

Sore Throat

Mummy: my throat is sore and I feel hot!



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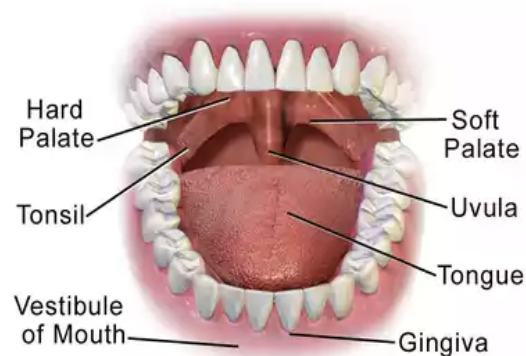
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Sore Throat

1. *The symptoms.* A sore throat is frequently experienced by children and adults. It feels like burning, pricking, or itching in the throat. Sometimes this is the only symptom, but fever, runny nose and/or coughing can be present. Also rash (abnormal changes in skin colour or texture), cervical lymph nodes (nodes in the neck), redness, and edema (swelling caused by fluid accumulation) of the tonsils and pharynx, which may be covered with a patchy white or yellowish exudate or vesicles, can appear.

Normal Buccal Cavity



Mouth

Buccal Cavity

Blausen.com staff (2014). "Medical gallery of Blausen Medical 2014". WikiJournal of Medicine 1 (2). DOI:10.15347/wjm/2014.010. ISSN 2002-4436.CC BY 3.0

Sore throat



Streptococcal pharyngitis (yellowish exudate).

Viral pharyngitis (red tonsils)

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2. *The process of examination and diagnosis by the doctor.* To be able to make a correct diagnosis and decide the best treatment, the doctor may ask you some questions and make a complete physical examination. Some of the questions could be

- when did the symptoms begin?
- how did they evolve?
- whether there are other accompanying symptoms?
- whether other members of the family or school feel the same?

During the physical examination the doctor will ask you to open your mouth, veeryyy biggg, and say "Aaaaa". This may feel funny but also unusual, and you may think: Why is this person asking me to do this!? The objective of saying "Aaaaa" while the doctor examines your throat is to see the pharynx. Normally the tongue does not allow a good view of the pharynx, but when saying "Aaaaa" the back flattens, the tongue extends into the hollow of the lower jaw, and that provides a view down the throat. Sometimes, if the doctor can't see the pharynx well, a tongue depressor like a spoon may be used. The physician may also examine your skin and neck in order to see if your lymph nodes are swollen, and listen to your chest with the stethoscope.

3. *Identification of the (potential) underlying cause(s) (the microbiology).* But what is happening to you? What is causing all these symptoms and signs? Sore throat may be caused by a virus or bacterial infection, but also allergies. Acute sore throat is a symptom often caused by inflammation of the pharynx, tonsils or nasopharynx, a condition called *pharyngitis*.

In order to think about the potential underlying causes, the physician will have in mind the following check list.

CHARACTERISTIC	BACTERIA	VIRUS
Age:		
0-5 years	✓	✓
5-15 years	✓	✓
> 15 years	✓	✓
Sore throat	✓	✓
Fever	✓	✓
Painful cervical lymph node	✓	✓
White or yellowish pharyngeal exudate	✓	✓
Vesicles in pharynx	X	✓
Cough	X	✓
Runny nose	X	✓

As you may be aware, it is very difficult for the physician to know if sore throat is caused by bacteria or a virus, but viral infections are the most common causes of pharyngitis. The respiratory viruses that cause the common cold and flu are common causes of sore throat. These include rhinovirus, coronavirus, adenovirus, parainfluenza, influenza, respiratory syncytial virus, Coxsackie virus, bocavirus and metapneumovirus. Less commonly, herpes simplex virus, Epstein-Barr virus and human immunodeficiency virus may also cause pharyngitis.

Pharyngitis is one of the most common illnesses, and children may experience 7-10 episodes per year. This might appear to be surprising, because an infection usually leads to immunity that protects us against a repeat infection. One explanation for this high frequency is

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that all these viruses can mutate, creating new variants that the immune system does not recognize, and that thereby escape existing immunity. There are thousands of different variants.

Bacteria can also cause pharyngitis. The most common bacterium that causes sore throat is group A Streptococcus, also named *Streptococcus pyogenes*. This bacterium is responsible for 15-30% of cases in children and 5-10% of cases in adults. Other bacteria like groups C or G β -haemolytic streptococci, as well as *Mycoplasma pneumoniae* and *Chlamydia pneumoniae*, can also cause sore throat.

Many bacteria live in the tonsils normally, and are an important defence mechanism against infection. The normal bacterial flora of the tonsils includes *Streptococcus salivarius*, *Streptococcus mitis*, *Streptococcus parvulus*, *Streptococcus constellatus*, *Streptococcus intermedius*, and other species of bacteria such as enterobacteria, pseudomonas, and *Klebsiella*.

In order to confirm if the infection is caused by a bacterium, a sample of saliva on the surface of your throat may be taken for laboratory analysis. In this case, the doctor asks you to open your mouth – sometimes a tongue depressor is used. A sterile cotton swab is rubbed across your throat and tonsils. The sample is sent to a microbiology laboratory which grows the bacteria and analyses if any pathogenic bacteria are present. This usually takes at least two days. There are also rapid tests available that can detect specific bacterial components appropriate for diagnosis. Rapid tests usually provide results in approximately 10 minutes.

To detect virus, nasal and pharyngeal aspirate or swab samples can be taken. Rapid tests that detect specific viral components or genes appropriate for diagnosis are then performed at the laboratory.

4. ***The treatments.*** Most cases of sore throat cause only minor disturbance and are self-medicated with commonly available medicines such as analgesics to reduce the pain, throat lozenges and antiseptic gargles. After a few days, we are well again!

In the past, streptococcal pharyngitis could also lead to serious diseases like acute rheumatic fever (a disease that can affect the heart, joints, brain, and skin) or acute glomerulonephritis (a disease of the kidneys). While these are now rare in most parts of the world, they are still important in some places, like India. Fear of these complications, or a wish to relieve pain or to satisfy patients, often lead physicians to use antibiotic treatment for sore throat, but this does not help to cure the majority of infections, which are viral. When bacterial pharyngitis is suspected or confirmed antibiotics like amoxicillin are prescribed.

5. ***Clinician's advice on how to reduce further transmission.*** Viruses and bacteria that cause pharyngitis can be spread through airborne droplets, so an infected person can transmit the microorganism if they cough, sneeze, or share food or drinks. The microorganisms can also be present on different surfaces, toys, and other objects, and be transferred to your nose, mouth, or eyes.

Knowing how the microorganisms can be transmitted is important in order to control microbial spread. In general, our body defences fend off a few infectious microbes, so we only develop disease when we get a significant dose. Reducing transmission is therefore all about reducing the numbers of infectious microbes to which we are exposed. Most sore throats and respiratory infections occur in winter, and one explanation is that during this season we are more indoors where the microbes can accumulate and infect us more easily.

Hand washing is one of the most effective means of preventing respiratory infections. Also avoiding exposure to people with symptoms of respiratory infections and not sharing glasses or cutlery is recommended. Ventilation of indoor spaces is also important because it dilutes

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infectious microbes floating in the air so when we breathe in, we take in fewer infectious microbes.

6. *Vaccination options.* There are currently no specific vaccines for the prevention of most causes of sore throat. However, annual vaccination against flu is recommended during winter in order to prevent influenza virus infections.