms were stratified, as well as how treatment failure was defined, affect our ability to generalize the conclusions of this study. The shorter interval between adenoidectomy and endoscopic sinus surgery in children with asthma may reflect a more aggressive approach to surgical management of sinusitis in the presence of pulmonary disease rather than an actual difference in the natural history of sinusitis in these children. The shorter interval between adenoidectomy and endoscopic sinus surgery in the younger children suggests more severe sinus symptoms in this group, although it may just reflect the natural history of sinusitis and upper respiratory infections in children, with eventual resolution expected for many older children regardless of treatment.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2008-2139XX

Murugappan Ramanathan, Jr, MD
David E. Tunkel, MD
Baltimore, MD

Outcome of Adenoidectomy Versus Adenoidectomy With Maxillary Sinus Wash for Chronic Rhinosinusitis in Children

PURPOSE OF THE STUDY. To compare the outcomes of adenoidectomy with adenoidectomy combined with maxillary sinus wash for the treatment of children with medically refractory sinusitis.

STUDY POPULATION. Studied were children treated at a tertiary otolaryngology referral center with chronic (>6 months) or recurrent (>6 episodes) rhinosinusitis diagnosed by both clinical criteria and computed tomography (CT) who did not improve with 6 months of treatment with oral antibiotics, decongestants, and allergy management when appropriate. Children with cystic fibrosis, immunoglobulin deficiency, ciliary dysfunction, or a history of previous adenoid or sinus surgery were excluded.

METHODS. Patients were assigned to adenoidectomy alone or adenoidectomy in combination with maxillary sinus wash in a nonrandomized manner on the basis of surgeon and parental preference. A questionnaire was administered 12 months after surgery to evaluate changes in symptoms of nasal obstruction/congestion, purulent drainage, cough, and headache after surgery. Univariate and multivariate analyses were performed to compare results of the 2 procedures.

RESULTS. Sixty patients were enrolled in this study: 32 (53%) underwent adenoidectomy with sinus wash, and 28 (47%) had adenoidectomy alone. The adenoidectomy/wash group had more severe sinus disease on the basis of the Lund-Mackay scoring of CT scans (mean score: 7.9 vs 3.0; $P = .001$) and had more boys ($P = .04$). Overall, 87.5% of the patients who had adenoidectomy/sinus wash were improved on the basis of questionnaire results, compared with 60.7% of the subjects who had adenoidectomy alone ($P = .017$). Children with more severe sinusitis on the basis of CT scans were more likely to improve with both adenoidectomy/sinus wash than with adenoidectomy alone (93% vs 60%; $P = .03$).

CONCLUSIONS. This study demonstrates a benefit of maxillary sinus wash at the time of adenoidectomy for refractory sinusitis, particularly for children with more extensive sinus disease as indicated on preoperative CT scans.

REVIEWER COMMENTS. The role of surgery for treatment of children with sinusitis remains controversial. Who should have surgery, and which child should have adenoidectomy, endoscopic surgery, or maxillary lavage? The role of maxillary sinus wash or nasoantral windows for children has been discouraged in the past 2 decades with the recognition of key anterior ethmoid disease that might best be treated by endoscopic surgery when medical treatments fail. This article shows a benefit of maxillary wash when added to adenoidectomy, particularly for severe disease. This benefit may be from the method of irrigation through the natural ostium of the maxillary sinus rather than via the inferior meatus or the canine
fossa. Unfortunately, this article is sparse with the details of measured outcomes criteria and the definition of improvement of symptoms. Although statistical analysis was used to control for nonrandom assignment of treatment, unrecognized bias may still exist. With these limitations, maxillary sinus wash through the middle meatus seems to be a conservative surgical option in the treatment of refractory childhood sinusitis, a disease with a favorable natural history.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2008-2139YY

Carole Fakhry, MD
David E. Tunkel, MD
Baltimore, MD
### Outcome of Adenoidectomy Versus Adenoidectomy With Maxillary Sinus Wash for Chronic Rhinosinusitis in Children

Carole Fakhry and David E. Tunkel

*Pediatrics* 2008;122;S203

DOI: 10.1542/peds.2008-2139YY

<table>
<thead>
<tr>
<th>Updated Information &amp; Services</th>
<th>including high resolution figures, can be found at: /content/122/Supplement_4/S203</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissions &amp; Licensing</td>
<td>Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml</td>
</tr>
<tr>
<td>Reprints</td>
<td>Information about ordering reprints can be found online: /site/misc/reprints.xhtml</td>
</tr>
</tbody>
</table>
Outcome of Adenoidectomy Versus Adenoidectomy With Maxillary Sinus Wash for Chronic Rhinosinusitis in Children
Carole Fakhry and David E. Tunkel

*Pediatrics* 2008;122;S203
DOI: 10.1542/peds.2008-2139YY

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/122/Supplement_4/S203