ABC of ENT

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THROAT INFECTIONS

The back of the nose and buccal cavity are encircled by a ring of lymphoid tissue. This (Waldeyer's ring) comprises adenoid tissues in the postnasal space, the pharyngeal tonsils, and the lingual tonsil. Shortly after birth the lymphoid tissue enlarges physiologically and remains enlarged until puberty. In early childhood this tissue plays a part in normal immunological development.

Infection of the throat may either affect the mucosa of the whole of the nasopharynx and oropharynx (pharyngitis) or be localised to the lymphoid tissue, causing tonsillitis.

Acute infections: causes and diagnosis

Acute pharyngitis and acute tonsillitis may be due to viral, bacterial, or fungal infection. Half of all infections are viral, caused by the influenza viruses, parainfluenza viruses, adenoviruses, respiratory syncytial virus, and rhinoviruses.

Bacterial infections are usually due to *Streptococcus haemolyticus* and less often to *Str pneumoniae* and *Haemophilus influenzae*. Rare but important causes include diphtheria and gonococcal infection. Secondary syphilis also causes a generalised pharyngitis, with highly infective snail track ulcers. Tuberculosis is a rare cause of pharyngeal infection, usually associated with open pulmonary disease.

Monilia is the most common fungal infection, occurring in debilitated patients and those who have been taking oral antibiotics. It causes white patches. Moniliasis is best treated by sipping nystatin suspension 1 ml four times a day.

Acute tonsillitis, with its typical clinical pattern of fever, malaise, dysphagia, and cervical lymphadenitis, occurs when acute infection is localised to the tonsils. Whenever examination shows membranous exudate diphtheria should be suspected, and urgent treatment with antidiphtheria antitoxin and penicillin should be started before the diagnosis is confirmed bacteriologically. The anginous variety of infectious mononucleosis may also cause a shaggy exudate in the tonsillar region.

The differential diagnosis of any sore throat with ulceration must also include blood dyscrasias and agranulocytosis.

Treatment of acute tonsillitis

If possible a throat swab should be taken in cases of acute tonsillitis, but antibiotics must be started at once if the infection is severe. Penicillin is the drug of choice and the first dose should, ideally, be given intramuscularly. A course of penicillin should be continued for 10 days, since recrudescence often occurs because organisms persist deep in the crypts. Alternative antibiotics include erythromycin and co-trimoxazole. Symptomatic treatment involves bed rest, a liquid diet, and soluble aspirin to relieve pain.

Complications of acute infection

The spread of infection to sites adjacent to the tonsils may cause various abscesses: acute retropharyngeal abscess, peritonsillar abscess, cervical adenitis with abscess formation, parapharyngeal abscess, and Ludwig's angina. Acute otitis media may also be a complication of acute infection of the tonsils and adenoids.

Systemic diseases occur as allergic responses to group A β -haemolytic streptococci. They include rheumatic fever, acute glomerulonephritis, and Sydenham's chorea.

Retropharyngeal abscesses

Acute retropharyngeal abscesses are caused by suppurative infection of retropharyngeal lymph nodes, which are present only in babies and young children. The clinical picture is non-specific: the child is feverish, unwell, and fails to eat or drink. Displacement of the posterior pharyngeal wall is not apparent because the whole posterior wall is pushed nearer to the observer than normal. Apart from the help given by finding a high white cell count the diagnosis depends on examining a lateral radiograph of the soft tissue of the neck, which should always be taken when this condition is suspected; this shows increased soft tissue between the vertebral column and the airway. If untreated the abscess is likely to burst through the posterior pharyngeal wall and drown the baby in pus. The abscess has to be incised with the baby in the head down position and the surgeon must be prepared to aspirate large amounts of pus.

Peritonsillar abscess (quinsy)

Quinsy occurs when pus accumulates between tonsil and its bed. The disease is almost always unilateral; the accumulating pus displaces the tonsil medially and backwards so that the swollen soft palate obscures the tonsil. The uvula is displaced across the midline and only the affected tonsil is usually visible. Clinically there is a typical picture of tonsillitis, but then difficulty in swallowing increases, trismus develops, and even saliva may not be swallowed. The diagnosis is easily made by observing the posterior pharyngeal wall through the mouth, though access may be difficult because of trismus. When a quinsy is fully developed the mucosa over the pointing abscess is soft to touch.

Conventional treatment to release the pus is to incise the abscess under local anaesthesia with the patient in the sitting position. An alternative is to perform "abscess tonsillectomy" under general anaesthetic. This demands skilled anaesthetic induction since rupture of the quinsy during intubation may result in fatal aspiration of pus. An apparent quinsy is often seen at the stage of cellulitis before the pus has localised, when incision will not help. Instead patients should be admitted for symptomatic relief and treated with large doses of intramuscular penicillin every six hours. If the swelling abates and the condition resolves antibiotics must be continued for at least 10 days.

Other local complications

Cervical adenitis suppuration presents after an upper respiratory tract infection in children with a fluctuating tender swelling in the position of the jugulodigastic lymph node. As well as antibiotics, treatment requires incision and drainage of the abscess through the skin of the neck.

Parapharyngeal abscess is a rare complication of tonsillitis. Pus accumulates in the parapharyngeal space lateral to the tonsil bed. Since the large vessels of the neck run through this space the condition may be fatal if the carotid artery ruptures.

Ludwig's angina is also rare. Cellulitis occurs and pus accumulates in the floor of the mouth on both sides of the mylohyoid muscle. This causes brawny induration of the neck and upward displacement of the tongue, embarrassing respiration. The neck has to be incised and pus drained.

Chronic pharyngitis

Chronic inflammation of the pharyngeal mucosa is always caused by continuing irritation from another source—chronic sinus infection, chronic mouth breathing because of nasal obstruction, overuse of the voice in shouting and singing, smoking, spirit drinking, coughing, and repeated vomiting. Frequent attacks of acute infection may cause scarring, with enclosure of infected debris in the crypts, and intratonsillar abscesses. This in turn may produce chronic infection in the tonsils.

The offending irritation needs to be prevented, and if the chronically diseased state is harmful the patient may benefit from tonsillectomy.

Tonsillectomy and adenoidectomy

The risks of removing the tonsils and adenoids must be weighed against the disadvantages that the patient will continue to suffer if no operation is performed. The hazards of operation, particularly the risk associated with blood loss, are much greater in small children than in large children or adults because the total blood volume is much less. Much stronger reasons are therefore needed for operating on a child under 4 years or weighing less than 12 kg (blood volume 1 litre).

Indications for adenoidectomy alone

Adenoidectomy alone is indicated for mechanical reasons when enlargement: (a) causes nasal obstruction with mouth breathing during the daytime and recurrent sore throats because of the drying effect; (b) causes gross interference with palatal movement and speech development; (c) encroaches on the nasopharyngeal orifice of the Eustachian tube in secretory otitis media or recurrent otitis media. In all these cases preoperative assessment of adenoid size by a lateral radiograph of the soft tissue of the postnasal space is advisable.

Indications for tonsillectomy and adenoidectomy

Tonsillar enlargement is rarely so great as to justify tonsillectomy. Tonsils vary in size and in the extent to which they are visible within the pharynx because they vary in their relation to the pillars of the fauces. They normally enlarge after birth and remain enlarged throughout childhood. Tonsils may be considered abnormally large when they have swollen during an attack of acute tonsillitis and have not diminished after recovery.

Since adenoid tissue always shares in the infection, tonsillectomy should be accompanied by adenoidectomy (except in adults whose adenoids have atrophied). The commonest indication for tonsillectomy is recurrent attacks of acute bacterial tonsillitis. The critical number of attacks of tonsillitis depends on age. Viral infection is particularly common in children in their first two years at school, but after this tonsillectomy should be considered if there are three or four attacks a year for over two years. In adults repeated attacks of tonsillitis over more than six months or even one attack of a quinsy is a strong indication since further attacks are almost inevitable.

Tonsillectomy may be considered (a) in children with recurrent sore throats with lymphadenitis; (b) for recurrent acute suppurative otitis media; (c) for tuberculous lymphadenitis, which is usually associated with tuberculous infection of the tonsils; (d) in patients with a history of the systemic complications of haemolytic streptococcal infection; and (e) for the rare condition of chronic tonsillar infection in patients suffering from disorders such as psoriasis and immune complex disease affecting the eyes—removing the tonsils may improve the general disorder.

Hazards of operation

In general, dissection is preferable to guillotine extraction for removing the tonsils. Adenoid tissue is removed by curettes. Skilled general anaesthesia is essential, and most surgeons prefer to operate on patients who have been intubated as an added protection to the airway.

The main hazards of operation are: inhalation of blood during operation; respiratory obstruction due to laryngeal spasm immediately after the operation; postoperative haemorrhage; accidental damage to neighbouring structures; and emotional problems.

The most dangerous postoperative bleeding occurs in the first 24 hours after operation. Deaths have followed because bleeding has not been recognised owing to excessive sedation or because operative attempts to stop the flow have necessitated anaesthesia in a patient with a depleted blood volume and a full stomach. Secondary haemorrhage caused by infection of the tonsillar bed seven to 10 days after operation is much less dangerous.

Damage to the palate and uvula should not occur in skilled hands. Occasionally teeth may be chipped or displaced and the Eustachian cushion may be damaged by the curette. Theoretically the anterior surface of the cervical vertebrae and even the internal carotid artery are at risk.

It is undesirable to expose any young child to operation, but much of the emotional disturbance can be removed if the mother is admitted with the child.

In deciding whether or not to perform tonsillectomy and adenoidectomy the surgeon will find the history and the general practitioner's records more useful than examination. Not too much attention need be paid to the appearance and size of the tonsils: it is more important to try to distinguish between viral and bacterial causes of infection and to assess the severity of the disturbance.

The radiograph of abscess of the postnasal space is reproduced by kind permission of Dr J M Dawson.

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