

# Sprays and lozenges for sore throats

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## Abstract

A sore throat is a common complaint, and often an early indication of another medical condition, such as a cold. In the absence of life-threatening conditions or bacterial infection, local symptomatic treatment will ease the pain. This article reviews the common causes and symptoms of sore throats, and provides an overview of some of the sprays and lozenges that are available to treat this problem.

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## Introduction

A sore throat, due to pharyngitis or tonsillitis, is a common complaint among children, adolescents and adults. It refers to any painful sensation localised to the pharynx and surrounding anatomy, and be a symptom of disease processes not directly linked to the pharynx. This is because it could be an early symptom of another medical problem, such as a cold or flu, or something more substantial, such as tonsillitis.<sup>1-3</sup>

## Causes of sore throat

Some causes of a sore throat are easily recognised, such as muscle strain or certain irritants, and are usually quickly and easily resolved. Most cases of pharyngitis are caused by infection: either bacterial or viral.

Various conditions may cause sore throat symptoms. These include:

- **Viral infections:** Viruses are the most common cause of pharyngitis. Adenoviruses, enteroviruses, rhinoviruses, coronaviruses and influenza viruses are the most commonly encountered viruses. Mumps and glandular fever usually present with a sore throat.
- **Bacterial infections:** Streptococcus is the most frequent bacterial trigger of infectious pharyngitis and tonsillitis.
- **Epiglottitis:** Acute inflammation of the epiglottis is mainly brought about by *Haemophilus influenzae* type B.
- **Infectious mononucleosis:** The Epstein-Barr virus, which causes infectious mononucleosis, may give rise to a sore throat and airway obstruction.
- **Mouth breathing:** Breathing via the mouth, possibly due to chronic nasal congestion, may cause throat dryness and soreness.

- **Disease:** A sore throat may be a symptom of certain conditions such as throat cancer, human immunodeficiency virus (HIV), gastro-oesophageal reflux disease, or allergies.
- **Medication:** Certain medicines used to treat other medical conditions may result in throat dryness or soreness as a side-effect, e.g. antihistamines, antidepressants, diuretics and medications for diarrhoea and nausea.
- **Muscle strain:** Yelling at a sports event, talking in a noisy environment, or speaking or singing for a prolonged time, may strain the throat muscles.
- **Traumatic injury:** When an attempt is made to swallow a foreign body such as a bone, whether deliberate or not, the object may cause injury to the throat. Hot liquids, chemicals and certain gases, can also do this.
- **Irritants:** Various irritants may cause drying of the pharynx and irritation of the mucosa, resulting in localised pain. This may be due to dryness of the air from air-conditioners and heaters, air pollution, inhaled tobacco smoke or chemicals, spicy food or alcohol.<sup>1,3-6</sup>

## Symptoms

Dry scratchiness and painful swallowing are the most common symptoms of a sore throat.<sup>6</sup> Viral infections may be indicated by rhinorrhoea, nasal congestion, irritation or redness of the eyes, cough, hoarseness, or pain in the roof of the mouth. Bacterial infections may be characterised by pain in the throat, fever (temperature greater than 38°C), enlarged lymph glands in the neck, and patches of pus in the throat.<sup>2</sup> Diagnosing viral as opposed to bacterial infection, can be difficult, as both may present with fever,

enlarged lymph glands and pus-like exudate on the throat membranes.<sup>6</sup> Patients who present with unusually severe symptoms such as difficulty swallowing, drooling, or neck swelling should be referred for further evaluation.<sup>7</sup>

## Treatment

In the absence of an underlying medical problem, most sore throats will resolve without treatment, but generally patients seek some form of symptomatic relief.<sup>2</sup> Although there is a preconception that patients wish to obtain antibiotics for a sore throat, studies have indicated that this is not the case.

The three most important reasons for a patient asking for assistance to treat a sore throat were reported to be: to establish the cause of the symptoms, to obtain pain relief, and to discover the possible duration of symptoms. Patients who considered antibiotic therapy to be essential thought that pain relief was very important, and believed that antibiotics were necessary to achieve it faster.<sup>8</sup>

### Systemic therapy

Systemic therapy may include antimicrobial agents, analgesics and anti-inflammatory agents:

- **Antimicrobials:** Antibiotic therapy is indicated for patients with bacterial pharyngitis or tonsillitis. Antibiotics help to prevent further spread of the infection, and to reduce the risk of complications. However, antibiotics are not effective for throat pain that is caused by viral infections.<sup>1</sup>
- **Analgesics:** Systemic analgesics may be useful in treating moderate-to-severe throat pain. Paracetamol or nonsteroidal anti-inflammatories (NSAIDs) such as ibuprofen, may alleviate throat pain, as well as resolve fever or inflammation. Aspirin should be avoided in children under the age of 16 years due to the risk of Reye's syndrome.<sup>1</sup>
- **Glucocorticoids:** Glucocorticoids may play a role in the treatment of throat pain and swelling associated with certain infections.<sup>1,8</sup>

### Topical therapy

Topical therapies include oral rinses (gargles), sprays and lozenges. Advantages of topical therapies include direct application of pain relief to the area of inflammation, and decreased risk of toxicity, when compared to systemic administration.

- **Oral rinses:** Oral rinses are effective in coating the oral cavity and the base of the tongue.
- **Sprays:** Throat sprays are effective in coating the posterior pharynx. Throat sprays are not recommended for use in children under the age of six years.
- **Lozenges:** A variety of lozenges are available for the treatment of throat pain and dryness. Lozenges have

been shown to have a higher initial deposition of active ingredient in the mouth and throat, and slower rates of clearance, compared with throat sprays and rinses. This suggests that lozenges may have a more sustained effect in the symptomatic treatment of pharyngitis. They may be a choking hazard in young children, and should not be used in children under the age of three or four years.<sup>1,2,8</sup>

### Alternative or non-medical therapies

In some cases, e.g. small children, medicated products may not be suitable. Other home remedies may provide relief of a sore throat.

These measures include:<sup>1,2,6</sup>

- Increased fluid intake assists in keeping the mucus thin and in mucus clearance.
- Home-made gargles with warm salt water may ease pain, but are not suitable for small children.
- Honey and lemon juice in warm water soothes pain and loosens thick mucus secretions.
- Cold beverages and ice cream are particularly popular with small children, and provide some relief from dryness and irritation.

### Available products

Oral rinses and gargles are commonly used, not only for throat pain, but also for oral hygiene. Disinfectant and anaesthetic ingredients, such as benzydamine, cetylpyridinium chloride and benzocaine, are useful in the treatment of stomatitis, gingivitis and mouth ulcers.<sup>1,9</sup>

Throat sprays containing local anaesthetics, such as benzocaine, and disinfectants, e.g. chlorhexidine gluconate and phenol, are available to treat sore throats.<sup>1,9</sup> Lozenges containing analgesics or anaesthetics, e.g. benzydamine HCl and benzocaine, and/or antiseptic or disinfectant agents, such as cetylpyridinium chloride and dichlorobenzyl alcohol, are available for symptomatic relief of throat pain. The demulcent or moisturising effects of sucking the lozenger may be responsible for the effectiveness of these preparations. Throat lollies are available for smaller children. However, they are not recommended for infants.<sup>1,8,9</sup>

### Active ingredients

Active ingredients in throat sprays and lozenges aim to provide symptomatic relief of pain. Some have disinfectant properties to decrease the likelihood of further infection. Disinfectants such as amylmetacresol, cetylpyridinium Cl, chlorhexidine gluconate, dichlorobenzyl alcohol, and phenol are antibacterial. Phenol is bacteriostatic against Gram-positive and Gram-negative bacteria. Cetylpyridinium

**Table I: Properties of active ingredients<sup>9-10</sup>**

| Ingredient               | Properties                                |
|--------------------------|---|
| Amylmetacresol           | Disinfectant                              |
| Benzocaine               | Local anaesthetic                         |
| Benzylamine HCl          | Analgesic, anti-inflammatory, antipyretic |
| Benzyl alcohol           | Weak local anaesthetic, antipruritic      |
| Cetylpyridinium chloride | Disinfectant, bactericidal                |
| Chlorhexidine gluconate  | Disinfectant                              |
| Flurbiprofen             | Analgesic, anti-inflammatory, antipyretic |
| Lignocaine               | Local anaesthetic                         |
| Menthol                  | Analgesic                                 |
| Phenol                   | Disinfectant, bacteriostatic              |

**Table II: Active ingredients in throat sprays<sup>9</sup>**

| Throat sprays            | Active ingredients                         |
|--------------------------|--|
| Andolex <sup>®</sup>     | Benzylamine HCl                            |
| Andolex-C <sup>®</sup>   | Benzylamine HCl<br>Chlorhexidine gluconate |
| Medi-Keel A <sup>®</sup> | Phenol                                     |
| Orochlor <sup>®</sup>    | Benzocaine<br>Chlorhexidine gluconate      |
| Septosol <sup>®</sup>    | Phenol                                     |

chloride is bactericidal against gram-positive bacteria and some gram-negative bacteria.

Analgesics and local anaesthetics are useful in relieving throat pain. Benzylamine HCl, menthol and flurbiprofen have analgesic properties. Flurbiprofen is a nonsteroidal anti-inflammatory drug, and is used for its analgesic and anti-inflammatory effects.<sup>1,8,10</sup> Table I lists the properties of some of the active ingredients of available products.

Tables II and III list some of the available products and their active ingredients.

### Risk avoidance

Most children find it difficult to gargle, and tend to swallow the mouthwash. Such products should not be used in children under the ages of 6-8 years.<sup>1</sup> Lozenges should be used with caution in children, due to their potential as a choking hazard. The possibility also exists that because boiled sweets can effect some relief from a dry throat, that all throat lozenges, including medicated lozenges, are “throat sweets”. With this idea in mind, patients may think that it is safe to suck a lozenge when needed, without paying any attention to the dosing information. Patients must be reminded that all medicated products are “medicine”.

**Table III: Throat lozenges and their active ingredients<sup>9</sup>**

| Throat lozenges                    | Active ingredients   |
|------------------------------------|--|
| Andolex <sup>®</sup>               | Benzylamine HCl  |
| Andolex-C <sup>®</sup>             | Benzylamine HCl<br>Cetylpyridinium Cl                      |
| Cepacaine <sup>®</sup>             | Benzocaine<br>Cetylpyridinium Cl                           |
| Cepacol <sup>®</sup>               | Cetylpyridinium Cl<br>Benzyl alcohol                       |
| Goldex Throat Lollies <sup>®</sup> | Cetylpyridinium Cl   |
| Medi-Keel A <sup>®</sup>           | Cetylpyridinium Cl<br>Benzocaine                           |
| Strepsils <sup>®</sup>             | Dichlorobenzyl alcohol<br>Amylmetacresol<br>Menthol        |
| Strepsils Plus <sup>®</sup>        | Dichlorobenzyl alcohol<br>Amylmetacresol<br>Lignocaine HCl |
| Strepsils Intensive <sup>®</sup>   | Flurbiprofen   |

Side-effects of the active ingredients may include tingling, numbness, stinging and burning sensations, altered sense of taste and difficulty in swallowing. Most effects are local and transient. In some cases, systemic effects, such as gastro-intestinal disturbances, may be experienced. If the side-effects cause more than short-lived local effects, use of the product should be discontinued.<sup>10</sup>

### Conclusion

Throat pain may be caused by infection, allergic reaction, irritation, trauma, or dryness. Traumatic injury, bacterial infection and allergic processes should be referred for further treatment. Viral infection, irritation and dryness may be treated symptomatically. Local therapies, in the form of throat sprays and lozenges, have the advantage of enabling direct application to the affected area.<sup>1,8</sup>

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