

# **Diseases of the External Ear**

## **1- Congenital Malformations**

- a- Complete or partial absence of auricle.
- b- Preauricular sinus.
- c- Accessory auricles.
- d- Atresia of external auditory meatus.
- e- Abnormalities in size or shape of auricle. Including the protruding ear (Bat ear).

## **2- Injuries : a- Lacerations**

All degrees are encountered including complete avulsion of auricle.

**Treatment:** In repairing lacerations sutures should not pass through cartilage.

Complete avulsion usually requires a prosthesis but immediate sutures has been Successful. **b- Haematoma Auris**

Due to rupture of vessels in the perichondrium, especially on the external aspect of the auricle. This leads to effusion of blood. Haematoma may sometimes arise spontaneously in the elderly. Failure to treat results in fibrosis of the clot, with permanent thickening of the auricle (cauliflower ear).

### **Treatment**

- 1- Aspiration (when small) or incision (when large).
- 2- Compression with a moulded splint.

### **c- Foreign body**

Hard or soft objects are inserted into the external auditory canal. Occasionally live insects may enter, to cause intense irritation & noise. When the canal is blocked, deafness (conductive) & tinnitus follow, sometimes with pain. Treatment: Smooth round foreign body, remove by a probe if it cannot be removed by syringing. Forceps must not be used as they can only push the foreign body dangerously further in. A general anaesthesia is essential in children & sensitive adults. **Other foreign bodies can usually be removed by**

- 1- Hartmann's crocodile forceps.
- 2- Syringing (insect may be killed before syringing, by instilling spirit drops into the meatus).
- 3- Suction.
- 4- A strong magnet for ferrous item.

## **3- Otitis Externa**

Otitis externa is an inflammation of the skin of the external auditory meatus.

### **Predisposing Factors**

- Heat, humidity, bathing, swimming.
- Trauma, especially from dry fingernails, cotton buds & hairgrips.
- Inherited-narrow ear canals & non-atopic eczema.

### **Classification**

#### **1. Infective**

##### **a- Bacterial**

- 1. **Diffuse otitis externa commonly caused by Pseudomonas aeruginosa, S. aureus & proteus.**
- 2. **Furunculosis, usually caused by S. aureus.**
- 3. **Malignant otitis externa.**
- 4. **Erysipelas caused by Streptococcus Pyogenes.**

5. **Perichondritis.**
6. **Impetigo**, an infection of the superficial layers of the epidermis, usually by **S. aureus** or occasionally **S. pyogenes**.
7. **Secondary to an acute or chronic otitis media.**

**b- Fungal**

1. **Aspergillus niger.**
2. **Aspergillus fumigatus**
3. **Candida albicans**

**c- Viral**

1. **Herpes simplex.**
2. **Herpes zoster.**
3. **Presumptive in otitis externa haemorrhagica.**

**2. Reactive**

1. **Eczema.**
2. **Seborrhoeic dermatitis**
3. **Neurodermatitis**
4. **Keratitis obturans**
5. **Psoriasis.**

**Clinical Features**

Otitis externa may be confined to the meatus (localized) or involve other areas of skin (generalized). Localized infection can be circumscribed or diffuse while generalized infection can be either primary otological or primary dermatological.

Inquiries regarding direct trauma to the ear canal, swimming habits, atopic tendency & previous otological problems should be made. Symptoms of infection elsewhere in the head & neck, for example tonsillitis & sinusitis & preceding symptoms of otitis media should be sought. Conditions affecting the ear canal are limited & a diagnosis can usually be made on examination. Although the history may provide a pointer towards the diagnosis, severe itching suggests eczema, neurodermatitis or mycotic infection. Otalgia occurs with furunculosis, diffuse otitis externa & herpes infections.

On examination erythema is a feature of eczema, seborrhoeic dermatitis, mycosis or acute trauma. Vesication occurs in eczema, & herpetic infection, excess squamous debris suggest chronic eczema or mycosis & Hypertrophic meatal skin suggest chronic disease.

It is not uncommon to find the ear canal occluded by oedema in a patient with acute otalgia. Careful examination will usually distinguish furunculosis (common) from acute mastoiditis (now much less common).

**Investigations**

A culture swab should be made for microbiological culture, including fungal culture, & antibiotic/ antimycotic sensitivity.

**Management**

- 1- Meticulous & regular aural toilet paying particular attention to the anteroinferior meatal recess.
- 2- Splinting the meatus. The two recommended choices are 12mm ribbon gauze, impregnated with 10% ichthammol in glycerine, the hygroscopic action of which reduces meatal swelling or a popes sponge ear wick onto which eardrops containing an antibiotic & steroid mixture are applied. In resistant cases, 8% aluminium acetate ear drops which act as an astringent may be considered. Its low pH is lethal for many bacteria including

pseudomonas. Splinting will be necessary when there is EAM oedema preventing an adequate view of the tympanic membrane on otoscopy implying that ear drops will not reach the deeper recesses of the ear canal. The dressing should be changed at least every 48 hours until the canal swelling has settled sufficiently to allow any applied drops to reach the anteroinferior recess directly.

3- The ears should be kept scrupulously dry until resolution. Swimming is inadvisable & precautions taken when bathing to prevent water entering the ear canal. In most reactive conditions the above regime is also recommended in order to prevent secondary of a raw canal surface.

### **Malignant Otitis Externa ( otitis externa malignans)**

A pseudomonas infection, not infrequently fatal, occurring in elderly diabetic patients & in the immunosuppressed.

#### **Pathology**

The original infection in the meatus may spread, usually at the junction of its bony & cartilaginous portions, to adjacent bone, causing Osteitis &/or osteomyelitis.

Involvement of the stylomastoid foramen may affect the eighth cranial nerve, & spread to the region of the jugular foramen may involve any or all of the last four cranial nerves. Extension to the petrous apex may affect the sixth & seventh cranial nerves. A fatal outcome may result from spread of infection to the sigmoid venous sinus & meninges.

#### **Clinical Features**

- Pain in the ear. Severe & resistant to analgesics.
- Discharge. May be seropurulent.
- Granulations. Seen in the meatus, especially out its floor.
- Cranial nerve paralysis. May affect the 7,9,10,11& 12 cranial nerves. Rarely a Gradingos syndrome may result, from involvement of the 5<sup>th</sup> & 6<sup>th</sup> cranial nerves.

#### **Treatment**

##### **1- Medical**

- a- Control of diabetes.
- b- Ciprofloxacin 1.5gm/day for 6-12weeks.
- c- Topical application of gentamicin. To the meatus or the mastoid cavity.

**2- Surgical.** May range from a- Removal of granulations, to b- Radical mastoidectomy.

#### **Prognosis**

This condition may be fatal. Early treatment is essential to survival. Outlook is much worse when cranial nerves are involved.

#### **4- Neoplasm of External Ear**

Both benign & malignant tumours are affect the auricle & external auditory canal but they are rare.

Benign tumours: Papillomas, adenomas (including ceruminomas) & osteoma. Malignant tumours: adenocarcinoma, rodent ulcer & squamous cell carcinoma.

#### **5- Miscellaneous Conditions of the External Ear**

a- Wax is a mixture of secretions of the ceruminous & pilosebaceous glands

#### **Clinical Features**

- Deafness is caused only when occlusion of the canal is complete.

- Tinnitus, reflex cough, earache & vertigo may all occur. Symptoms are sudden & severe when a plug is impacted against the tympanic membrane, as in washing, swimming or attempts at removal.

### **Treatment**

Syringing with water at body temperature will usually remove wax easily.

Removal with ring probe, hook & forceps is often better with old, dry, hard plugs.

Softening of such plugs can be effected by repeated instillation of a saturated solution of sodium bicarbonate or hydrogen peroxide.

Suction through the operating microscope if necessary under general anaesthesia, is the safest way to remove wax when a perforation is present or suspected, or if syringing cause pain.

### **b- Keratosis Obturans**

**Clinical Features:** A plug of desquamated epithelium fills the deep canal. This becomes expanded though the tympanic membrane remains intact. It resembles a cholesteatoma of the middle ear. It may be bilateral. Sometimes it is associated with chronic sinusitis & bronchiactasis. It may follow radiotherapy to the ear. Deafness and unusual pain are common.

**Treatment:** Removal & regular inspections are required as recurrence is to be expected. This may sometimes be prevented by the regular use of keratolytic substances, such as sodium bicarbonate ear drops or salicylic acid 2% in alcohol. General anaesthesia may be required.

**c- Sebaceous Cysts:** These usually occur on the back of the auricle & in the lobule.

These should be dissected out completely if causing symptoms.

### **d- Acquired Atresia & Stenosis of the EAM**

#### **Aetiology**

- 1- Chronic otitis media.
- 2- Operations on the ear.
- 3- Perichondritis.
- 4- Exostoses.
- 5- Injury. Especially after corrosive burns, or fractures of the tympanic plate.

#### **Treatment**

- 1- Indwelling polythene tubes will sometimes overcome minor degrees of stenosis due to fibrosis.
- 2- Meatoplasty.