

Adenoids and Tonsils: When to do the Surgery?

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Adenoidectomy and tonsillectomy are the most common surgical procedures performed in children; but the indications remain controversial. The history of these procedures contribute to this situation.

In the past the vast majority of these operations were performed in order to cure recurrent infections, which are much less common today due to the advances in antibiotic therapy.

Otolaryngologists and pediatricians must reach a consensus for the indications for surgery in order to better educate patients and improve surgical outcomes¹.

Primary care physicians (pediatricians) must be able to recognize the patient's symptoms and signs. If the child is often sick, pediatricians should inquire about the pathology even if the symptoms are not the chief complaint.

Often physicians are reluctant to refer patients for surgical evaluation possibly due to the tightening of the criteria for adenotonsillectomy. An additional factor contributing to delays in diagnosis is parental complacency in not recognizing the severity of their child's symptoms or noncompliance with their physician's recommendation for surgical referral.

When performed for the proper indications, these operations improve quality of life and are sometimes life saving.

Currently the most common indication for adenotonsillectomy is enlarged tonsils and adenoids. Adenotonsillitis is the second most common indication.

Although studies conducted since the early 1970s have better defined the candidate populations for tonsillectomy and adenoidectomy, many clinicians are unfamiliar or uncomfortable with their results and continue to make recommendations for surgery on the basis on emotion and tradition rather than evidence.

Today there are formal indications for adenotonsillectomy, as follows.

1. Enlarged tonsils and adenoids

Enlarged pharyngeal lymphoid tissue is the primary cause of sleep-disordered breathing (SDB) in children. Nocturnal symptoms are snoring, mouth breathing, sleep pauses or breath holding, gasping, enuresis and restless sleep. Daytime symptoms may be considered separately to the night time issues and which could be underestimated by the family. During the day, the children present with behavioral problems, morning headache, dry mouth, halitosis, audible breathing, open-mouth posture, hyponasal speech and chronic nasal obstruction with or without rhinorrhea.

Children with severe obstruction present with obstructive hypopnea syndrome or sleep apnea syndrome. The most severely affected patients may develop *cor pulmonale*, right ventricular hypertrophy, congestive heart failure, alveolar hypoventilation, pulmonary hypertension, pulmonary edema, or failure to thrive and are at risk of permanent neurologic damage and even death.

Children with sleep apnea are more likely to manifest problems with learning, attention, and behavior. One large study in the USA demonstrated obstructive sleep apnea (OSA) in 18% of children performing in the lowest 10% of the first grade (aged approximately 6 years); significant improvement in performance was seen after adenotonsillectomy. Others have demonstrated specific cognitive deficits in learning and mental processing in children with OSA. This author (RF) could find a higher prevalence of children with mouth breathing in preschool children with learning problems².

Improvements in daytime behavior have been found in children who have had adenotonsillectomy for OSA. The degree of OSA at which such behavioral and learning problems occur has not been established.

Respiratory disorders are exacerbated and may only be clinically apparent during sleep. Assessing respiratory status only when a child is awake will underestimate the severity of sleep related breathing disorders or miss them altogether, so a careful history must be taken. Enuresis is a common complaint in children with OSA. This improves significantly after surgery accounting for about 38% of these children, with a higher prevalence in boys. The enlarged tonsils and adenoids were associated with a poor inspiratory pressure and it results in an increased breathing effort and work of the involved muscles⁹. This condition limits exercising.

In most cases, candidacy for adenotonsillectomy cannot be established solely on the basis of a history and physical examination. In addition, although tonsil and adenoid hyperplasia probably predisposes patients to airway obstruction, airway dynamics during sleep cannot be determined by a static examination in the office.

Standard office evaluation consists examining the oropharynx and classification of obstruction. The most common classification used is Brodsky's, in which tonsils grade III and IV are considered obstructive. The adenoids are commonly analyzed by lateral head X-rays to evaluate the air column in the nasopharynx. Nowadays flexible endoscopy of the upper airway is frequently used and may substitute for the X-ray. This exam is easily performed in children by a trained physician with a proper caliber of the flexible endoscope, usually 1.9 to 3.2 mm.

Polysomnography (PSG) remains the gold standard for objective correlation of ventilatory abnormalities with SDB. Unfortunately it is expensive and scheduling difficulties make it cumbersome. Obese patients usually require weight loss as well as surgery. So, is formal sleep study required before undertaking tonsillectomy for the child with obstruction but with no history of infectious pharyngitis? PSG is neither necessary nor possible before tonsillectomy in all of these children

Although snoring is often related to tonsillar hypertrophy, snoring without evidence of clinical problems from obstruction is also not a reason for tonsillectomy in a child.

Tonsillectomy does have a place in the treatment of upper airway obstruction with disrupted sleep or increased work of breathing secondary to oropharyngeal obstruction. Problematic obstruction can be distinguished from simple snoring by asking some simple questions to the parents, such as, describe how your child sleeps, eats, and breathes.

The physical examination is focused not only on the tonsils but also on the size and shape of the oropharyngeal inlet, the body habits, ease of respirations, and any indication of oral breathing. The otolaryngologist should also measure height and weight, monitoring their growth charts. Most of these children present failure to thrive that is reversible by adenotonsillectomy. Craniofacial characteristics must be analyzed, since children with a dolichofacial profile are more prone to sleep apnea.

2. **Abnormal craniofacial growth**

Enlarged tonsils and adenoids may predispose some children to abnormalities of dentofacial growth. In such children, downward growth of the mandible and repositioning of the tongue may compensate for the absence of nasal airflow by creating a larger oral airway, and this in turn increases the vertical facial dimension and gonial angle creating the so-called adenoid face.

Absence of contact between the tongue and palate causes a high, narrow palatal vault and a secondary posterior dental crossbite. Enlarged palatine tonsils themselves also result in dentofacial abnormalities, such as: children with enlarged tonsils have a more protruded position of upper incisors, a smaller dental superior dental arch and 91, 33% more cross bite.

Although research has been conducted concerning the relief of airway obstruction by adenoidectomy/tonsillectomy there is still some controversies in this subject. Otolaryngologists should evaluate children referred for adenotonsillectomy for orthodontic indications on a case-by-case basis.

Delayed diagnosis and treatment leads to devastating consequences. The longer the mouth breathing, the worse the malocclusion problems become. When performed early enough, adenotonsillectomy prevents further dentofacial deformity and may result in changes toward normalization.

Until better studies are available, consider the procedure only for those with marked adenotonsillar hyperplasia³.

3. **Dysphagia and Speech Impairment**

Obstructive tonsils occasionally interfere with the pharyngeal phase of swallowing so that patients have more difficulty swallowing solids than liquids. Rarely, severe tonsillar hyperplasia may interfere with velopharyngeal closure, causing dysphagia for liquids characterized by nasal regurgitation. In patients with adenoid hyperplasia, swallowing difficulties are more often related to poor coordination of breathing and swallowing. In our experience, about 78.1% of children with enlarged tonsils and adenoid present swallowing abnormalities and 88.6% of chewing. After surgery there was a significant improvement of these functions. The most common speech impairment described is hyponasal or muffled speech in response to decreased nasal airflow.

4. **Recurrent Pharyngotonsillitis**

Removal of the tonsils to prevent infection has been popular for decades. Many papers from the nineties suggested that tonsillectomy would decrease recurrent throat infections. Most of these articles were of questionable validity because of the non-random selection of patients.

It is certainly the case that, overall, children severely affected with recurrent episodes of throat infection who do not undergo tonsillectomy will likely have fewer episodes during succeeding years, but it is also the case that the risk of frequent and/or severe episodes continuing to occur in such children is sharply reduced by tonsillectomy.

Tonsillitis must be defined to include one of the following: temperature above 38.5°C, cervical adenopathy >2cm, presence of tonsillar exudate, or positive culture for Group A *Streptococcus pyogenes* (GAS). Previous guidelines included, patients were candidates for surgery only if they had physician documentation of seven episodes in one year, five per year for two consecutive years, or three per year for three consecutive years.

The researchers stated that a decision to perform tonsillectomy should consider risks, preferences, and anxieties of parents and children, absences from school because of illness, accessibility to health care services, cost, and availability of surgical facilities.

5. **Tonsil Asymmetry and Suspicion of Malignancy**

Lymphoma is a kind of pharyngeal cancer which the first symptom is an asymmetric tonsil hyperplasia. However, most of the time there is an acute enlargement of the tonsil and other additional manifestations distinguishes their disease from benign tonsillar hyperplasia such as adenopathy >3 cm.

6. **Sinus/nasal infections and otitis**

In some patients with obstructive adenoid tissue, stasis of secretions in the nasal cavity probably predisposes them to sinus/nasal infection. Some data indicate that adenoidectomy may be effective in children with persistent and recurrent sinus/nasal problems, and most clinicians favor adenoidectomy before consideration of endoscopic sinus surgery

The proximity of the adenoid pad to the Eustachian tube has prompted several studies of the possible benefits of adenoidectomy and adenotonsillectomy in managing otitis media⁴. The effect of the adenoid on the Eustachian tube is more likely to be regional inflammation or infection than direct compression. It has been suggested that adenoidectomy should be considered with placement of the first set of tubes in children.

However, the efficacy of surgery for otitis media under various clinical circumstances has remained in doubt. Both operations to have limited efficacy and in view of their risks, morbidity, and costs, we believe that neither operation ordinarily should be considered as an initial intervention in such children.

7. **Quality of life**

Adenotonsillectomy brings a great improvement in quality of life. Mainly in children with sleep disordered breathing once there is a relief in the sleep and all other manifestations that come with it. Adenotonsillectomy improves quality

of life in mainly in the following domains: physical suffering, sleep disturbance, speech and swallowing problems, emotional distress, activity limitations, and caregivers concern⁵.

References

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