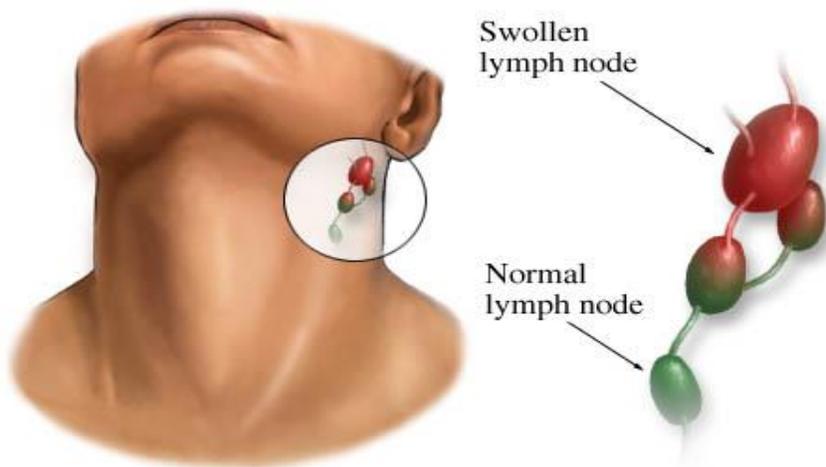
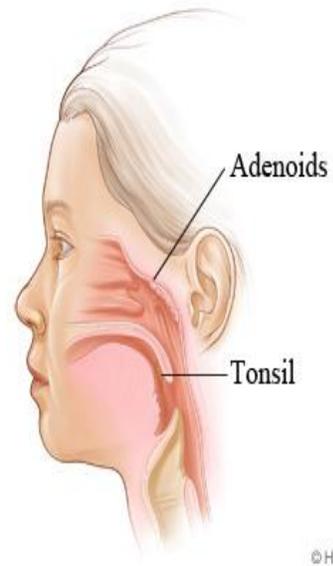
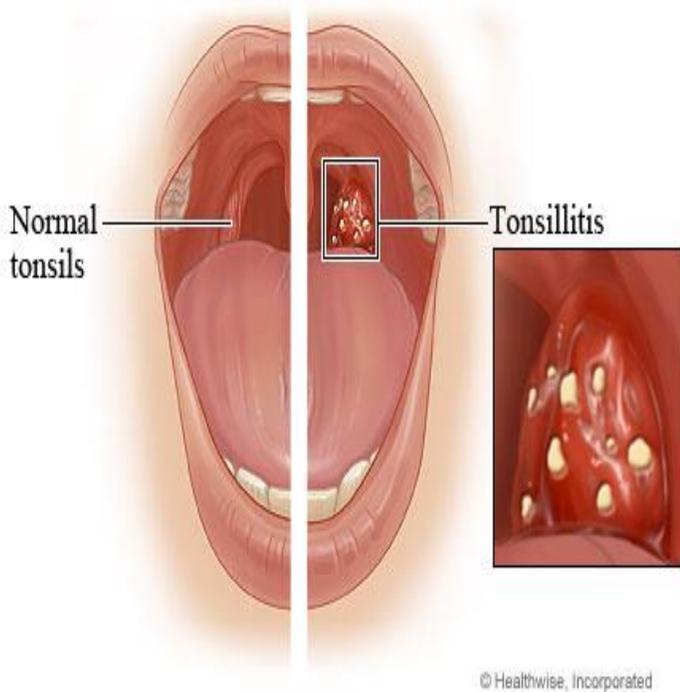


What are the Tonsils and Adenoids?

Tonsils and adenoids are similar to the lymph nodes or “glands” found in the neck, groin, and armpits. In the infant, radiographically, the palatine tonsils, adenoids and lingual tonsils appear as a ring called Waldeyer’s Ring completely surrounds the oropharyngeal portal.

Immunologically, this area becomes one of the most active antigen presenting regions of the body for immune system learning of self and non-self.



By the age of 12 to 18 months old, , the palatine tonsils, adenoids and lingual tonsils have assumed their adult configurations and positions in the oropharyngeal and nasopharyngeal cavities. The immune function of the tonsils as antigen presenter continues through adulthood. However by 18 months of age primary immune function of the body is located in the bone marrow of the long bones.

With chronic or recurrent tonsillitis, the controlled process of antigen transport and presentation is altered due to shedding of the M cells from the tonsil epithelium. The direct influx of antigens disproportionately expands the population of mature B-cell clones and, as a result, fewer early memory B cells go on to become J-chain–positive IgA immunocytes. In addition, the tonsillar lymphocytes can become so overwhelmed with persistent antigenic stimulation that they may be unable to respond to other antigens. Once this immunological impairment occurs, the tonsil is no longer able to function adequately in local protection, nor can it appropriately reinforce the secretory immune system of the upper respiratory tract. There would therefore appear to be a therapeutic advantage to removing recurrently or chronically diseased tonsils. On the other hand, some studies demonstrate minor alterations of Ig concentrations in the serum and adjacent tissues following tonsillectomy. Nevertheless, there are no studies to date that demonstrate a significant clinical impact of tonsillectomy on the immune system.

What is Tonsillitis ?

Tonsillitis refers to inflammation of the pharyngeal tonsils (glands at the back of the throat, visible through the mouth). The inflammation may involve other areas of the back of the throat, including the adenoids and the lingual tonsils (tonsil tissue at the back of the tongue). There are several variations of tonsillitis: acute and chronic tonsillitis and peritonsillar abscess.

- **Acute tonsillitis:** Patients have a fever, sore throat, foul breath, dysphagia (difficulty swallowing), odynophagia (painful swallowing), and tender cervical lymph nodes. Airway obstruction

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due to swollen tonsils may cause mouth breathing, snoring, nocturnal breathing pauses, or sleep apnea. Lethargy and malaise are common. These symptoms usually resolve in three to four days, but may last up to two weeks despite therapy.

- **Recurrent tonsillitis:** This diagnosis is made when an individual has multiple episodes of acute tonsillitis in a year.
- **Chronic tonsillitis:** Individuals often have chronic sore throat, halitosis, tonsillitis, and persistently tender cervical nodes.
- **Peritonsillar abscess:** Individuals often have severe throat pain, fever, drooling, foul breath, trismus (difficulty opening the mouth), and muffled voice quality, such as the “hot potato” voice (as if talking with a hot potato in his or her mouth).

Viral or bacterial infections and immunologic factors lead to tonsillitis and its complications. Nearly all children in the United States experience at least one episode of tonsillitis. Due to improvements in medical and surgical treatments, complications associated with tonsillitis, including mortality, are rare.

Most infections are of a mixed bacterial nature. This includes *Staph.* & *Strep.* Species as well as *Bacteroides* and *Actinomyces Israeli* organisms. Patients with of all ages with long standing chronic tonsillitis often have *Bacteroides* and / or *Actinomyces Israeli* as the predominant organism found on post tonsillectomy pathology review. Of note is that *Actinomyces Israeli* (*Trench Mouth*) is the most antibiotic resistant tonsillar infection to treat.

On Physical exam tonsillar enlargement can be graded as follows:

- 0 : Not visible - Tonsils do not reach tonsillar pillars;
- 1+ : Less than 25% Tonsils fill less than 25% of the transverse oropharyngeal space measured between the anterior tonsillar pillars;
- 2+ : 25% to 49% Tonsils fill less than 50% of the transverse oropharyngeal space;
- 3+ : 50%-74% Tonsils fill less than 75% of the transverse oropharyngeal space;
- 4+ : 75% or more Tonsils fill 75% or more than the transverse oropharyngeal space.

So, What decisions need to be made?

In general the following points about tonsils and adenoids can be made:

1. Tonsillectomy is the ***third most common surgery*** (after circumcision and ear tubes) performed on children in the United States, with over ***530,000 annual procedures*** (1 in 7 ambulatory surgeries under age 15 years).
2. Most children with frequent throat infection get better on their own; watchful waiting is best for most children with less than seven episodes in the past year, five a year in the past two years, or three a year in the past three years.
- 3) *Severe* throat infections are those with fever of 101 or higher, swollen or tender neck glands, coating (exudate) on the tonsils, or a positive test for strep throat.
4. Tonsillectomy can improve quality of life and reduce the frequency of ***severe*** throat infection when there are at least seven well-documented episodes in the past year, five a year in the past two years, or three a year in the past three years.
5. Children with less frequent or severe throat infections may still benefit from tonsillectomy if there are modifying factors, including antibiotic allergy/intolerance, a history of peritonsillar abscess (collection of pus behind the tonsil), or PFAPA syndrome (periodic fever, aphthous stomatitis, pharyngitis, and adenitis).
6. Large tonsils can obstruct breathing at night, causing sleep-disordered breathing (SDB), with snoring, mouth breathing, pauses in breathing, and sometimes sleep apnea (pauses more than 10 seconds).
7. Pediatricians should ask parents of children with SDB and large tonsils about problems that might improve after tonsillectomy, including growth delay, poor school performance, bedwetting, and behavioral problems.
8. Although most children with SDB improve after tonsillectomy, some children, especially those who are obese or have syndromes affecting the head and neck (e.g., Down), may require further management.

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The Paradise criteria, for referral to ENT for tonsillectomy first published in 1984, still applies today. (Because of tendency to improve with time, a 12-month period of observation is usually recommended prior to consideration of tonsillectomy as an intervention):

- a) Minimum frequency of sore throat episodes 7 or more episodes in the preceding year,
OR
5 or more episodes in each of the preceding 2 years
OR
3 or more episodes in each of the preceding 3 years
- b) Clinical features of sore throat plus the presence of one or more of the following qualifies as a counting episode:
Temperature > 38.3°C, OR
Cervical lymphadenopathy (tender lymph nodes or >2 cm), OR
Tonsillar exudate, OR
Positive culture for group A b-hemolytic streptococcus
- c) Treatment with antibiotics had been administered in conventional dosage for proved or suspected streptococcal episodes.
- d) Documentation of each episode and its qualifying features had been substantiated by contemporaneous notation in a clinical record, OR *If not fully documented*, subsequent observance by the clinician of 2 episodes of throat infection with patterns of frequency and clinical features consistent with the initial history.

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