

Tonsillectomy and Adenoidectomy

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General considerations

Tonsillectomy and adenoidectomy have long been the most common major operations performed in children, yet uncertainty and controversy about their indications have yet to be fully resolved. Historically, the often-indiscriminate resort to these operations, particularly during the early and middle decades of this century, led many pediatricians to oppose their performance under any and all circumstances. On the other hand, the operations have retained support throughout the professional and lay communities for a variety of reasons. First, many clinicians remained convinced—based on their training or experience or, more recently, on evidence from clinical trials—that the operations were efficacious in relieving certain recurrent or persistent upper respiratory and middle ear disorders. Second, a number of reports made it clear that obstruction of the upper airway by hypertrophied adenoids or tonsils, or both, could become so extreme as to result in alveolar hypoventilation and cor pulmonale, conditions that responded promptly to surgical removal of the offending tissue. And third, many orthodontists have believed, despite lack of conclusive evidence, that chronic upper airway obstruction results in abnormal craniofacial and dental growth—the “adenoid facies”—and that this too can be modified favorably by adenoidectomy or adenotonsillectomy.

Tonsillectomy and adenoidectomy are often thought of, and commonly performed in children, as a single, combined procedure (T & A), but each of the two components must be considered separately. At present it is possible to define indications for tonsil and adenoid surgery that are absolute and other indications that are well founded and reasonable but whose application requires individualized judgments and decision-making. Still other indications not commented in this chapter have not been validated.

Indications for surgery

Absolute indications

Absolute indications for adenoidectomy and/or tonsillectomy are likely to be encountered only infrequently. They consist of:

- Obstruction of the nasopharyngeal or oropharyngeal airways—by adenoids, tonsils, or both—severe enough to cause unquestioned discomfort in breathing, or frequent episodes of apnea during sleep or, more extremely, alveolar

hypoventilation or cor pulmonale.

- Obstruction by tonsils of the oropharyngeal deglutitory pathway severe enough to interfere with swallowing.
- Malignant tumors of the tonsil.
- Uncontrollable hemorrhage from tonsillar blood vessels.

Because judicious antimicrobial treatment may sometimes be followed by substantial improvement in even severe obstructive symptoms--presumably by reducing edema due to unapparent, low grade, chronic infection--a trial of such treatment is usually appropriate before a decision on surgery is reached.

Reasonable indications

Recurrent Throat Infection As an Indication for Tonsillectomy. It is now clear that tonsillectomy is highly efficacious in children defined as "severely affected" with recurrent throat infection on the basis of meeting four criteria:

At least three episodes in each of three successive years, or five episodes in each of two successive years, or seven episodes in one year.

Each episode characterized by one or more of the following:

- oral temperature--101°F (38.3°C)
- enlarged (>2 cm) or tender anterior cervical lymph nodes
- tonsillar exudate
- or a positive culture for group A beta-hemolytic Streptococcus
- Apparently adequate antibiotic therapy for proven or suspected streptococcal episodes.
- Each episode confirmed by examination, with qualifying features documented at the time of occurrence.

On the other hand, some of the children who meet these criteria will improve spontaneously, without intervention. Accordingly, tonsillectomy for such children may be considered a reasonable option but by no means mandatory.

Importantly, children with histories that meet all of the above listed criteria except full documentation have been found not to be at substantial risk of developing throat infection subsequently. Decisions about tonsillectomy in such children should therefore usually be deferred until at least two additional episodes have been reliably observed and documented. Because the parents of such children often are desirous of obtaining tonsillectomy, they are more likely to accept a "let's wait and see" response from the physician than an unqualified "no."

Whether tonsillectomy is justified in children meeting criteria less stringent than those listed above was tested in a second clinical trial at the Children's Hospital of Pittsburgh. *Results showed only modest benefit from tonsillectomy, suggesting that the more stringent criteria for surgery listed above should ordinarily be adhered to.*

Other indications for tonsillectomy.

Based on cumulative clinical experience rather than experimental data, the following conditions also may be considered reasonable indications for tonsillectomy:

- Peritonsillar abscess.
- Chronic (as distinct from recurrent acute) tonsillitis--a condition more likely to be found in adolescents than in younger children.
- Muffled, “hot potato” voice caused by marked tonsillar hypertrophy.
- Halitosis due to debris in tonsillar crypts and not responsive to gargling or pharyngeal douche.
- Chronic cervical lymphadenitis, provided that specific causes such as dental infection, catscratch disease, mycobacterial infection, and lymphoproliferative disease have been ruled out.
- Recurrent Otitis Media As an Indication for Adenoidectomy. In children previously treated with tympanostomy tube placement who have recurrent otitis media after extrusion of the tubes, adenoidectomy provides limited effectiveness for at least 2 years in reducing both the number and the duration of subsequent recurrences. Cumulative time with middle ear effusion appears to be reduced to a greater extent than the number of episodes of acute middle ear infection. Although adenoidectomy is not a sure fire corrective in such children, the likelihood of even limited benefit would appear to justify its performance when otitis continues to a troublesome degree.
 - In children not previously treated with tube placement who have long standing middle ear effusion, adenoidectomy combined with myringotomy or with tube placement provides better 2-year otologic outcomes than myringotomy or tube placement alone. However, the marginal advantage offered by adenoidectomy suggests tube placement alone as the preferable initial surgical recourse in such children unless adenoidal obstructive symptoms are also present. In children not previously treated with tube placement who have recurrent acute otitis media, the efficacy of adenoidectomy with or without tonsillectomy appears to be quite limited, and not sufficient to justify the risks and costs of surgery.
- Nasal Obstruction and Related Conditions As Indications for Adenoidectomy. In children with moderate--as distinct from severe--nasal obstruction due to adenoid hypertrophy, in whom obstructive symptoms (mouth breathing, hyponasal speech) have been present for at least 1 year and have not responded to sustained antimicrobial treatment, adenoidectomy is a reasonable option. Possible detrimental orthodontic effects of long standing nasal obstruction and possible beneficial orthodontic effects of adenoidectomy have been neither proven nor disproved but seem credible on the basis of limited available evidence. However, adenoidectomy is not justified on orthodontic grounds in the absence of symptoms of nasopharyngeal obstruction. The efficacy of adenoidectomy in children with chronic sinusitis is uncertain; however, in such children with adenoids large enough to produce obstructive symptoms, adenoidectomy would constitute a reasonable adjunct to other treatment measures.

Risks of tonsil and adenoid surgery

Tonsillectomy and adenoidectomy are major operations that require general anesthesia. They are thus attended by the risk of various complications, some of which are potentially fatal and not all of which are preventable under even ideal circumstances of care. Anesthetic complications include malignant hyperthermia, cardiac arrhythmia, vocal cord trauma, and aspiration with resulting bronchopulmonary obstruction or infection; surgical and postoperative

complications include hemorrhage, airway obstruction due to postoperative edema or retropharyngeal hematoma, central apnea, prolonged muscular paralysis, dehydration, palatopharyngeal insufficiency, otitis media, and, rarely, nasopharyngeal stenosis, refractory torticollis, and facial edema. To minimize the risk of hemorrhage, surgery should be postponed whenever possible until at least 3 weeks after an episode of pharyngitis, and aspirin use should be avoided. No firm evidence exists that tonsillectomy or adenoidectomy results in immunologic risks to children, provided that they have been immunized against poliomyelitis.

Factors in surgical decision making

Decisions about surgery in children with “reasonable” (as distinct from “absolute”) indications must be individualized. At the outset, parents must be made aware of potential risks of surgery, including the remote possibility of severe or catastrophic complications. Parents also should be reminded that most tonsil related and adenoid related problems decline naturally with increasing age--although admittedly not predictably within given periods of time. Factors that should influence individual decisions include the apparent degree of impact of the problem on the child and the family, the child’s tolerance of antimicrobial drugs, and the nature of available anesthetic and surgical services.

Contraindications to surgery

Any condition that causes or predisposes to palatopharyngeal insufficiency constitutes a contraindication to adenoidectomy. In children with such conditions, adenoid tissue may serve to partially or completely bridge the gap that might otherwise exist on phonation between the soft palate and the posterior pharyngeal wall. Conditions likely to cause palato pharyngeal insufficiency include:

- Overt cleft of the soft palate.
- Submucous (covert) cleft of the soft palate--to be suspected when a bifid uvula or attenuation of the median raphé of the soft palate is present, and confirmed by finding on palpation that the posterior edge of the hard palate is V-shaped rather than curved.
- Neurologic or neuromuscular abnormalities causing impaired palatal function.
- The unusually capacious pharynx.

Each of these conditions is likely to be associated with hypernasality of speech, which it is crucial to distinguish from the much more common hyponasality found in children with nasal obstruction. Any child suspected of having palatopharyngeal insufficiency should be referred to a speech pathologist or other professional experienced in evaluating the problem.

Hematologic contraindications to tonsil or adenoid surgery consist of anemia and disorders of hemostasis. *When surgery is being considered, inquiry should be made about a family or past history of unusual bleeding or bruising, as certain rare hemostatic disorders may not be detectable with routine preoperative tests.*

Untreated upper respiratory allergy cannot properly be considered an unequivocal contraindication to tonsil or adenoid surgery; however, in clearly allergic children, a reasonable trial of antiallergic management appears advisable before

a decision is made to embark on surgery.

Finally, tonsillectomy or adenoidectomy should not be undertaken in the face of local infection unless urgent obstructive symptoms are present; unless appropriate antimicrobial treatment has been administered for a reasonable period; or, in the view of some, unless a peritonsillar abscess is present. Delaying surgery for at least 3 weeks following an episode of infection permits recuperation and also reduces the risk of postoperative hemorrhage.

Psychologic needs before and after surgery

Children scheduled for surgery should be fully informed in advance about the expected course of events. A parent or parent-surrogate should room in with younger and with apprehensive older children and should be present without fail immediately before and after the trip to the operating room. Thoughtful and kind management throughout the hospital and surgical experience should keep the child from being unduly harmed emotionally.

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