

# Pharyngitis, tonsillitis and laryngitis

A A H Mulder

Inflammatory conditions of the upper respiratory tract are of common occurrence, having an infective (viral, bacterial, fungal or mixed) or a non-infective aetiology. The most common aetiological factors are summarised in Table 1.

The causative factor, virulence of organisms, site and reaction of the involved tissue, local or systemic effects and the effect or side effects of treatment will determine

severity and duration of symptoms, clinical signs and complications.

Age group, sex, ethnic group, socio-economic status, occupation, nursery school attendance and habits are some factors determining the most likely cause of disease in the individual.

The resources devoted to management, the volume of antibiotics prescribed and the emergence of antibiotic resistance is a

**Table 1. Aetiology of pharyngitis, tonsillitis and laryngitis**

General predisposing causes	Exogenous –	seasons, climate, temperature, pollution, dust and air-conditioning
	Endogenous –	diabetes, immuno-deficiency, anaemia, iron deficiency, agranulocytosis, allergy, sarcoidosis, hypothyroidism, avitaminosis A
Local predisposing causes	Irritants, mouth breathing, oesophageal reflux, cigarette smoking and voice abuse	
Precipitating causes	Infective –	Viral, e.g. adenovirus, para-influenza, Ebstein-Barr, influenza and exanthemas, etc.
	Bacterial, e.g. Group A, B, C and G	<i>Streptococci</i> , <i>Strep.pneumoniae</i> , <i>C.diphtheriae</i> , <i>H.influenzae</i> , <i>M.tuberculosis</i> , <i>T.pallidum</i> , <i>Actinomyces</i> sp., <i>Peptococcus</i>
		<i>Mycoplasma</i> <i>Chlamydia</i> Fungi <i>Rickettsia</i>
	Non-infective –	e.g. chemical irritation, burns, foreign body

growing health issue.<sup>1</sup> Accuracy of clinical judgement is often limited, resulting in high costs associated with self-medication, many consultations, diagnostic dilemmas and inappropriate medical treatment.

Acute infections are more common during winter months.

Viral infections are self-limiting but may be followed by a bacterial superinfection. The inflammatory process mainly involves the mucosal membrane. To produce disease an organism or irritant can only reach the affected area by:

- continuity (local spread from surrounding diseased mucosa, e.g. from the nose and sinuses)
- contiguity (droplet spread via normal passages, e.g. nose, mouth, trachea)
- lymphatic or haematogenic spread.

Complications and spread of disease occur in the same manner.

### Clinical features and diagnostic considerations

The mainstay of diagnosis is a thorough history (keeping in mind the possible aetiologies).

A painful, scratchy or burning throat, dysphagia, odynophagia, referred otalgia, throat clearing, catarrh, halitosis or sturor indicate pharyngeal or tonsillar involvement, whereas coughing, hoarseness, throat clearing, painful aphonia and stridor favour laryngeal disease.

A complete ENT and systemic examination will point out the clinical features of the disease and highlight possible aetiological factors. To interpret the pharyngeal and tonsillar mucosal appearance is often difficult and inaccurate because the mucosa may have varying clinical appearances depending on the aetiology and stage of disease. The mucosa may be red, hyperaemic, pale, swollen, oedematous, dry, atrophic, contain septic follicles, be irregu-

lar or be covered with mucopus or a membrane. Ulceration or bleeding is possible. Malaise, fever, fatigue, tachycardia, headaches, malaise, arthralgia, splenomegaly and haematuria indicate systemic involvement or an acute infective process (toxæmia). These are not typical features of chronic and non-infective causes.

Concomitant nasal or lung disease may be present.

Tender neck glands indicate spread of an acute infection. Firm solid glands may represent metastatic malignant disease.

To distinguish between viral and bacterial infections is difficult. Associated clinical features may assist in diagnosis, e.g. pharyngitis in the presence of conjunctivitis suggests an adenovirus, the presence of diarrhoea – an enterovirus, Koplik spots – measles, a strawberry tongue – scarlet fever and splenomegaly – infective mononucleosis. The presence of an adherent membrane in the throat concomitant with cardiac arrhythmias (myocarditis) may indicate a diphtherial infection. Palatal petechiae suggest a viral infection.

The presence of an organism in the throat and its culture from a swab does not mean it is pathogenic unless clinically supported to be the case.

A clinically obvious infection may not produce a positive swab culture – this favours a viral or anaerobic pathogen.

The absence of pus in tonsillar crypts does not exclude tonsillitis. Normal tonsils may contain small cream-coloured concretions or a solitary tonsolith which is not infective.

Chronic tonsillitis is diagnosed on the basis of frequent attacks of tonsillitis, jugulo-digastric lymphnode enlargement, redness of the anterior faucial pillars, or 'fixed' and fissured tonsils.

Lymphoid hyperplasia of the lateral oropharyngeal mucosa may indicate a 'post-nasal drip' from infective sinusitis.

Pharyngeal or tonsillar ulceration should increase the suspicion of actinomycosis or tuberculosis. Malignancy causing ulceration may be present (even in young individuals).

The presence of a sore throat together with oral candidiasis should raise the suspicion of AIDS.

Voice abuse (acute) leading to oedema or a haematoma on the vocal cords causes sudden self-limiting hoarseness.

Laryngitis in children may have an alarming course due to the relatively small laryngeal airway and is often combined with acute epiglottitis or tracheo-bronchitis. Careful observation and proficiency to handle crisis situations is mandatory.

Acute epiglottitis is characterised by painful swallowing, drooling and stridor in a child sitting upright with the chin forward. To avoid fatal glottic spasm or epiglottic 'aspiration' the use of a tongue depressor during throat examination should be avoided.

Indirect or direct examination of the larynx is essential in cases not responding to treatment for 'laryngitis' within three weeks. Foreign bodies, vocal cord paralysis or malignancies must be excluded.

A purulent discharge in the larynx is pathognomonic of a bacterial infection.

Observing oedema and redness in the arythenoid region during laryngoscopy favours the diagnosis of oesophageal reflux causing laryngeal symptoms.

### Special investigations in diagnosis

#### Throat swab

- Any exudate present should be touched. Inform the pathologists of the clinical diagnosis to ensure relevant investigations (MCS, rapid antigen screening, Ziehl-Neelsen Stain, etc.). Using throat swabs as a gold standard for diagnosis

is inappropriate since they are neither very specific nor sensitive, and will greatly increase cost of management.<sup>2</sup>

#### Blood tests

- Differential white cell count may distinguish between a viral or bacterial infection. Raised ESR favours an infective cause. Paul Bunnell, VDRL, TSH, HIV and serum iron tests will assist in diagnosis. Antistreptolysin titre should show a serial rise to be of positive value – this may take up to ten days and should not delay commencement of treatment if it is clinically necessary.

#### Urinalysis

- Haematuria may indicate glomerulonephritis.

#### Endoscopy

- Must include nasopharyngoscopy, laryngoscopy, oesophagoscopy and gastroscopy as indicated by the history and clinical findings.

#### Radiology

- Use cost-effectively to diagnose, adenoidal hypertrophy, sinusitis, epiglottitis, foreign bodies, parapharyngeal abscess, lung pathology, etc.

#### Biopsy

- Indicated for all non-healing ulcers and masses of doubtful diagnosis.

#### Allergy tests

### Management principles

- Clinical signs (local and systemic) should be detected during a thorough clinical examination. Mirror examination of the nasopharynx and larynx is mandatory.
- Symptoms persisting after treatment indicate incorrect management.
- Use special investigations, keeping their value and limitations in mind.
- Removing the cause is the most effective management tool (e.g. smoking, treating the causes of a blocked nose).

- Combat the effects of the disease (relieve pain and fever).
- Assist the reaction of the tissue (e.g. prescribe antibiotics, etc.).
- Identify and treat local and systemic complications early (e.g. rheumatic fever, quinsy).
- Management should be cost-effective.
- Do not over diagnose and over treat or *vice versa*.
- Cost and efficacy of drugs, preferred mode of use and compliance need careful consideration.

### Pharmacological agents available for treatment

#### Saline

- Nasal douching facilitates mucus clearance, crust removal and cilia mobility.

#### Analgesics

- Systemic paracetamol, aspirin, codeine or parenteral pethidine. Pyrexia, inflammation and severity of pain determine choice. Use lignocaine, benzydamine HCl and benzocaine for local relief.

#### Steam inhalations

- Tinc benz co steam inhalations for humidification and promoting drainage of secretions.

#### Disinfectants

- Hexetidine, chlorhexidine glucon solution and povidone. May disturb normal flora. Pharyngeal mucosa contact time is limited. No effect on viruses.

#### Antibacterials

- Fusafungine® topical spray. Short mucosal contact time. Low local concentration may promote bacterial resistant strains. No effect on viruses.
- Phenoxymethylpenicillin [18.1.1] (Penicillin V) – effective against most causative organisms except  $\beta$ -lactamase-producing strains. Most streptococci and *C.diphtheriae* are covered. Ten-day course is essential.

- Benzylpenicillin [18.1.1] (Penicillin G) – Parenteral form for more severe infections and complications.
- Benzathine-penicillin [18.1.1] (Penicillin LA) – Useful when non-compliance is a problem.
- Amoxicillin [18.1.1] – Wide range of causative organisms are covered, including non  $\beta$ -lactamase-producing strains of *H.influenzae*.
- Amoxicillin/clavulanic acid [18.1.1] – Sensitive organisms include  $\beta$ -lactamase-producing strains.
- Erythromycin [18.2] – Useful in penicillin-hypersensitive patients. Effective against mycoplasma and chlamydia species.<sup>3</sup> Active against most Gram-positive and Gram-negative organisms, except *H.influenzae*.
- Co-trimoxazole [18.6] – Effective against most causative organisms except myco-plasma species.
- Macrolides [18.2] – Clarithromycin and azithromycin may produce improved bacteriologic eradication compared to penicillin.
- Cephalosporins [18.1.2] – Organism resistance to these drugs is low (depending on generation of drug used). Use with caution in patients allergic to penicillin.
- Tetracyclines [18.4] – A substantial proportion of Group A  $\beta$ -haemolytic streptococcus are currently resistant making these agents inappropriate for treatment.

#### Antifungals [18.10]

- Fluconazole, miconazole oral gel, nystatin.

#### Steroids

- Triamcinolone acetonide, fluticasone propionate: despite their potential anti-inflammatory effect local steroid sprays are not widely used in oropharyngitis. Indicated if an inhalation allergy is a precipitating cause of oropharyngitis by

causing a blocked nose and mouth breathing.

#### Mucolytics

- Their superiority to steam inhalations is questionable.

#### Anethole trithione

- For the relief of oropharyngeal discomfort and dry mucosa due to decreased salivation, e.g. post-irradiation.

#### Antacids and combinations [12.4.1]

- Aluminium hydroxide; omeprazole, etc. for gastro-oesophageal reflux.

#### Avoiding treatment errors

- Most throat or larynx inflammations are self-limiting and symptomatic treatment is sufficient.
- Non-infective causes of these diseases are common and should not be overlooked.
- Fewer than 10% of adults and 30% of children actually have a streptococcal infection causing a sore throat. Rapid antigen tests to identify the presence of a Group A  $\beta$ -haemolytic streptococcal infection identify patients in definite need of antibiotic treatment to prevent rheumatic fever.
- Antihistamines and decongestants may cause unwanted drying of the mucosa.
- If penicillin does not induce prompt relief of symptoms in a patient with supposed acute tonsillitis, suspect infective mononucleosis.
- A patient suffering from infective mononucleosis will develop a rubelli form skin rash if treated with ampicillin. The patient may then be erroneously labelled as 'allergic to penicillin'.
- Indications for tonsillectomy should be sound and definite.
- Unilateral tonsillar enlargement may be present in tonsil malignancy and lymphoma.

- Adenoid and tonsil hypertrophy may be clinical signs of AIDS.
- Laryngeal carcinoma is often not diagnosed timeously and patients are inadvertently treated for asthma over long periods.
- Never perform a biopsy on a neck gland unless malignancy in the ENT region has been excluded – fine-needle aspiration cytology can be performed to determine the presence of metastatic disease.
- Do not prescribe antibiotics for the fear of 'missing something' being the result of an inadequate clinical evaluation.
- Ensure patient compliance during any treatment.

#### When to refer

- In the event of a difficult diagnosis (e.g. persistent hoarseness) or inability to deal with the cause (e.g. laryngeal tumour), complications (e.g. retropharyngeal abscess, quinsy) or life-threatening events (e.g. acute epiglottitis, croup).
- Do not continue treatment that seems to be of no benefit. Investigate further or refer. Negligence may lead to severe morbidity or even mortality.

#### References

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3. Pichichero ME. Group A streptococcal tonsillopharyngitis: cost-effective diagnosis and treatment (Review) *Ann Emerg Med* March 1995; 25(3): 390-403.

#### Further reading

1. Kerr AG (ed). *Scott Brown's Otolaryngology* 5th ed. London: Butterworths, 1987.
2. Budingham RA (ed). *Ear, Nose and Throat Diseases*. 2nd edition New York: Thieme 1994. ■