Children's Disorders of the Throat and Ear

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Disorders of the throat and ear

Disorders affecting the throat and ear are among the most common problems of childhood, causing a great deal of upset to the child and anxiety to parents. This booklet aims to explain these problems and is offered as an aid to understanding for parents and a supplement to the discussions they may have with their family doctor. Do remember, however, that it can be difficult to determine exactly what is wrong with a child - especially a very young child - and it usually needs a doctor to come to an accurate diagnosis.

It is not possible to discuss the problems that affect one part of the body in isolation, there is inevitably a considerable overlap with problems affecting adjacent parts. The ears and throat are no exception and some of the disorders mentioned here originate in nearby areas such as the chest or nose. Young children have, on average, six "colds" each year and it is hardly surprising, therefore, that they also succumb frequently to secondary illnesses such as ear infections.

The throat

Before discussing the individual problems affecting the throat it is useful to look at a diagram of the head and neck showing where the various parts we will be mentioning lie in relation to each other, and giving some indication of their purpose.

Coughs and colds

the simple and not so simple varieties

Virus infections

All of us suffer from virus infections of the nose and throat from time to time and we are all familiar with the symptoms of sneezing, runny or blocked nose, sore throat, cough, and raised temperature. There are many different viruses which cause these infections and their variety means that lifelong immunity to "colds" is not possible as is lifelong immunity to specific virus infections such as measles or mumps. Some resistance to these infections may, however, be acquired as a result of frequent exposure to the viruses. Toddlers and young school children come into contact for the first time with a wide variety of viruses when their social contacts suddenly expand as a result of attending nurseries or schools and they are therefore liable to go through a time of frequent infections. This phase, though often troublesome and worrying to parents, should be regarded as a normal period in life during which the young person is "coming to terms" with the common viruses. Because of the large number of different viruses and their changing pattern (influenza virus, for instance, is notorious for its ability to undergo slight changes in its composition so that immunity to last year's virus does not mean immunity to next year's), immunisation against the common nose
and throat viruses is not possible. Immunisation against influenza is possible, however, provided that a vaccine is made against the prevalent virus very early in an epidemic. This immunisation is on a year to year basis and although it is not necessary for most children, those at particular risk of chest complications from influenza (children with cystic fibrosis, for instance) may be offered the vaccine.

**Upper respiratory tract infections**

Children with upper respiratory tract infections (often written URTI in doctors' "shorthand"; and some, usually younger, doctors, may even be heard referring to "urties") have the symptoms of a cold and are feverish, off colour, and may refuse to eat. Some, especially the very young, who may have particular feeding or breathing difficulties, may be admitted to hospital for observation and nursing but most children are looked after at home and recover spontaneously within a few days. They should be made comfortable, in or out of bed as they wish, encouraged to drink plenty of fluid (two to three pints a day for a toddler), not overheated, and may be given a medicine such as paracetamol to bring their temperature down.

**Antibiotics**

Because antibiotics do not help virus infections they are usually unnecessary. They should be reserved for bacterial infections such as ear infection (otitis media), tonsillitis, or pneumonia. After examining the child the doctor will decide whatever antibiotic treatment seems necessary or not. There is no good evidence that giving antibiotics to children with uncomplicated virus infections makes the illness shorter or less severe. Antibiotics may cause side effects such as a rash or diarrhoea; furthermore their frequent and unnecessary use may encourage the proliferation of resistant bacteria and constitutes an avoidable drain on NHS finances.

**Cough**

Most childhood coughs are an accompaniment of viral upper respiratory tract infections and are shortlived but, since frequent infections are common in young children, one episode may follow closely on another. A discharge from the nose is very common in young children and is usually due to either virus infection or allergy. When the child lies on his back the discharge will tend to run back into his throat causing irritation and cough - so called post-nasal drip. Two more persistent causes of cough are discussed next.

**Whooping cough**

A special kind of cough particularly likely to affect young children is whooping cough (caused by the bacterium *Bordetella pertussis*). Whooping cough begins as a cold with a cough. The cough becomes more severe with spasms lasting for a minute or so which make it difficult for the child to breath. There may be the characteristic whoop, and the child often vomits after a bout of coughing. The whoop is a high pitched noise made in the throat on breathing in after a coughing spell - cough, cough, cough, cough, cough ... w - h - o - o - p. It varies from child to child and in some, especially older ones, is not very noticeable. Whooping cough is a distressing illness and the cough may persist for several weeks. It is
most dangerous in young babies and that is why it is very important for a high percentage of the population to be immunised because a community in which most people are fully immunised will have very little whooping cough and therefore even young babies will be protected from the disease before they are immunised.

**Immunisation**

Whooping cough immunisation is effective and safe. A few years ago much publicity was given to the possibility that it might give rise to brain damage in some children. The fact is that this complication is very rare indeed and some leading child specialists still dispute that it happens. The best evidence at present available indicates that brain damage may occur at a rate of one in every 300 000 injections (or 1 in every 100 000 children receiving a full course of three injections). This, of course, is an extremely small risk (it means, for instance, that the average general practitioner immunising all the babies in his practice would see this complication about once every 1000 years!). Work in Japan has given promise of developing even safer vaccines and this research is proceeding in the UK and elsewhere. It must be remembered that the risk from the vaccine must be balanced against the risk from the natural disease. Whooping cough itself is considerably more likely to produce brain damage than is the vaccine.

**Contraindications**

There has been some confusion about when whooping cough immunisation should not be given. Everybody agrees that a reaction to a previous dose is a contraindication (that is a reason for not giving the vaccine), and immunisation is best deferred if the child is ill, though frequent colds and a running nose should not be allowed to defer things indefinitely. It is also agreed that allergy in either the child or relatives is not a contraindication. Thereafter British and American authorities have taken different views. In Britain the official contraindications to whooping cough immunisation are:

1. Convulsions or other signs of brain disturbance as a newborn baby.
2. Any convulsions or other brain disease in the child.
3. Epilepsy or other brain disease in first degree relatives (parents, brothers, or sisters of the child).
4. Slow development of the child.
5. Any feverish illness until the child is fully recovered.
6. Any severe reaction to a previous dose.

In the USA only an adverse reaction to a previous dose is recognised as a contraindication to further doses of the vaccine. Even a medical history of convulsions in the child (unrelated to immunisation) is not regarded by American authorities as an absolute contraindication though they recommend deferring immunisation in those circumstances. Whooping cough is a serious and distressing disease and in my opinion it is any child's best
interest to give the vaccine unless there is a very clear reason not to do so. Many British doctors tend to agree with the American attitude but feel bound to abide by the official British recommendations.

**Treatment**

Unfortunately there are few magic potions available to reduce the severity or duration of a bout of whooping cough! The doctor may prescribe antibiotics to reduce the severity of the cough and limit the infectiousness of the child but unfortunately whooping cough is difficult to diagnose in its early stages and medication must be taken early to do any good. Severely affected babies may be admitted to hospital so that oxygen can be given quickly if this is necessary and so that dehydration can be prevented. If the child vomits after coughing give him small meals and drinks afterwards - this will help ensure that he keeps some nourishment down.

**Asthma**

Some children with a persisting cough, especially troublesome in bed at night, later develop asthma and this is one of the most frequent diagnoses in children who attend hospital outpatient clinics because of a persistent night-time cough.

Asthma is a disease characterised by episodes of wheezing, that is a noise heard on breathing out due to narrowing of the air tubes, the bronchi and bronchioles. In children the disease is almost always due to allergy. There is often other evidence of allergy, such as eczema or hay fever, in the child or other members of the family. Asthma is very common - it is estimated that 10% or more of all children have it at some time. Most have only mild asthma and current treatment with bronchodilating drugs (which open up the bronchi by dilating the muscles in the lining) enables them to lead full and normal lives. Steroid drugs may be used if other treatments fail to stop further attacks. Many, but not all, children with asthma outgrow the disease in late childhood.

**The catarrhal child**

Catarrh is the name given to a clear, mucousy discharge, usually from the nose. As noted above, it is very common in young children. The two main causes are either frequent virus infections or an allergy which mainly affects the lining of the nose (chronic allergic rhinitis). If the discharge goes on continuously for a long time then allergy is the more likely, especially if the child or other family members have other allergic diseases such as eczema or asthma. (This particular type of allergy is referred to as atopy and the diseases as atopic diseases.)

**Allergy and the catarrhal child**

The cause of the allergy is often unclear or it may be due to a large number of different things. Many children seem to be allergic to a tiny mite found in normal bedding called the house dust mite. Attempts to limit the child's contact with house dust mites, such as regular damp dusting of the bedroom and vacuum cleaning of the mattress, are often advised especially for children with asthma but their effect on the child's symptoms may be
uncertain. In many people the allergy affecting the nose is clearly brought on at times when
the "pollen count" is high and then it is called hay fever. Catarrh may interfere with the
drainage of the middle ear and "catarrhal children" may therefore suffer from infections of
the middle ear (otitis media). Most catarrhal children improve greatly as they advance into
their school years.

**Tonsils and adenoids**

The tonsils and adenoids are composed of tissue called lymphoid tissue (similar to the
lymph glands found throughout the body) and they form part of the body's defence system
against infection.

**Tonsils**

The tonsils are easily seen in children as large round masses, one on either side at the
back of the mouth. In toddlers they are usually very large and may almost meet in the
midline. This is normal and the size of the tonsils is not of itself cause for concern. If the
child is otherwise well, very big tonsils may be regarded as normal. Very rarely large tonsils
and adenoids may cause problems because they obstruct breathing. Snoring and restlessness
at night with prolonged pauses in breathing and sleepiness in the mornings may be signs of
this obstruction. If you are worried by these symptoms have your doctor examine the child
to see whether there is cause for referral to a paediatrician or an ear, nose, and throat surgeon.
It must be emphasised, however, that most children whose tonsils look very large are quite
healthy and normal.

**Sore throats**

Usually a sore throat is simply a symptom of the common virus infection referred to
earlier (when the throat is examined the whole of the back of the mouth and throat looks red).
Treatment consists of giving a pain reliever such as paracetamol in liquid form and a light,
soft, or semifluid diet to ease swallowing difficulty. A small minority of sore throats are
caused by bacteria, particularly one type called streptococcus. In the past these infections were
feared because infection with one variety of streptococcus gave rise to scarlet fever and others
could be followed by rheumatic fever or inflammation of the kidneys (nephritis). Over the
past 30 or 40 years, however, there seems to have been a natural change in these diseases.
Scarlet fever is now rare in Britain and when it does occur is a very much milder disease than
that which used to cause serious illness in children in the 1930s and 1940s. Rheumatic fever
is also a rarity now, to the extent that most doctors who qualified in Britain within the past
20 years will never have seen a case. Nephritis does still occur but is not very common and
is not often due to infection with streptococcus. The risk of any child with a sore throat
developing any of these diseases in Britain in the 1980s is extremely small and routine
antibiotic treatment is not necessary. If infection with streptococcus is shown, however, a
course of penicillin will rapidly clear it.

**Tonsillitis**

Whereas in most sore throats the whole of the throat is inflamed, in tonsillitis the
infection is centred upon the tonsils. There is usually a severe sore throat, with difficulty
swallowing, and fever and the child looks and feels unwell. When the throat is examined the tonsils are reddened and there are small beads of white/yellow pus on them. Some of the spots of pus may run together to form a sheet. A white or grey film over the tonsils used to be seen in diphtheria but today, thanks to immunisation, that too is a disease which has almost disappeared. Nowadays a film or membrane over the tonsils is more commonly due to glandular fever.

Each area of the body has its own lymph gland defence system against infection. The lymph glands which protect the body against infection in the tonsils are situated below the angle of the jaw and these glands are often found to be enlarged in tonsillitis.

Tonsillitis may also be caused by virus infection but the likelihood of bacterial infection is greater than with a simple sore throat and most doctors will prescribe a course of penicillin to cut short an attack of tonsillitis. Occasionally a pocket of pus may form in the throat alongside one tonsil. This is called a quinsy or may be referred to as a peritonsillar abscess. It is very uncommon in children and more often affects adults. Treatment is with an antibiotic together with drainage of the pus and later removal of the tonsils.

Adenoids

Looked at under a microscope the adenoids are just like the tonsils. They lie at the back of the nose just above the roof of the mouth and cannot be seen without the special medical instruments used by ear, nose, and throat surgeons. Big adenoids may cause a blockage to the flow of air through the nose resulting in snoring or mouth breathing. They may also affect the ears causing inflammation or fluid accumulation in the middle ear. This is because large adenoids may press on the opening of the tube (eustachian tube) which connects the air filled cavity of the middle ear with the throat. If the eustachian tube is blocked the pressure in the middle ear falls, fluid accumulates, and infection may occur. Swallowing opens out the throat end of the eustachian tube and allows the pressure of air in the middle ear to equalise with that in the throat. That is why swallowing will usually relieve the sensation of "popping ears" which often happens when you climb or descend rapidly in a car or an unpressurised aircraft.

Removal of tonsils and adenoids

Removal of tonsils and adenoids is one of the most frequently performed of all operations. Many doctors believe that too many of these operations were done in the past. Although tonsils and adenoids are often removed at the same time, it is not necessary to do so and one may be removed without the other.

Tonsillectomy

Removing the tonsils does not prevent children getting frequent sore throats and virus infections. It can only stop tonsillitis. The main reason for the operation, therefore, is that the child is having unacceptably frequent attacks of tonsillitis. In young children frequent attacks of tonsillitis can be expected to become much less frequent and to stop with time and a policy of "wait and see" will often avoid operation. Although the operation is very safe and most children recover rapidly, bleeding from the site of the tonsils after surgery may occur and may
be difficult to stop. All ear, nose, and throat surgeons will have had experience of these difficult and worrying cases and that is why few wish to be pressured into performing the operation unnecessarily. Very rarely the operation may have to be done because of a quinsy or because of truly enormous tonsils which block off the throat.

**Adenoidectomy**

Removal of the adenoids is usually performed because of either blockage of air flow through the nose or middle ear problems as discussed above and in the section on otitis media and glue ear.

**The larynx**

The larynx is the voice box. The front part of it forms the Adam's apple in the neck. It contains a pair of horizontal folds which regulate the flow of air from the lungs in the production of speech. These are the vocal cords. Speech production, of course, does not depend only on the vocal cords - the lips, tongue, and palate are all important.

Above the vocal cords is a projection called the epiglottis which becomes inflamed in epiglottitis (see below). Below the vocal cords the larynx leads to the trachea (windpipe) and inside the chest the trachea divides into two bronchi which carry air to the lungs. The important symptom pointing to trouble in the larynx in children is stridor.

**Stridor**

Stridor means a shrill, high pitched noise made while breathing in. It is usually caused by narrowing of some part of the larynx (a noise on breathing out is usually due to asthma).

**Stridor from birth**

In some babies the walls of the larynx are soft and floppy so that it tends to collapse inwards when the baby breathes in - this is known as congenital laryngeal stridor, laryngomalacia, or simply floppy larynx. Usually the baby is well apart from the noisy breathing and the condition improves over the first 12 months or so as the larynx grows. In most of these babies no treatment is necessary. If the child's breathing is laboured or the stridor shows no sign of improving with time, the larynx will be examined, usually by an ear, nose, and throat surgeon, using an instrument called a laryngoscope. This procedure is called direct laryngoscopy. It needs a general anesthetic and the child will be admitted to hospital.

Occasionally babies with stridor dating from birth will not have the usual floppy larynx but some other cause such as an abnormality of the vocal cords, or a narrowing of the windpipe just below the vocal cords (called subglottic stenosis). The latter, if severe, may need an operation to widen the windpipe but this will often be deferred to allow growth of the windpipe to occur. In the most severe cases where the baby's breathing is badly impaired, the obstruction may need to be overcome either by passing a plastic tube through the mouth or nose past the point of obstruction (endotracheal intubation) or by making an opening through the neck directly into the windpipe (tracheostomy). These procedures are for the exceptional severe case. Most babies with stridor from birth do not run into trouble and
recover fully with time. If, however, the stridor suddenly increases and the baby's breathing becomes laboured he should be taken straight to the hospital so that the doctors can assess whether or not any further action is necessary.

**Stridor in toddlers**

Stridor coming on in a toddler or school age child is usually due to one of two things: infection in the larynx or a foreign body.

**Infection in the larynx**

**Croup**

Some children are prone to develop mild stridor during virus infections - often called croup. They are usually not very ill and quickly recover. In some cases allergy rather than infection seems to be responsible. Measles may occasionally start with stridor. In mild stridor placing the child in a hot bath may give relief by moistening the air he breathes.

**Laryngo-tracheo-bronchitis**

This more severe infection is usually caused by a virus similar to the virus of influenza. It is given this three barrelled name because in children the inflammation usually affects not only the larynx (laryngitis) but also the trachea and the bronchi. The start of the illness is usually relatively slow, over a day or two, and the child develops fairly severe stridor with an obvious noise and some difficulty in breathing. Stridor is clearly an alarming symptom and the child will be frightened. In all but the most mild and brief episodes a period of observation in hospital will usually be necessary but with general calm and some moistening of the air the child breathes, recovery can be expected within a few days. Because it is a virus infection antibiotics have no effect and usually further measures to overcome the obstructed breathing are not necessary.

**Epiglottitis**

Inflammation of the epiglottis is caused by a bacterium called *Haemophilus influenzae*. The symptoms are similar to laryngo-tracheo-bronchitis but more severe and much more serious. The illness comes on rapidly - within a few hours. The child develops severe stridor and quickly becomes very ill. There is a sore throat with difficulty swallowing and saliva may dribble from the mouth. There may be a cough. If untreated, epiglottitis may lead to total blockage of the larynx and the child may die; rapid diagnosis and treatment is therefore extremely important. All patients with epiglottitis must be treated in hospital. The larynx will be examined, usually under a short general anaesthetic in the operating theatre or intensive care unit, and if the diagnosis is confirmed by seeing a large red epiglottis, a tube will be passed down through the larynx allowing the child to breath freely. Antibiotics are given to treat the infection but once the airway is cleared the child will live and will recover over a few days. Occasionally there may be difficulty with inserting the tube and then it may be necessary to pass it through an opening in the trachea (tracheostomy).
Foreign bodies in the ear, nose, and throat

In the larynx

Stridor which comes on suddenly always raises the question, "has the child inhaled a foreign body?" The size and nature of the object will determine whether it stays in the larynx or passes down into the trachea, bronchi, or lungs. Peanuts are notorious for producing severe inflammation if inhaled into the lungs and the habit of throwing peanuts (or anything else) into the air and catching them in the mouth is extremely dangerous. Children should be prevented from doing it and those adults who demonstrate it to the children as a "party trick" are potentially putting the child's life at risk.

Choking

After any severe choking spell caused by food a child should be examined by a doctor especially if it is not clear that all the material responsible for the choking has been coughed up. Any symptoms after choking, such as a persisting cough or wheeze, make it essential that the child is examined as soon as possible.

Severe choking

Children (and adults) may "get something stuck" in the larynx causing complete blockage and inability to breathe. Unless the obstruction is relieved quickly the child's life is at risk. This emergency is dealt with as follows:

1. With a baby, lay him along your forearm with his chest held firmly in your hand. His head should be below his chest. Give him four light slaps on his back with your other hand.

2. Turn the child upside down over your knee (that is with his head down to the floor) and hit his back between the shoulder blades several times.

3. If the choking persists perform Heimlich's manoeuvre. This can be done in two ways:

   a. Put your arms around the child from behind joining your hands in front of his stomach like a bear hug. Then give a sharp pull into his stomach. The idea is to create enough sudden pressure to pop the object causing the blockage out through the mouth like a champagne cork.

   b. With the child lying flat on his back press quickly with the palm of your hand into his stomach to give the same effect.

   Excessive force may cause damage and the force necessary is less with a smaller child but this is an extreme emergency and you must do your best.

   Feeling for the foreign body by putting a finger to the back of the child's throat may occasionally be successful with a relatively large foreign body but may prove disastrous if the
obstruction is instead pushed further in. It should only be tried as a last resort after the methods described above have failed.

**In the ears and nose**

Young children are prone to get foreign bodies into strange places! Small objects such as beads, little balls of tissue paper, or the rubber tyres off toy cars may find their way into virtually any body opening.

Foreign bodies in the ear will cause deafness and pain in that ear. A foreign body in the nose will cause blockage to breathing through one side of the nose and a persisting discharge. A persistent discharge from one nostril, especially if it is streaked with blood, is very suggestive of the presence of a foreign body.

These objects often need considerable skill to remove and it is usually best done in an ear, nose, and throat department.

**Allergy affecting the ears, nose and throat**

Allergy is a particular kind of reaction of the body to substances found in the environment. It is very common and produces a wide variety of symptoms in different parts of the body. A substance which gives rise to allergy is called an allergen. Sometimes, especially when symptoms come on suddenly and quickly and are relatively short lived as for instance with the blotchy skin rash known as urticaria, there may be a single obvious allergen such as seafood, egg, or aspirin but often there are many possible allergens and it is not possible to put the blame on just one.

The most important diseases due to allergy in children are asthma, eczema, and inflammation of the lining of the nose (rhinitis). These diseases are known as atopic diseases. Often there may be several members of a family affected with the same or different diseases, for example a child may have asthma, his mother eczema, and an aunt or uncle rhinitis. All three disorders may occur in the same person and it is common for children to have both asthma and eczema. In some people they seem to alternate so that as one gets better the other gets worse.

**Rhinitis**

Rhinitis may be present all the year round (perennial rhinitis) or it may come only at a particular time of the year, usually in spring and early summer in response to grass and pollens, when it is called hay fever. Perennial rhinitis produces a constant discharge from the nose or blockage of the nose so that the child is always snuffly or has a runny or blocked nose. When the child lies down at night the discharge from the nose may trickle backwards into his throat and cause a troublesome cough. Hay fever is such a typical complaint that most sufferers are able to make the diagnosis themselves. A clear nasal discharge; frequent sneezing; and prickly, red, and watering eyes usually come on when the pollen count rises.
Treatment

The management of rhinitis of either kind is usually with antiallergy drugs taken either by mouth or as nose drops. The drugs most often taken by mouth are the antihistamines. The older antihistamines had the great disadvantage that they commonly caused drowsiness but some more recently introduced drugs of this kind are much less prone to do so. The nose drops used for allergic rhinitis are of several kinds. Some act quickly by shrinking the swollen lining of the nose. These can be useful to relieve blockage of the nose and to allow other kinds of nose drop or spray to get into the nose and work better. Their prolonged use, however, is unwise and they should be used for only one or two days at a time. Nose drops or nasal sprays used more long term to suppress the inflammation and swelling of the nose lining are of two kinds: disodium cromoglycate (Rynacrom) and steroid solutions such as beclomethasone (Beconase).

Structure of the ear

The ear consists of: the external ear (the pinna); the ear canal; the middle ear; and the inner ear. The ear drum is a thin membrane which separates the ear canal from the middle ear. The middle ear is an air filled space in the bone of the skull which contains a chain of three tiny bones called the hammer (malleus), the anvil (incus), and the stirrup (stapes). These little bones, or ossicles, transmit the sound vibrations from the ear drum to the inner ear. The space of the middle ear connects with the throat by means of the eustachian tube and also with air-containing spaces in the rounded part of the skull bone behind and below the ear called the mastoid air spaces.

The inner ear has two parts. One, called the cochlea, is the organ of hearing and it sends messages through the nerve of the ear (auditory nerve) to the brain where the final analysis and perception of sound takes place. The other part of the inner ear, called the labyrinth, is concerned with the preservation of balance.

Diseases of the ear

The pinna

The pinna may be small or an unusual shape. Ears which stick out from the side of the head (so called "bat ears") may cause the child to be teased at school and if necessary can be corrected by a plastic surgeon.

Small tags of skin in front of the ear at birth are called accessory auricles. They may be removed surgically or, if very small, a ligature of cotton is tied tightly round them so that they shrivel up and fall off within a few days.

The ear canal

The ear canal is lined with skin and may therefore be affected by skin problems such as eczema or boils. Infection in this part of the ear is known as otitis externa. There is often a fair amount of wax in the canal but in children this does not usually cause any problem and needs no treatment. Wax is a natural secretion with a cleansing function and normally reaches
the edge of the ear of its own accord. There is no need to wipe out children's ears with cotton buds; this may cause damage to the ear canal and can lead to compression of wax so that it does not escape from the ear.

**The middle ear - otitis media and glue ear**

Infection and inflammation of the middle ear is called *otitis media*. The middle ear is often mildly inflamed as well as the nose and throat in the common virus infections or colds. Severe inflammation centred on the middle ear, however, is often caused by infection with bacteria. Otitis media is common in children - especially those under 6, in whom the eustachian tube is relatively short and allows the easy spread of infections from the nose and throat. Older children will complain of earache and are feverish and generally off colour, while younger children may be unable to indicate that they have earache but may simply seem ill and feverish and may vomit. The diagnosis is made by the doctor examining the ear drum through an auriscope: in otitis media the drum looks red and bulging. Otitis media may occur as a complication of measles.

Most cases of otitis media recover after a few days without treatment but a pain relieving drug such as paracetamol should be given. Most doctors will prescribe an antibiotic, though some believe that it makes little difference to the outcome. A small cut used to be made in the ear drum to relieve the pressure in the middle ear (the operation called myringotomy) but this is not commonly performed nowadays. If there is a discharge of pus from the ear then the ear drum must have ruptured. Usually it will heal quickly but sometimes infection may persist (chronic otitis media) and there may be long standing (chronic) perforation of the drum. Chronic otitis media usually needs the special skills of an ear, nose, and throat department for its management. After an episode of otitis media the child's hearing should be checked to make sure that it returns to normal.

Recurrent otitis media raises the question of adenoid enlargement. It may also occur in children with a cleft palate.

*Glue ear* (sometimes called secretory or serous otitis media) is also common in young children. The middle ear cavity contains a clear, sticky fluid. The only symptom of glue ear is hearing loss and treatment is aimed at re-establishing the child's hearing. The hearing, however, often comes and goes irrespective of treatment.

Medical treatment is with decongestant medicines and nose drops to reduce any swelling of the lining of the nose and throat and to keep the eustachian tube open so that the fluid can drain from the middle ear cavity and be replaced with air. Surgical treatment is usually to drain the middle ear by making an incision in the ear drum (myringotomy) and inserting a small plastic tube (grommet) through the drum to allow continuing drainage. The ear, nose, and throat surgeon will decide whether removing the adenoids would help. Grommets usually drop out after a few months allowing the drum to heal.

There has been a large increase in recent years in the number of operations performed for glue ear. Some doctors are beginning to feel that perhaps the operation has become too popular. The fact that glue ear may often get better without treatment means that it is important to be as sure as possible that the operation is necessary. Persisting hearing loss
causing delay in speech development, frequent inattention, or problems at school are reasons for considering operative treatment after medical treatment has failed to improve matters but a rush into surgery too soon should be avoided. No operation needing a general anaesthetic should be done unnecessarily, although modern anaesthesia is very safe, and there is a worry that in some cases the insertion of grommets may be followed by permanent scarring of the drum. There is, nevertheless, no doubt that many children have benefited from the procedure. Like all medical decisions it is a matter of balancing the pros and cons. On the one hand, no one wishes to perform unnecessary operations and on the other, everybody wishes to see that the operation is offered to those children who have a persisting, serious hearing loss and who would benefit from it.

Some doctors ban swimming in children with grommets but more allow this provided ear plugs and a bathing cap are worn. Diving and jumping into the water are forbidden, however, as these could cause water to enter the middle ear through the eustachian tubes.

The inner ear

Problems arising in the inner ear are much less common than those in the middle ear. Hearing loss originating in the inner ear is called nerve deafness, that originating in the middle ear is conductive deafness. Some babies are born with abnormalities of the inner ear causing deafness. Rarely, in children, the nerve of hearing may be affected by disease such as meningitis or a tumour of the nerve and some drugs can cause damage to the nerve.

Labyrinthitis is a virus infection of the part of the inner ear affecting balance. The onset is usually fairly sudden with fever, dizziness, and vomiting but usually complete recovery occurs after a few days. It is uncommon in children.

The normal development of hearing and speech

Babies can hear at birth, in fact they respond to sound before they are born. Testing the hearing of newborn babies is, however, unreliable since the baby's response is limited and variable. Usually there will be a quietening or a startle to fairly loud sounds. A device which records and analyses the baby's breathing pattern in response to sound (the auditory cradle) has been developed recently but it is not widely in use.

A baby begins to smile when spoken to at about 6 to 8 weeks and to coo and gurgle shortly after. At 3 or 4 months he will turn his head to look at the source of a sound at the same level as his ear. Turning to sounds above and below the ear comes slightly later. The baby begins to say double syllables - da da, ba ba - at about 8 months and by 12 months has two or three proper words. It is important to distinguish between da da as a baby noise and dada applied with meaning to his father. During the second year the child gradually picks up more single words and at about 2 years he will begin to put words together into simple sentences.

All babies should have their hearing tested. This will usually be done by the health visitor at the local baby clinic at about 6 or 7 months. If at any time you are worried about your child's hearing or speech, do ask for his hearing to be tested.
Some children are more likely than others to have hearing loss, for instance those born with abnormal ears or with a cleft palate, those who are very premature or very ill at birth, those who have had meningitis at any time, and those whose development is slow in other respects. These children will often be attending a hospital paediatric department and progress in general will be checked from time to time as well as their hearing and speech.

Children cannot learn speech unless they hear it and it is important to speak to your baby constantly. If your child's speech development seems slow have him checked at your local baby clinic. Most health districts now have child development centres or children's care and assessment units, often attached to the district hospital paediatric department where a more detailed assessment of development, including speech and hearing, may be done when necessary. Some very intelligent children with normal hearing do not speak until they are 3 or 4 years old but it is important to have a full assessment of any child whose speech development is slow so that any necessary remedial action can be undertaken as soon as possible. Remember, a baby can wear a hearing aid as early as 6 months.

**Hearing tests**

Routine tests on babies at about 6 to 8 months are usually done by the health visitor with a special high tone rattle and her own voice using high pitched sounds (pss) and low pitched (ooo). In older children more complex methods of testing using either voice or a sound producing machine (audiometer) are used. The further assessment of more complex problems in children with hearing loss may mean being referred to an ear, nose, and throat surgeon and include special tests such as tympanometry (assessing the movement of the ear drum when varying pressures are applied to it) and special electrical tests such as auditory evoked response when the electrical response of the brain to sound is recorded.

**In conclusion**

As I have already stated, disorders affecting the throat and ears are extremely common in children - especially younger ones. Parents of children who seem to succumb readily and frequently to these ailments may begin to worry that their child is more often ill than well and will probably still be suffering from bouts of otitis media when he goes for his first job interview. Do not despair! Most of the problems discussed in this booklet will resolve with age and, hard to accept though it may be, are simply a normal if difficult part of growing up.