ABC of ENT

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PAIN IN THE EAR

Inflammatory causes of pain in the ear are evident from inspecting the external ear and tympanic membrane. Injuries to the pinna with haematoma are obvious from the history. Perichondritis of the pinna is a rare complication of injury, usually surgical.

Acute otitis externa

Acute otitis externa may be a diffuse inflammation or a furuncle. A furuncle is a very tender swelling in the outer ear canal (there are no hair follicles in the bony meatus). Hearing is impaired only if the meatus is blocked by swelling or discharge, and fever occurs only when infection spreads in front of the ear, as cellulitis or erysipelas. Tender enlarged nodes may be palpable in front or behind the ear, but the tenderness is superficial, unlike the tenderness on deep pressure in acute otitis media. The pinna is tender on movement, which, again, does not occur in acute otitis media. Any discharge is thick and scanty, unlike the copious mucoid discharge of middle ear infection.

Acute otitis media

Acute otitis media causes deep-seated pain, deafness, and usually systemic illness with fever. The sequence of symptoms is a blocked feeling in the ear, pain, and fever, followed by discharge if the drum head perforates, with relief of pain and fever. Since the whole middle ear cleft is affected there is generally tenderness on deep pressure over the mastoid antrum; this does not imply mastoiditis. Diagnosis is made by inspecting the tympanic membrane, but this may be prevented by wax or swelling from a secondary otitis externa. Only if the whole drum is normal and there is no conductive hearing loss can otitis media be excluded. Lymph nodes in front of and behind the ear are never enlarged in simple otitis media.

Acute mastoiditis

Acute mastoiditis is caused by breakdown of the thin bony partitions between the mastoid air cells—a process that takes two or three weeks. During that time, from the onset of acute otitis media, there is continuing and increasingly copious discharge through a perforation in the drum. If a patient has pain a few days after the drum has been reliably shown to be normal then he cannot have developed mastoiditis. The difficulties arise when acute otitis media is thought to have recovered but has in fact “grumbled” on; sometimes, because of systemic antibiotics, this may have occurred with very little systemic illness. Mastoiditis should be suspected in any patient with continuous discharge from his middle ear for over 10 days, particularly if he is feeling “under the weather.”

Radiographs of the mastoid may help, but not always. Only if they show a clearly aerated normal cell system can mastoiditis be excluded. The classical appearance of breakdown of intracellular trabeculae is not always seen. Otitis externa may cause haziness of the cell system because of oedema of the soft tissues over the mastoid. The classical swelling behind the ear with downward displacement of the pinna implies a subperiosteal abscess, which is a complication rather than a feature of mastoiditis. A subperiosteal abscess can, by erosion of the outer attic wall, cause swelling in the deep part of the ear canal, in contrast to a furuncle in the outer part. If doubt persists after mastoid radiography surgical exploration may be necessary.

Secretory otitis media

Niggly short-lasting pain is characteristic of “glue ear.” The drum looks abnormal because of the effusion. Classically there is injection with noticeable radial vessels, which may prompt a misdiagnosis of otitis media. The colour may be yellowish or sometimes blue. The child is well and afebrile, however, and the associated hearing loss has usually been recognised for some time.

Other causes of pain

Bullous myringitis is an uncommon cause of severe pain. Viral (probably influenzal) infection causes haemorrhagic blistering of the ear drum and external ear canal. There may be an associated haemorrhagic effusion in the middle ear and it may be difficult to distinguish this condition from otitis media.

If there is no inflammatory ear disease and no disease in sites from which pain might be referred to the ear (see below) remaining possibilities are glossopharyngeal neuralgia, migrainous neuralgia, or psychogenic pain. Glossopharyngeal neuralgia is severe lancinating pain in the throat and ear triggered from one or more points in the oropharynx. Tympanic neuralgia produces the same severe stabbing pain with no throat symptoms.

Often no cause can be found for the pain, and then it may be due to, and relieved by treatment for, depression.

Referred pain

If the ear canal and drum are normal and there is normal movement of the drum on examination with a Siegle's speculum pain is not due to disease of the ear. It is probably referred from territory sharing sensory innervation with the outer or middle ear. Pain may be referred from:

the oropharynx (IXth nerve) in tonsillitis or carcinoma of the posterior third of the tongue;

the laryngopharynx (Xth nerve) in carcinoma of the pyriform fossa; upper molar teeth, temporomandibular joint, or parotid gland (Vth nerve mandibular division). Parotid causes are usually obvious: impacted wisdom teeth may not be. Temporomandibular joint troubles often follow changes in bite caused by new dentures, extraction, or grinding down;

the cervical spine (C2 and C3). Pain is often worse at night when the head lies awkwardly. Neck support often provides relief, as does a neck pillow under the side of the neck at night.

Treatment of acute otitis externa

Systemic antibiotics are useful in acute otitis externa only when there is a systemic illness with fever or lymphadenitis, and occasionally in multiple furunculosis. Normally meatal swelling must be reduced by inserting a ribbon gauze wick painted with a deliquescent substance such as magnesium sulphate paste or glycerine and 10% ichthammol. The wick needs replacing daily until the swelling has subsided, which is often accompanied by discharge of the core of the furuncle. (Rarely a furuncle may need incision.) Aural drops may then be used—either aluminium acetate to “toughen” the skin or topical antibiotics such as gentamicin, framycetin, or neomycin, combined with steroids. Pain is relieved by systemic analgesics, together with warmth, applied through a hot pad or radiant heat lamp. Recurrent furunculosis may indicate diabetes.

Treatment of acute otitis media

Systemic antibiotics must be given for acute otitis media, and penicillin is the drug of first choice. Injection of at least the first dose is advisable in patients who may not take drugs reliably. A course should be for five days and not abbreviated because of apparent recovery. Supplementary treatment includes pain relief by analgesics and warmth. Warm olive oil drops may be soothing but nasal decongestants have no proved role. If the drum perforates the ensuing discharge may be cultured, but an antibiotic should be changed on clinical and not solely bacteriological grounds. Rarely the drum may bulge under pressure, without rupture; this would be an indication for myringotomy under general anaesthesia.

Recurrent otitis media may be encouraged by predisposing causes such as persisting middle ear effusions. If this is so then myringotomy with insertion of a grommet is advisable. Occasionally recurrent otitis media may be associated with recurrent tonsillitis, and tonsillectomy might be considered. Similarly, adenoid enlargement and recurrent infection may be predisposing factors but the role of adenoidectomy is controversial. Without predisposing factors each attack must be treated as it arises. After an attack a return to normal should be expected and confirmed within three weeks.

Otitic barotrauma (aerotitis)

A patient can avoid the risk of aerotitis during descent in an aircraft by not travelling with an upper respiratory tract infection or hay fever. Valsalva's manoeuvre—pinching the nose with finger and thumb and blowing hard down it—should be taught. If this works the patient will feel his ear “pop.” If the manoeuvre does not work the doctor should first check that the patient is blowing through his nose and not his mouth. He should ask the patient to blow and then suddenly remove the pinching digits; the ensuing explosion should be through the nose. If he can execute Valsalva's manoeuvre properly the patient should do it during descent as soon as he feels a change in pressure and should repeat the procedure every few seconds whenever the sensation returns; it must not be left until the tube becomes irreversibly blocked. This procedure will prevent barotrauma. Decongestants may also help to clear the Eustachian tube. An antihistamine should be taken the day before and on the day of the flight every six to eight hours. During the flight a spray such as xylometazoline is useful. This should be sprayed into the nose one hour before the expected time of arrival and every 20 minutes thereafter. The first spray should be followed a few minutes later by another, when the anterior part of the mucosa will have shrunk, to allow the droplets access to the nasopharynx.

The only guaranteed way of preventing barotrauma is to insert a ventilation tube through the ear drum. This may be advisable for people at risk who have to fly. Patients with middle ear effusions or unresolved otitis media should not fly.

To treat otitic barotrauma the patient needs only analgesics and reassurance. If an effusion persists for more than 10 days a myringotomy may be advisable but need not be considered in the first few days. Systemic antibiotics have no useful role.

Treatment of injury to the outer and middle ear

Injuries to the pinna may cause haematomas, which, if repeated and untreated, lead to cauliflower ears. After injury to the outer or middle ear the meatus is usually obstructed by a blood clot. The ear drum need not be examined immediately, but it is wise to assume that it has been perforated and to warn the patient to prevent water from entering. If a foreign body is suspected referral for examination under anaesthetic may have to be considered. With no fever or foreign body antibiotics are not needed, and if there are no complications such as vertigo, facial palsy, or leaking cerebrospinal fluid there is no immediate need to assess the hearing. Perforation of the ear drum or conductive deafness due to ossicular damage may need elective surgery, but its discovery can wait until the clot has been extruded and the ear can be examined under the operating microscope. Most traumatic perforations heal spontaneously and operative repair should not be considered until the ear has had six weeks' opportunity to heal.

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