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A Handbook *of* Emergencies

NINTH EDITION



Aspi F Golwalla
Sharukh A Golwalla

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CHAPTER

3

Emergencies in Ear, Nose and Throat

Foreign Bodies in the External Auditory Canal

The variety of foreign bodies (FBs) encountered in the external canal is legion. Pins and match-sticks, buttons, marbles, vegetable foreign bodies like seeds, and even small insects like cockroaches, fleas, and bugs have found their way into this small canal.

Causes

1. Most commonly seen in children, especially beads, grain, etc.
2. Match-sticks, etc. in adults while cleaning the ear.
3. Live insects—crawl in during sleep.

Symptoms and Signs

1. May be symptomless.
2. Anxiety on the part of parents and relatives.
3. Pain and discomfort due to trauma of foreign body or attempted removal or swelling of a vegetable foreign body with inflammatory reaction of the skin of the external auditory canal or live insect moving and crawling against the drum.
4. Conductive deafness due to blocking or trauma to the drum.

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Management

Unskilled, untimely efforts cause more damage than the foreign body itself.

1. *Inspect:* Confirm presence, size, nature of foreign body and inflammatory reaction from skin if any. Analgesics like diclofenac sodium, ibuprofen or valdecoxib. Chymotrypsin (e.g. Alfapsin) or Serratiopeptidase (e.g. Bidanzen) may be started prior to removal of FB.
2. Gently syringe with lukewarm water, head tilted to affected side to dislodge and drive the FB out of the canal. Syringing should be avoided in case of large vegetable foreign body as it may absorb the water and swell. It makes the future removal more difficult. It should also be avoided in case of tear of the drum.
3. Removal with forceps is difficult especially if FB is round.
4. *Foreign body hook:* Introduce with its side against the wall of the canal (usually superior, sometimes anterior or posterior wall) and on passing beyond the FB, rotate it to bring the hook behind the foreign body. Now gently dislodge the foreign body and extract it.
5. If the FB is impacted or initial attempts fail, or if the child is very uncooperative, removal under microscope under sedation, general anaesthesia is warranted. Discretion rather than tenacity is preferable.
6. *Live FB:* First kill with luke warm oil or spirit and then remove by syringing.

Furunculosis of the External Auditory Canal

It is a circumscribed infection mainly confined to the cartilaginous portion of the external auditory canal involving a hair follicle and a sebaceous gland. It may be single or multiple or associated with generalized furunculosis. The most common organism is *Staph. aureus*.

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Symptoms and Signs

1. Pain—severe, increases in intensity (pain is due to tension in the dense and minimal subcutaneous tissue present in this area).
2. Swelling of the external canal.
3. Fever.
4. Tenderness on passive movements of the pinna or pressure on the tragus.
5. Discomfort on opening the mouth, sometimes trismus.
6. Pre- or post-auricular lymph nodular swelling, rarely abscess.
7. Deafness (conductive).
8. May be complicated by a perichondritis, chondritis.

Note: Absence of mucus in the discharge helps to differentiate it from otitis media and mastoiditis.

Note: Hearing may be normal or minimally affected. This helps to differentiate it from an acute otitis media with mastoiditis.

Differential Diagnosis from Acute Mastoiditis

Furuncle	Acute mastoiditis
Pinna pushed outwards and downwards	Pinna pushed outwards
Tragal tenderness, pain on pulling the pinna	More tenderness over mastoid antrum and tip
Minimal or no discharge in external canal	Rapid filling of mucopurulent discharge in the canal
Hearing normal or minimal, conduction deafness	Significant conduction deafness
X-ray of mastoids normal	Clouding or necrosis of septa of air cells on X-ray

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Management

Local

1. Clean the external canal.
2. Keep gauze wick soaked in glycerine ichthammol in the canal. It is both antiseptic and hygroscopic. Keep changing the wick every day.
3. Local antibiotic ear drops alone or with a steroid (hydrocortisone) may be used.

Systemic

1. Antibiotics.
2. Analgesics.
3. Short course of oral steroids in nonresponding cases.
4. Incise only if the furuncle is pointing.

For recurrent furuncles: Investigate for immuno compromised status, e.g. diabetes, human immunodeficiency virus (HIV).

Malignant Otitis Externa

It is a condition characterised by severe pain and inflammation in the external ear which occurs mainly in diabetics and immunocompromised patients.

It is now not considered as a localised disease but as a form of ostitis extending to the skull base.

Diagnosis

It is confirmed by computed tomography (CT) scan which shows features of osteomyelitis. Magnetic resonance imaging (MRI) is also required in case of cranial nerve deficits or suspicion of CNS involvement.

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Management

Management is necessarily aggressive and involves hospitalisation, IV antibiotic therapy for a period of 4–8 weeks.

In the initial stages, ciprofloxacin, cephalosporins (or ceftazidine or clindamycin) and tinidazole and anti-inflammatory drugs help together with control of diabetes.

Surgery is required in case with granulation, facial nerve palsy and increasing osteomyelitis. Mastoidectomy, facial nerve decompression, facial nerve grafting is needed if the continuity of nerve is broken.

Patient with prolonged facial palsy needs VII-XII cranial nerve anastomosis (facial-hypoglossal).

Traumatic Perforation of the Eardrum

Etiology

1. By pins or sticks put in the ear, for cleaning the ear, removing foreign bodies.
2. Trauma due to a slap over the ear.
3. Blast injury.
4. Barotrauma.

Symptoms and Signs

The patient has (a) pain, (b) deafness, (c) bleeding from the ear, and (d) tinnitus. The eardrum shows an irregular tear with blood on the edges of the tear.

Treatment

1. Prevent infection: (a) Sterile cotton swab in the external canal. (b) Ear drops to be avoided. (c) Antibiotics.
2. Analgesics.

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3. Waitful watching for small tears. Under microscope with suction, inverted margins of perforation must by everted. It helps in fast healing by avoiding the epithelium to role under the perforation margin.
4. Large tears may require myringoplasty.

Bleeding from the Ear

Causes

Can occur due to the following causes—

1. Injury to external canal or drum.
2. Fracture of the base of the skull, trauma to temporomandibular joint.
3. Middle ear infection with granuloma or polyp formation.
4. Hemangioma and glomus tumor of middle ear and mastoid.
5. Hemorrhagic bullous myringitis.

Treatment

1. Surgical Gelfoam pieces can be used if necessary to pack the external auditory canal.
2. Prevent infection by systemic antibiotics and keeping the ear dry and protected with a sterile cotton swab in the external canal.
3. Find the cause and treat it.

Acute Otitis Media

(Inflammation of the lining of the middle ear cleft.)

Symptoms and Signs

In the exudative stages—

1. Otalgia due to increased pressure in the middle ear
2. Conductive deafness

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3. Fever
4. Tinnitus or autophony
5. Commonly preceded by upper respiratory tract infection (URTI)
6. The drum appears congested and bulging and its normal luster and landmarks are lost.

Management

1. Nasal decongestants (xylometazoline, etc.).
2. Avoid local fomentation and ear drops in early stages.
3. IV systemic antibiotics may be required if response is poor and drum is bulging.
4. Analgesics.
5. *Myringotomy:* If drum bulging and no response to parenteral antibiotic therapy after 24–48 hours.

Acute necrotic otitis media is a variant of acute otitis media and follows measles infection. There is destruction of tympanic membrane and annulus resulting in large subtotal perforations. Due to annulus destruction they go into chronic suppurative otitis media (CSOM) and secondary cholesteatosis.

Glue ear, also called secretory or serous otitis media is a collection of fluid that is often glue-like, in the middle ear.

Acute Mastoiditis and Mastoid Abscess

(Inflammation of the lining of the mastoid air cell.)

Symptoms and Signs

1. Of acute otitis media with mastoid tenderness.
2. Pinna is pushed downward, and outwards.
3. Post-aural abscess. The abscess may sometimes present in the neck, deep to the sternomastoid

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(Bezold's abscess) or under the temporalis muscle, or in the external canal. Rarely, it may track medially.

Management

1. Incise and drain the abscess with subsequent/concomitant mastoid surgery.
2. Antibiotics, ear drops.
3. Analgesics and antipyretics.
4. Treat URTI.

Earache

Etiology

Pain in the ear may sometimes be excruciating and therefore the treatment must be immediate. This pain can be due to (a) Local causes—external otitis, tympanic membrane injury, foreign body in the ear canal, impacted wax, otitis media. (b) Referred otalgia from—toothache, temporomandibular joint dysfunction, pharyngeal and laryngeal inflammation or neoplasm or glossopharyngeal neuralgia or stylagia.

Management

Depends on the cause.

Sudden Deafness

Definition

Sudden deafness is defined as a sensorineural hearing loss occurring over a period of hours or a few days. It may be unilateral or bilateral, transient or permanent, and may also vary in severity.

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Causes

The cause of sudden deafness may be anyone of the following:

1. Traumatic—accidental or operative.
2. Viral—mumps, influenza, measles.
3. Vascular—thrombosis, embolism, hemorrhage into the labyrinth, vasospasm, hypercoagulation.
4. Acute acoustic trauma.
5. Sudden pressure changes, leading to rupture of Reissner's membrane.
6. More recently recognized condition of spontaneous fistulization at the oval window or round window.
7. Following toxic drugs.
8. Sudden hemorrhage in vestibular schwannoma (VIII CN tumor).

Symptoms and Signs

The patient usually has deafness of varying degrees and tinnitus. Vertigo with nausea and vomiting may or may not be present. Associated symptoms like pressure in the ear, fever and headache may be experienced.

Management

Various forms of treatment have been advocated by different workers. The therapy currently in vogue includes:

1. Bed rest.
2. Sedation.
3. Vasodilators—cyclandelate or xanthinol nicotinate 200 mg tds with dipyridamole (Persantin) 25 mg tds, cinnarizine 25 mg tds to improve labyrinthine circulation, betahistidine hydrochloride 16 mg tds.
4. Carbogen (5% CO_2) therapy—inhalation of carbogen 5 minutes in one hour is supposed to increase blood

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flow to inner ear by vasodilatation. This reduces chance of permanent damage to the ear.
5. Corticosteroids.
6. Vitamins.
7. In cases of spontaneous perilymphatic fistula, a tympanotomy and sealing of the fistula is the best treatment.
8. Rehabilitation with hearing aids in case of moderate to severe deafness, unilateral profound deafness, bone anchored hearing aid (BAHA). For bilateral deafness—Cochlear implant if auditory nerve is functioning. In non-functioning auditory nerve, auditory brain stem implant is a hope.

Meniere's Disease

Characterised by recurrent attacks of vertigo associated with deafness and tinnitus and ear fullness.

Acute Attack

Symptoms and Signs

1. Vertigo—dominating symptom.
2. Sensori-neural deafness.
3. Tinnitus.
4. Fullness in the ear.
5. Spontaneous nystagmus.
6. Nausea and vomiting, cold sweat. May be a single attack lasting for minutes to hours or cluster of attacks.

Management

1. Salt restricted diet.
2. Anticholinergics—atropine 0.8 mg subcutaneously.
3. Labyrinthine vasodilators—drugs like cinnarizine improves the circulation in the cochleo vestibular

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region and thereby brings about improvement in the symptoms. Dose 25 mg tds to 75 mg tds. Beta-histine on the other hand improves vascularity in the central areas of the brain concerned with equilibrium thereby having a prolonged effect. Dosage 8–16 mg tds for 2–3 weeks.

If the attack is prolonged, stellate ganglion block may give dramatic relief.

4. Sedatives—phenobarb or chlorpromazine hydrochloride (25 mg tds orally or 25 mg IM). Diazepam, about 5–15 mg may be given IV, titrated to the patient's response.
5. Labyrinthine sedatives—betahistidine 25 mg tds or cinnarizine or prochlorperazine 5 mg bd for prolonged period.
6. Transtympanic gentamicin therapy is useful in patients with serviceable hearing.
7. Surgical treatment—labyrinthectomy is advised for nonserviceable hearing.
8. Once acute attack is over, vestibular rehabilitation exercises to be taught to the patient.

Epistaxis

Etiology

The etiology of epistaxis is varied. It may occur due to trauma, infections—acute and chronic; specific and non-specific, benign or malignant tumors of the nose, paranasal sinuses, or nasopharynx. It may also occur due to generalized disorders like hypertension, atherosclerosis, coagulation disorders, chronic hepatic disease, etc.

Spontaneous epistaxis often occurs from the Little's area. It may be a minor bleed but sometimes may be profuse and exsanguinating.

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Management

Arrest of bleeding—if not arrested spontaneously:

1. Press the nostrils together between thumb and index finger with patient bent forward over a kidney tray. This helps to arrest bleeding from the anterior part of the nose.
2. Cauterize the bleeding point if possible, with chemical or cautery.
3. If bleeding point cannot be located, then pack the nostrils with a ribbon gauze soaked in antibiotic or antiseptic ointment or vaseline. Remove after 48–72 hours. Doyle's tampon can be used instead of anterior nasal pack, it is less traumatic to insert.
4. For post-nasal bleeding, do a post-nasal packing with pack prepared from folded gauze. Post-nasal packing can however be easily done with a Foley's catheter. The catheter is introduced through the nostril and the balloon is inflated and impacted in the nasopharynx. Nowadays Merocel stents are available in different sizes to deal with epistaxis and these reduce the discomfort caused by packing.
5. If above measures fail, then the ligation of either the ant. ethmoidal, or int. maxillary or ext. carotid artery.
6. Concurrently, rule out bleeding and coagulation disorders, and hypertension. Look for a local pathology like a benign or a malignant tumor and treat if present. In short treat the cause.
7. Replace the blood loss and treat the shock.

   If no obvious cause is found, diagnostic nasal endoscopy and/or CT scan may be necessary to rule out a neoplasm.

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Foreign Body in the Nose

It is encountered most commonly in children.

Symptoms and Signs

1. Nasal blocking.
2. Bleeding.
3. Unilateral foul nasal discharge.
4. The foreign body is usually easily visualized on anterior rhinoscopy.

A foreign body of some duration covered with discharge and slough, may mimic nasal diphtheria.

Management

With proper visualization the foreign body can be easily removed with a blunt probe or a Eustachian catheter. Put the probe beyond the foreign body and gently drag the foreign body out. It can also be removed with a pair of forceps, but this maneuver may accidentally push the foreign body further back. General anaesthesia (GA) should be used if the foreign body is impacted or if the patient is uncooperative. Nasal endoscope is used for deep seated or missing foreign bodies.

A neglected foreign body will lead to rhinolith formation.

Cerebrospinal Fluid Rhinorrhea

Etiology

1. Fracture base skull.
2. As a complication of surgery on the ethmoid and sphenoid sinuses, and transnasal hypophysectomy.
3. Spontaneous.

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Symptoms and Signs

1. Presents as clear watery discharge from the nose, increasing on bending forwards, compression of the internal jugular vein and by doing Valsalva maneuver.
2. The patient may have a history of repeated attacks of meningitis.

Diagnosis

(a) Glucose test—cerebrospinal fluid (CSF) contains glucose, mucus nasal discharge does not. (b) Stains on handkerchief—mucus leaves a crusted stain, CSF does not and target halo is formed. (c) Fluorescein radiography—to locate exact site of CSF leak. (d) Nasal endoscopy may help determine site of leakage.

Management

1. Patient in bed with head end raised.
2. Avoid nose blowing.
3. Avoid nasal packing.
4. Antibiotics.
5. Repeated lumbar punctures.
6. Leak may be detected and repaired endoscopically.

Fracture of Nasal Bone

Etiology is always traumatic.

Symptoms and Signs

Deformity of nose is clearly visible in fresh cases. After few hours, deformity is less or not visible due to oedema or haematoma.

Nose or oral bleed is also present.

Diagnosis is clinical, CT scan is must to look for any associated trauma to skull base, brain or maxillofacial area.

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Management

In fresh cases (< 4 hr of injury) immediate reduction of nasal bone under sedation or GA.

In old cases, treat medically till the swelling subsides with non-steroidal anti-inflammatory drugs (NSAIDs) and serratiopeptidase. Once oedema is gone then do the reduction of nasal bone.

Laryngeal Emergencies

Any laryngeal obstruction can result in a rapid death.

Causes

The obstruction to the larynx and a stridor may be due to various factors:

1. Trauma to the larynx, internal or external.
2. Foreign bodies in the larynx and subglottic region.
3. Oedema of the larynx from laryngeal infection, abscesses of the larynx and around the larynx, angioedema.
4. Benign and malignant new growths of the larynx.
5. Congenital—laryngomalacia, laryngotracheal stenosis and malformations.
6. Neurological conditions like bilateral abductor paralysis.
7. Tetanus.

Management

1. Prompt recognition and assessment of the critical airway obstruction.
2. Non-surgical manoeuvres to relieve obstruction, i.e. removal of foreign body or positioning and supporting the airways to prevent obstruction by soft tissues. This is achieved by extending the neck, pushing the mandible upwards and forwards, heliox inhalation steroid.

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3. Establishment of airway by tracheostomy. When tracheostomy is not feasible due to absence of the required instruments or personnel, airway can be maintained by a laryngotomy (cricothyroidostomy) or by a wide bore needle pushed through the cricothyroid membrane.
4. Treatment of the cause.

Cafe Coronary

Accidental aspiration of a bolus of meat into the larynx in elderly subjects with slowed reflexes under the influence of alcohol. Heimlich manoeuvre is employed to dislodge the aspirated foreign body—the doctor stands behind the patient and grasps him, making a fist with one hand and clasping it with the other hand so that the fist lies thumbside against the victim's upper abdomen. The fist is then pressed sharply into the abdomen just below the sternum with a quick upward thrust. This manoeuvre can be repeated several times if necessary. If the victim is sitting, the doctor simply stands or kneels behind the chair and follows the same procedure.

Foreign Body in the Bronchus

Etiology

Foreign bodies in the bronchus are encountered usually in children. The commonly encountered ones are groundnut, gram and maize seeds, or pins, tacks, buttons, etc. They are found more commonly in the right bronchus.

Symptoms and Signs

1. The patient or relatives usually give a history of foreign body being put in the mouth followed by cough, cyanosis, retching or vomiting.

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2. Breathlessness.
3. Diminished air entry on the affected side.
4. X-ray chest may show obstructive emphysema or a collapse of the affected segment of the lung.

Management

Endoscopic removal as early as possible should be done, especially if vegetable foreign bodies. When facilities and instruments are not available for a bronchoscopy and the patient is breathless, a tracheostomy should be done.

In case of vegetable foreign bodies, antibiotics and steroids should be administered to minimize infection and edema.

Burns Due to Acid or Alkali Ingestion

Symptoms and Signs

1. Pain in the mouth, pharynx and abdomen.
2. Dysphagia.
3. Vomiting and diarrhoea of dark precipitated blood.
4. Shock.
5. Yellowish white discoloration of oral mucosa.

Note: Acid burns are less destructive than alkali burns.

Management

1. Nil by mouth.
2. Early flexible endoscopy.
3. Relieve pain by giving pentazocine 30 mg IM.
4. Treat the shock.
5. Prevent infection by giving antibiotics prophylactically.
6. Early corticosteroid therapy to prevent stricture formation.

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Foreign Body in the Pharynx

Etiology

A variety of foreign bodies can get lodged in the pharynx, e.g. foods—fish and chicken bones, aniseeds. Also encountered are pins, needles, tacks, etc. held by workmen in their mouth.

Symptoms and Signs

1. Pain in the throat, especially during swallowing.
2. Pain in the ear.
3. The foreign body can sometimes be easily visualized embedded in the tonsil or base of the tongue. However, at times, a thorough examination with an indirect laryngoscopy mirror may be required to locate the foreign body at base of tongue and vallecula.
4. 70° scopy and flexible nasopharyngoscope is also used to detect foreign body.
5. Small fish and chicken bones are not visualized in X-rays but metallic foreign bodies can be easily demonstrated.

Management

1. Visualize the foreign body.
2. Remove the foreign body with a pair of forceps. If necessary, use a direct laryngoscope with topical or general anaesthesia as required.

Foreign Body in Esophagus

Etiology

The foreign bodies most commonly encountered in the oesophagus are coins, fish and meat bones, dentures. The common site of impaction is the upper end of the oesophagus at the level of cricopharynx. A spasm of the esophageal muscles further enhances the impaction.

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Symptoms

1. Stabbing pain.
2. Dysphagia.
3. Pooling of saliva.

Management

Endoscopic removal under general anaesthesia to achieve a good muscular relaxation is the recommended treatment. In some cases FB may be removed with use of flexible fiberoptic esophago-gastroscope.

Temporomandibular Joint Dislocation

Etiology

Anterior dislocation of the temporomandibular joint occurs when condyle of the mandible slips anteriorly over the articular tubercle of the glenoid fossa. This can occur due to trauma, wide opening of the mouth during yawning, or due to wide opening of mouth gag during oral surgery. It may be unilateral or bilateral.

Symptoms and Signs

1. Pain.
2. If unilateral—(a) Jaw is displaced towards the opposite side. (b) Saliva dribbles out. (c) A depression is palpable anterior to the tragus, with the condyle seen in front of it.
3. If bilateral—mouth is fixed in a partly open position, both the condyles are felt in front of their normal position.

Management

1. Overcome the muscle spasm—pentazocine 30–60 mg IM, general anaesthesia may sometimes be necessary.

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2. Correct the dislocation by depressing the mandible at the lower molars with the thumb and rotating the body of the mandible upward.
3. Give the patient a four-tailed bandage for 3 weeks.
4. If recurrent dislocation occurs 25% or 50% glucose injection in temporomandibular (TM) joint. Three injections once in 3 weeks can lead to fibrosis and prevent dislocation. Interdental wiring and fixation to provide rest and fibrosis in TM joint. Nonresponding cases may be subjected to meniscectomy which allows mandibular head to sink more deeply into the articular fossa. Condylar resection is required at times.

Trismus (Not Due to Tetanus)

Causes

1. Muscular spasm secondary to trauma to the mandible or around the TM joint.
2. Infection in the vicinity of the TM joint, i.e. peritonsillar, parapharyngeal, parotid, dental, etc.

Management

1. Local heat.
2. Muscular relaxants, viz. diazepam 10 mg IM, diazepam 5 mg orally.
3. Treatment of infection, if present, with systemic antibiotics.
4. Anti-inflammatory drugs like Ibuprofen 400 mg tds after meals.
5. Incision of abscesses where present.

Dr Nitin Gupta
MS DNB FASB (Italy), OIM (Germany)

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