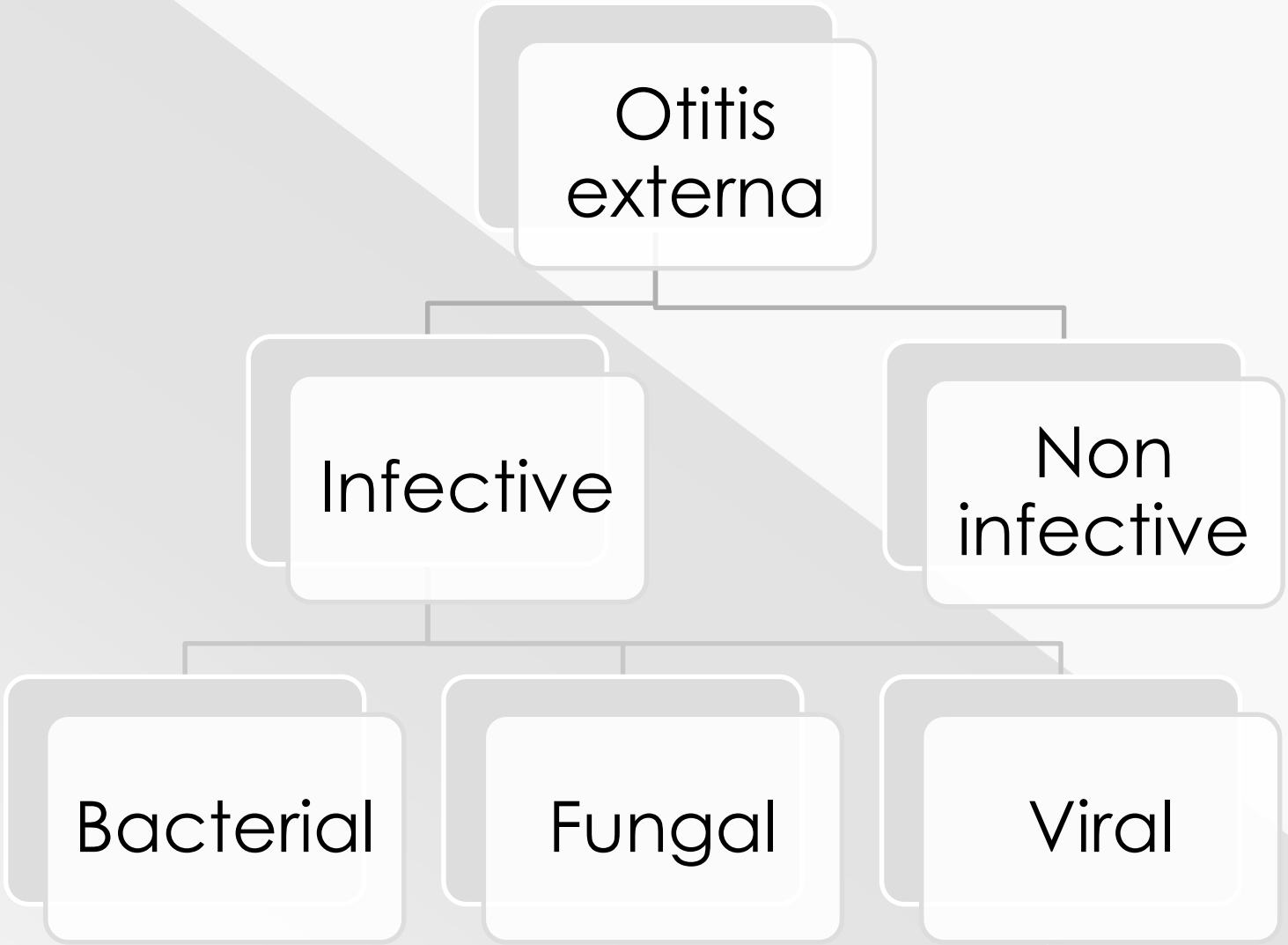
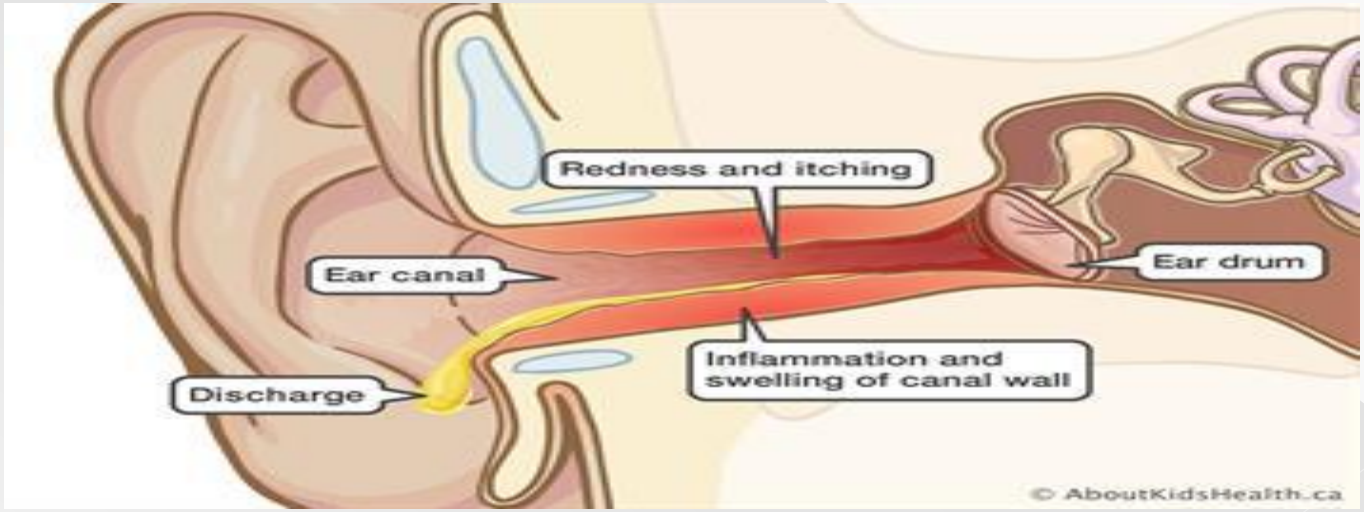
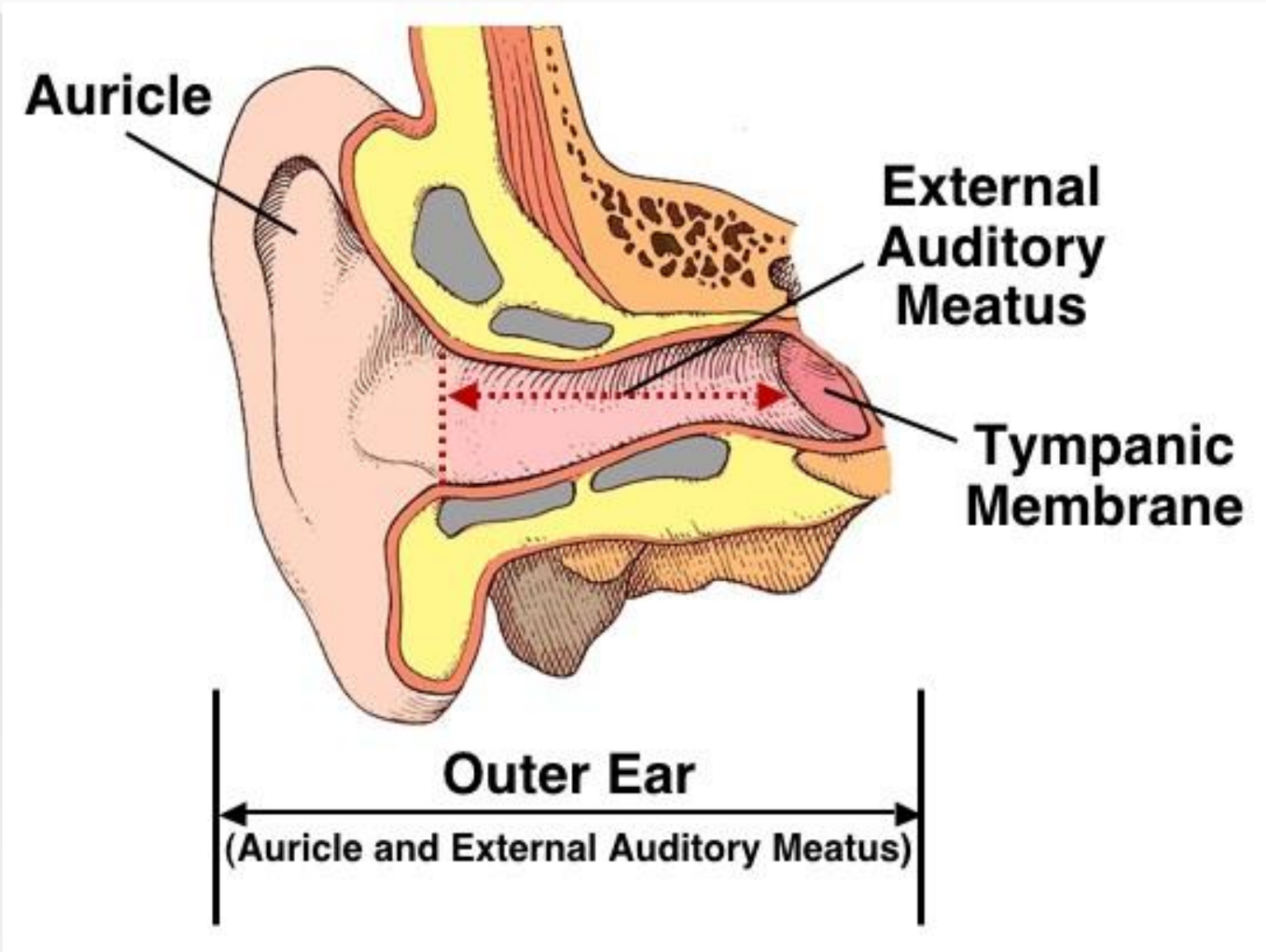
Otitis externa


Otitis externa
Infective
Non infective
Bacterial
Fungal
Viral

Definition

- Otitis externa is an diffuse inflammation of the skin lining the external auditory meatus (EAM).




Auricle
External Auditory Meatus
Tympanic Membrane
Outer Ear
(Auricle and External Auditory Meatus)

Pathology

- The skin of the EAM comprises in the outer third an epithelial layer containing hair follicles, ceruminous glands and sebaceous glands, lying on a thin dermal bed containing sweat glands.

Note :

- Usually the EAM is sterile or contains *Staphylococcus albus* commensals.

- *Staphylococcus aureus and non-haemolytic streptococci are unusual*.

- In the acute phase of otitis externa there are dilated dermal blood vessels of increased permeability which cause signs :
- redness
- hotness
- edematous and tender ear canal.

Predisposing factor

NOTES:

- Some people are particularly prone to Otitis externa, because of a narrow or tortuous external canal.
- Most people can allow water into their ears with impunity but in others Otitis externa is the inevitable result.
- Swimming baths are a common source of otitis externa.
- Poking the ear with a finger or towel further *traumatizes the skin and introduces new organisms* >> Further irritation occurs >> leading to further interference with the ear, so >> causing more trauma. A vicious circle is set up.

Otitis externa may occur after staying in hotter climates than usual, where *increased sweating and bathing* are predisposing factors.

Underlying skin disease, such as *eczema or psoriasis*, may occur in the ear canal and produce very refractory otitis externa.

Ear syringing, especially if it *causes trauma*, may result in otitis externa.

Otitis externa (bacterial)

- **Causative agents**
- **Symptoms and sign**
- **Diagnosis**
- **Management**

** **specific type : furunculosis**

Causative agent

- Diffuse otitis externa commonly caused by :
  1. *Pseudomonas aeruginosa*
  2. *S. aureus*
  3. *Proteus*.

- Furunculosis, usually caused by *S. aureus*.

- Malignant Otitis externa, usually caused by : *P. aeruginosa* or ***occasionally*** *S. aureus*.

- Erysipelas caused by *Streptococcus pyogenes*.

Symptoms

- The clinical diagnosis is suggested by the presence of :

1 Irritation.

2 Discharge (scanty).

3 Pain (usually moderate, sometimes severe, increased by jaw movement).

4 Deafness.

>> that results from occlusion of the EAC by edema and debris

Signs

- **1 Meatal tenderness**, especially on movement of the pinna or compression
- 2 **EAC erythema , edema, otorrhea**
- 3 Moist debris >> often **smelly and keratotic >>** the removal of which reveals red desquamated skin and oedema of the meatal walls and often the tympanic membrane.

Diagnosis

- **ESSENTIALS OF DIAGNOSIS**
- **1. Hx:** *Otalgia, otorrhea, pruritus, hearing loss, history of water exposure*.
- **2. PE:** *Tender pinna and canal; canal erythema, edema and purulent debris.*
- **3. Culture** *for refractory cases.*

>> Investigation of the offending microorganism is essential. A ***swab*** should be sent for culture and it is prudent to mention the possibility of fungal infection in your request, especially if the patient has already had topical antibiotic treatment

Management

treatment of Otitis externa (OE) involves

1. **removal of debris from the external auditory canal (EAC)**

>> Scrupulous aural toilet is the key to successful treatment of otitis externa

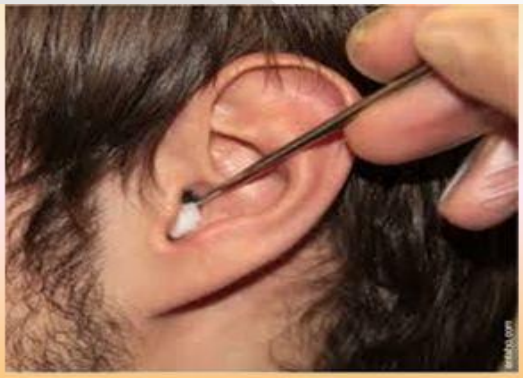
BECAUSE .. No medication will be effective if the ear is full of debris and pus

2. administration of **topical medications** to control edema and infection >> e.g Ear wick

3. **SYMPTOMATIC**: management of pain

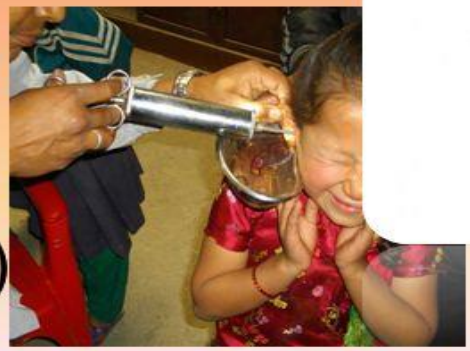
4. **Prevention of recurrence >>** avoidance of contributing factors.

Scrupulous aural toilet



Aural Toilet

- Prefer to do under microscope
- Mopping
  - Dry
  - Wet
- Suction & clearance
- Syringing & irrigation
  (Higgison syringe)



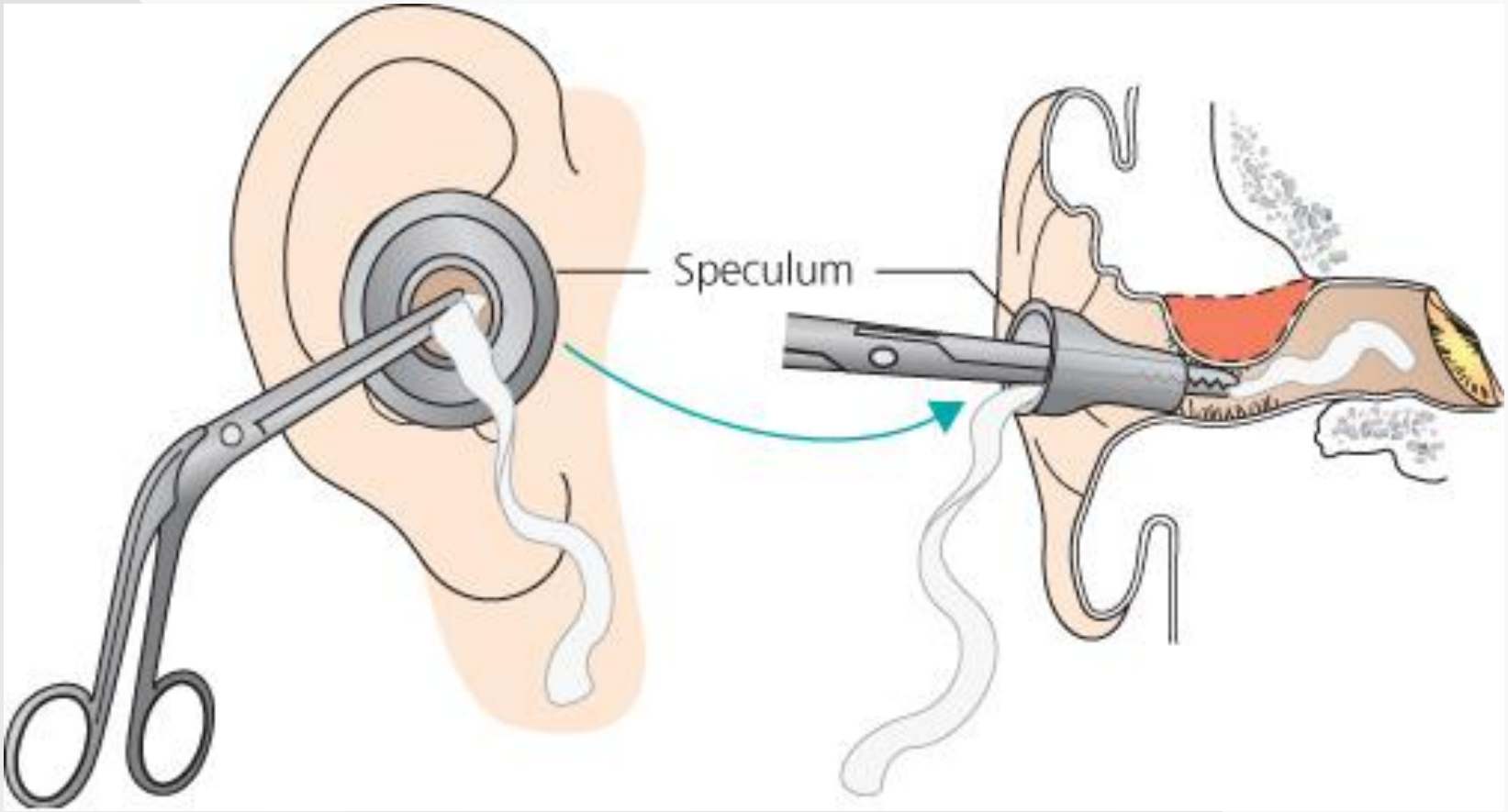
Dressing

If the Otitis externa is severe

1. a length of 1 cm ribbon gauze
2. impregnated with appropriate medication
3. inserted gently into the meatus

** and renewed daily until the meatus has returned to normal.

If it does not do so within 7–10 days, think again!!


Speculum

The following medications are of value on the dressing:

1. 8% aluminium acetate
2. 10% ichthammol in glycerine
3. ointment of gramicidin, neomycin, nystatin and triamcinolone (Tri-Adcortyl)
4. other medication may be used as dictated by the result of culture.

- If the otitis externa is less severe and there is little meatal swelling, it may respond to a combination of antibiotic and steroid ear drops.

- The antibiotics are usually those that **are not** given systemically.
- The antibiotics **most commonly** used are neomycin, gramicidin and framycetin.

- Remember that prolonged use may result in fungal infection or in sensitivity dermatitis

Prevention of recurrance

1. **keep the ears dry**, especially when washing the hair or showering.

2. A **large piece of cotton wool coated in Vaseline** and placed in the concha is advisable,

3. if the patient is very keen to swim it is worthwhile investing in **silicone rubber earplugs**.

4. The use of a proprietory preparation of spirit and acetic acid prophylactically after swimming is useful in reducing otitis externa.

5. Equally important is the **avoidance of scratching and poking the ears**.

Itching may be controlled with antihistamines given orally, especially at bedtime.

6. If meatal stenosis predisposes to recurrent infection, **meatoplasty** (surgical enlargement of meatus) may be advisable

Ear wick

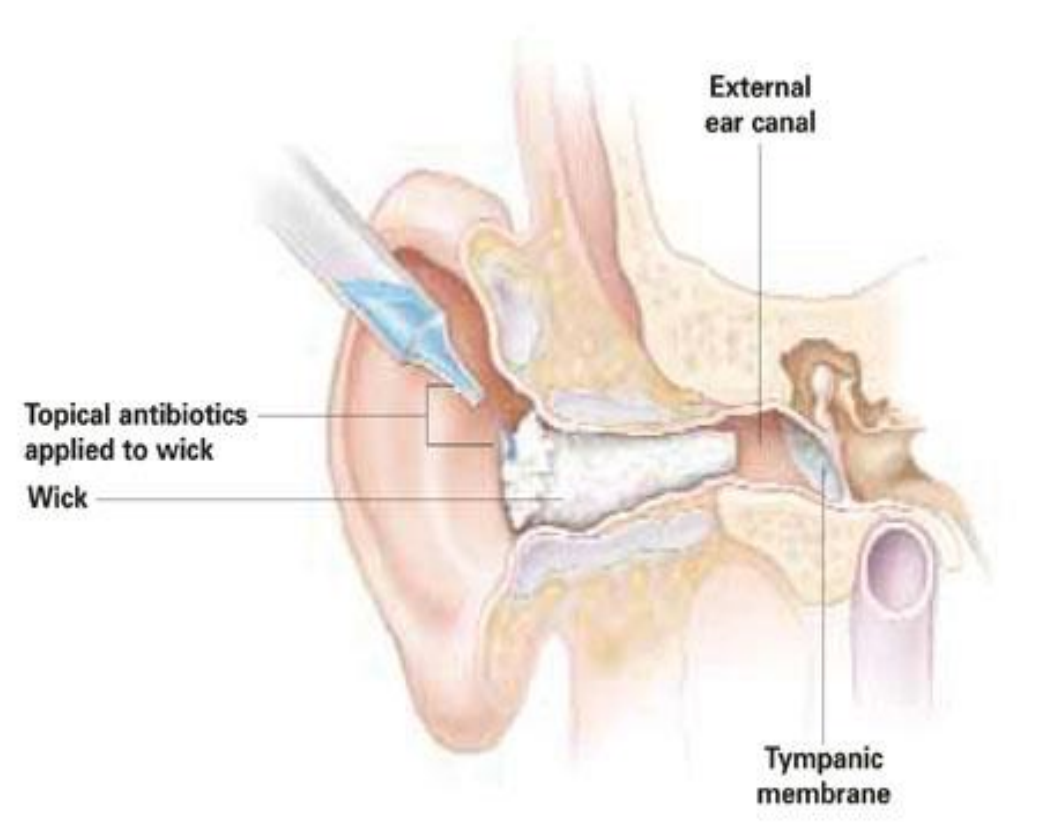
- When the ear canal skin is very swollen, drops will not penetrate.
- The physician may need to carefully insert a wick of cotton or other commercially available, pre-fashioned, absorbent material called an ear wick and then saturate that with the medication.
- The wick is kept saturated with medication until the canal opens enough that the drops will penetrate the canal without it.
- Removal of the wick does not require a health professional.

- Like a tampon, the wick is small and tightly compressed when dry.

- When the wick gets wet, it swells up.
- The wick soaks up discharge, and also soaks up ear drops.

- This helps the medication to reach the skin surface around the wick.

- The wick may be left in place for several days, up to a week. During this time, the patient will need to apply ear drops as directed.
- In difficult cases a series of wicks may be needed. It can be quite painful to put in a wick when the ear canal is very tender and swollen, but the pain lasts only a few seconds and the relief is worth it.

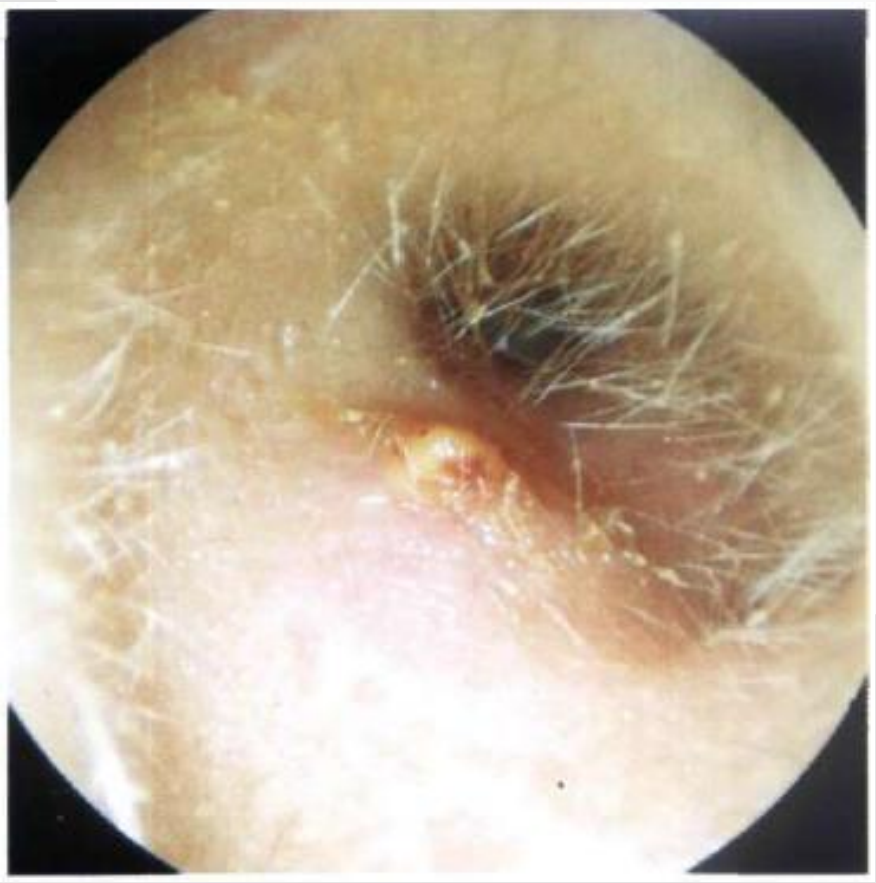

External
ear canal
Topical antibiotics
applied to wick
Wick
Tympanic
membrane

FURUNCULOSIS

- Furunculosis of the external canal results from infection of a hair follicle and so must occur in the lateral part of the meatus.

- The organism is usually *Staphylococcus*

Furunculosis



Symptoms

- **Pain** >> the pain is often out of proportion to the visible lesion.

Pain is as severe as that of renal colic and the patient may need pethidine.

The pain is made much worse by movement of the pinna or pressure on the tragus.

- **Deafness**

Deafness is usually slight and due to meatal occlusion by the furuncle

Signs

- There is often no visible lesion but the introduction of an aural speculum causes intense pain.
- If the furuncle is larger, it will be seen as a red swelling in the outer meatus and there may be more than one furuncle present.
- At a more advanced stage, the furuncle will be seen to be pointing or may present as a fluctuant abscess.

Treatment

1. The insertion of a wick soaked in 10% ichthammol in glycerine (Glyc & Ic) is painful at the time but provides rapid relief.

2. Flucloxacillin should be given parenterally for 24 h, followed by oral medication.

3. Analgesics are necessary; the patient will often need pethidine and is not fit for work.

NOTE : Recurrent cases are not common — exclude diabetes and take a nasal swab in case the patient is a *Staphylococcus carrier*.

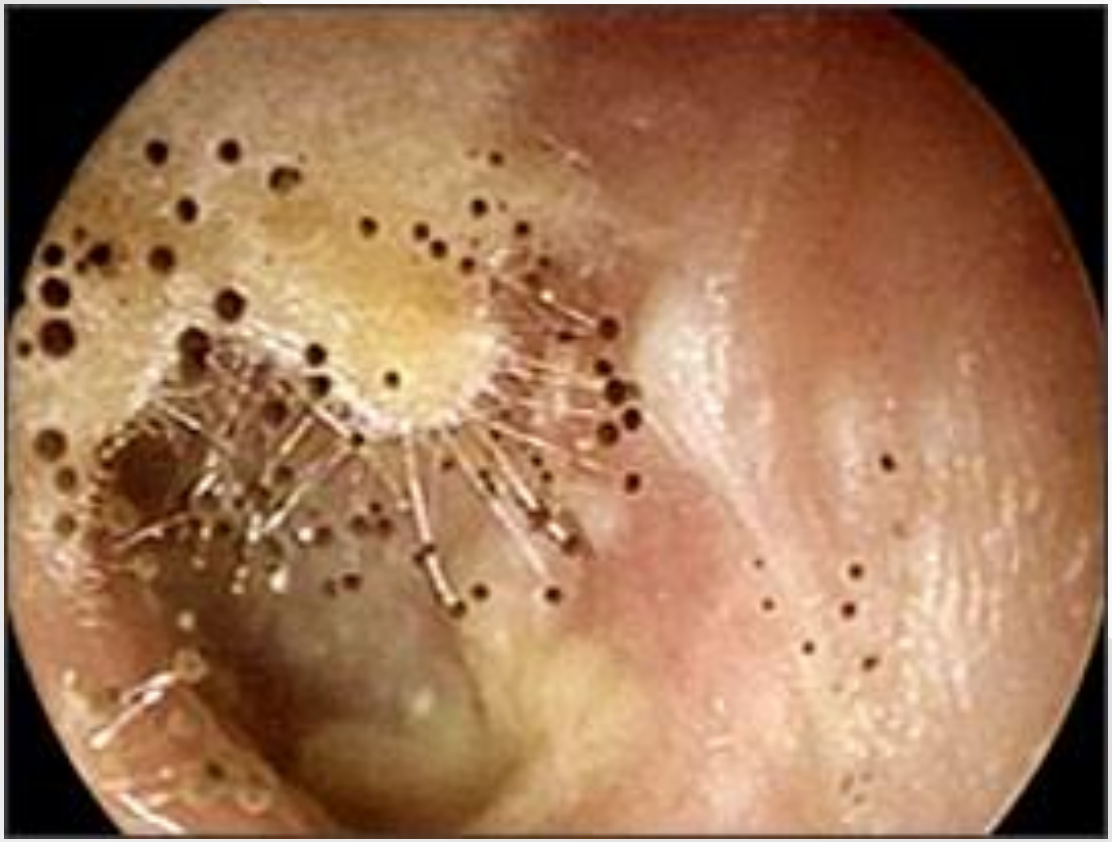
Otitis externa (fungal) (otomycosis)

- Causative agent
- Predisposing factor
- Sign and symptoms
- Diagnosis
- Management

Causative agent

- Otomycosis is an inflammatory process of the external ear canal due to infection with fungi
- It is responsible for more than 9% of the diagnoses of otitis externa.
- In 80% of cases, the etiologic agent is *Aspergillus*
- *whereas Candida is* the next most frequently isolated fungus.
- Other more rare fungal pathogens include *Phycomycetes, Rhizopus, Actinomyces*.

Otomycosis (Fungal otitis externa) showing the spores of Aspergillus niger.



Predisposing factor

- Patients with diabetes mellitus
- immunocompromised state are particularly susceptible to otomycosis.
- Otomycosis has **similar** predisposing factors to bacterial otitis externa.

Symptoms

- Pruritus
- aural fullness
- otorrhea
- may also complain of otalgia and hearing loss.

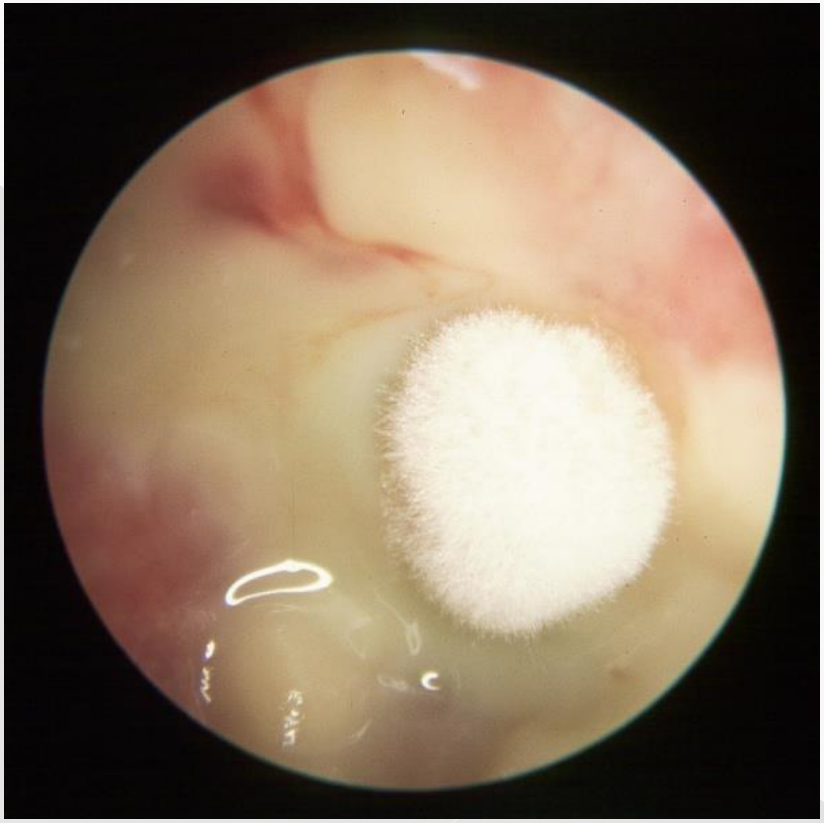
>> The hearing loss associated with otomycosis usually results from the accumulation of mycotic debris

Signs

- Otoscopy >> often reveals mycelia (vegetative part of a fungus, consisting of a network of fine white filaments) establishing the diagnosis.

- The EAC >> may be erythematous and fungal debris may appear white, gray, or black.

.



Diagnosis

- **1. Hx >>** *Pruritus, otalgia, otorrhea, fullness, hearing loss,*
- NOTE : no response to topical antibiotics.
- **2. PE** : Fungal elements
- 3. Positive ***KOH prep or fungal culture***.

Management

1. cleansing and debriding the EAC
2. acidifying the canal, and administering antifungal agents.

- Nonspecific antifungal agents include thimerosal (eg, Merthiolate) and gentian violet.
- Commonly used specific antifungals include clotrimazole, Nystatin (otic drops or powder), and ketoconazole.
- Itraconazole is the only orally administered antifungal agent that is effective against *Aspergillus*.

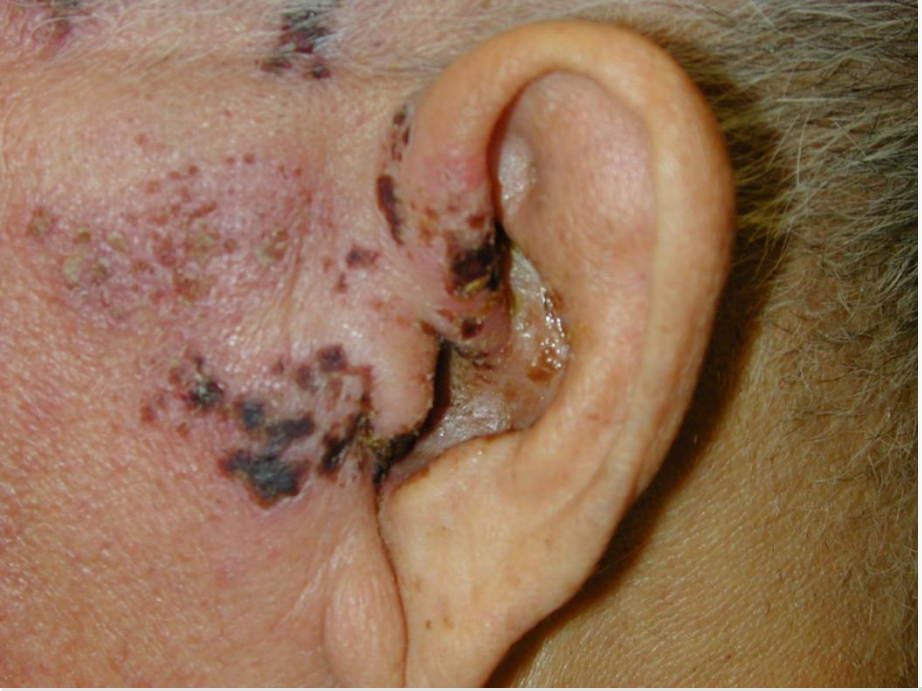
Otitis externa (viral) >> herpes zoster oticus

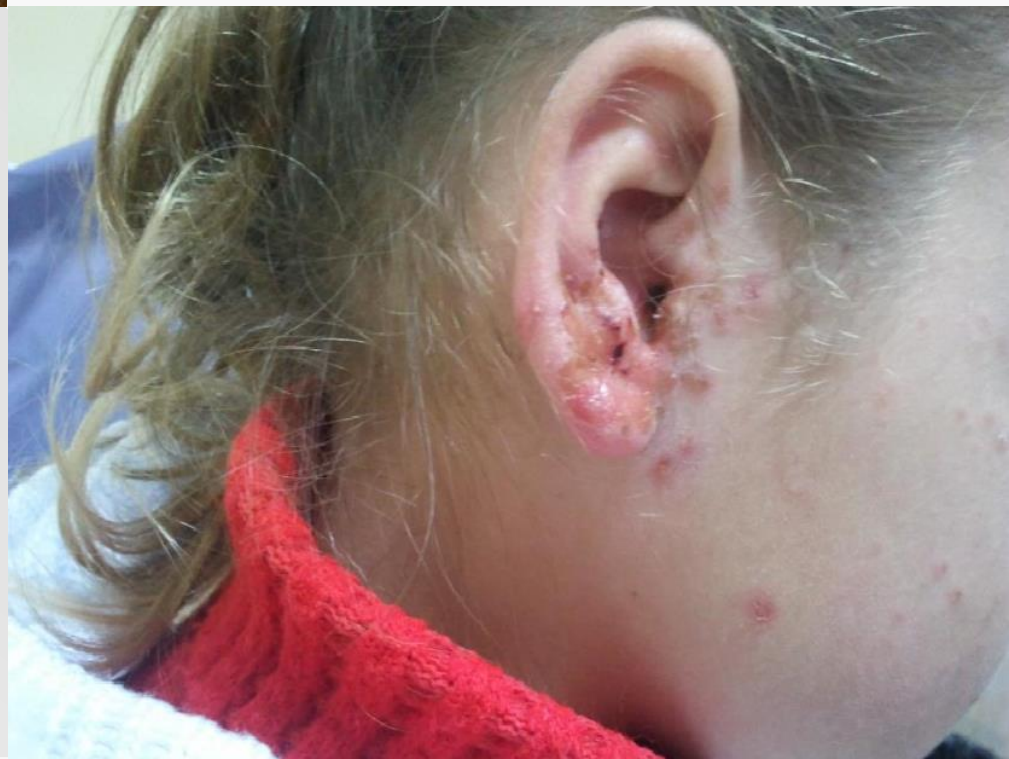
- Symptoms and sign
- Management

Herpes zoster oticus (HZ oticus) is a viral infection of the inner, middle, and external ear.

HZ oticus **manifests as**

1. severe otalgia
2. cutaneous vesicular eruption, usually of the external canal and pinna





When associated with facial paralysis, the infection is called **Ramsay Hunt syndrome**.

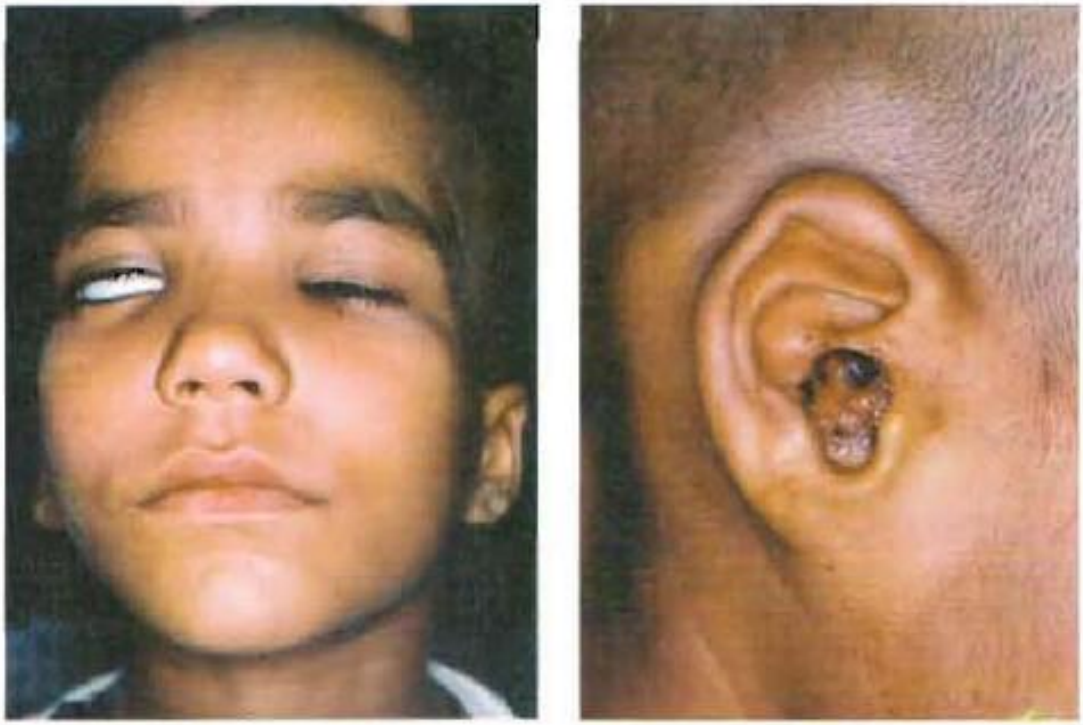


Fig. 14.7 Ramsay-Hunt syndrome. Note facial palsy and small vesicles in the concha of the right side.

Pathophysiology

- Reactivation of the varicella-zoster virus (VZV) along the distribution of the sensory nerves innervating the ear, which usually includes the **geniculate ganglion**, is responsible for herpes zoster (HZ) oticus.

- Associated symptoms, such as hearing loss and vertigo >> are thought to occur as a result of transmission of the virus via direct proximity of cranial nerve (CN) VIII to CN VII at the cerebellopontine angle or via vasa vasorum that travel from CN VII to other nearby cranial nerves.

Clinical manifestation

- Typically, patients present with severe otalgia.

** Associated symptoms include the following:

- Painful, burning blisters in and around the ear, on the face, in the mouth, and/or on the tongue
- Vertigo, nausea, vomiting
- Hearing loss, hyperacusis, tinnitus

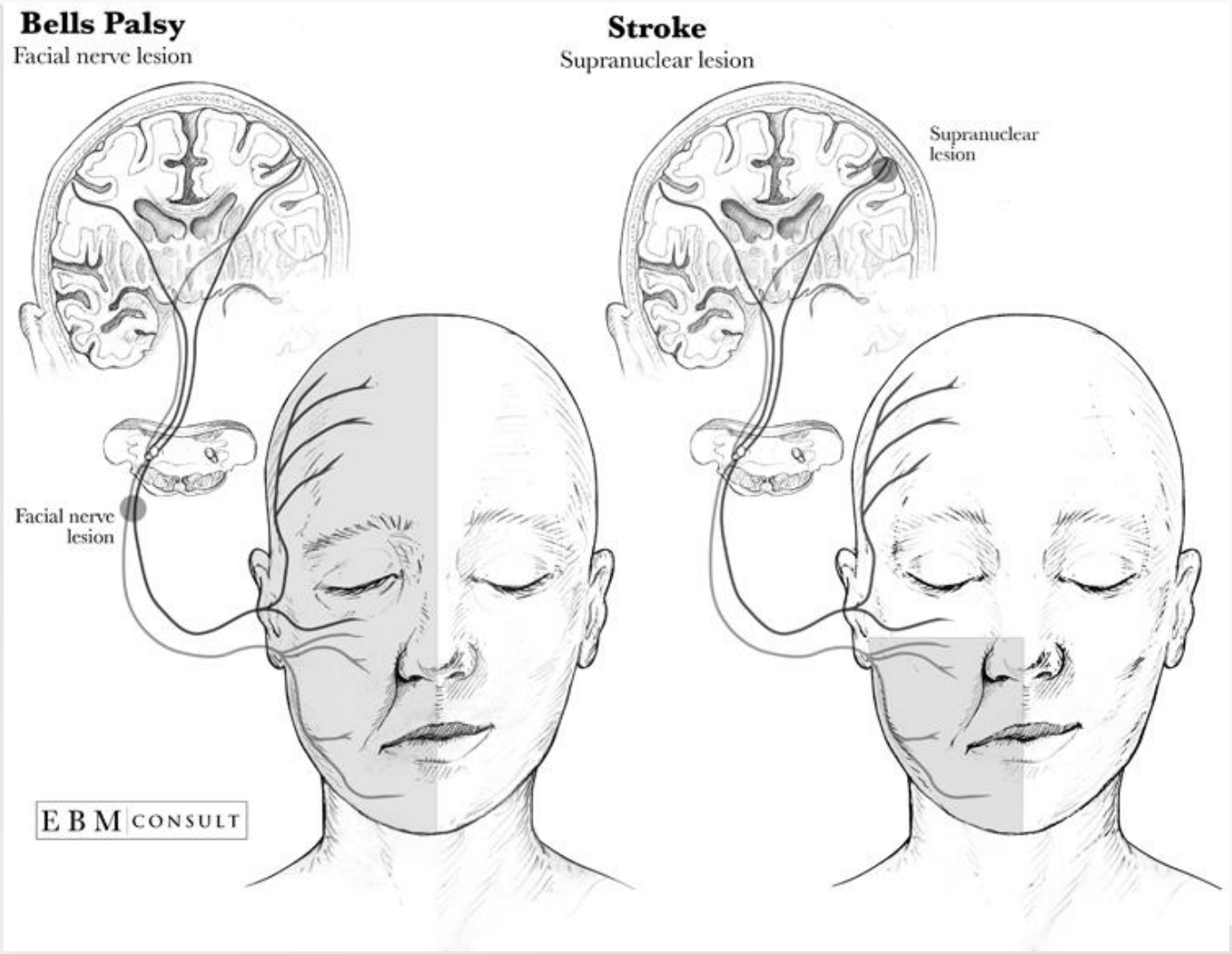
- Onset of pain may precede the rash by several hours or days.

- Also, in patients with Ramsay Hunt syndrome, vesicles may appear before, during, or after facial palsy (zoster sine herpete). >> When asked, patients may recall a distant history,

Physical examination

Physical examination shows:

- a vesicular eruption , usually of the external auditory canal, concha, and pinna.
- The rash also may appear on postauricular skin, lateral nasal wall, soft palate, and anterolateral tongue.
- Vertigo and sensorineural hearing loss
- paralysis of the facial nerve, mimicking Bell palsy, may be present. >> Complete loss of the ability to wrinkle the ipsilateral brow distinguishes a peripheral lesion of cranial nerve VII from a central lesion of the same nerve, which spares the forehead.


Bells Palsy
Facial nerve lesion
Facial nerve lesion
Stroke
Supranuclear lesion
Supranuclear lesion
EBM CONSULT

- Associated findings include the following:
- Dysgeusia (alteration in taste)
- Inability to fully close the ipsilateral eye, which may lead to the occasional presentation of drying and irritation of the cornea.

Treatment

Until recently, therapy for herpes zoster (HZ) oticus has been generally supportive including :

1. warm compresses
2. narcotic analgesics
3. antibiotics for a secondary bacterial infection.
4. Antiviral agent (acyclvir)
5. Corticosteriod

Malignant otitis externa (necrotizing)

- Definition
- Causative agent
- Risk factor
- Symptoms and sign
- Management

Definition

- otitis externa which progresses to an osteomyelitis initially of the **tympanic plate** which then may **spread to involve the skull base** and **petrous portion of the temporal bone**.

- The condition should be **suspected** in a patient with granulation tissue deep in the external meatus

Causative agent

- usually caused by *P.aeruginosa*.

Risk factor

- Diabetes
- Immune compromised

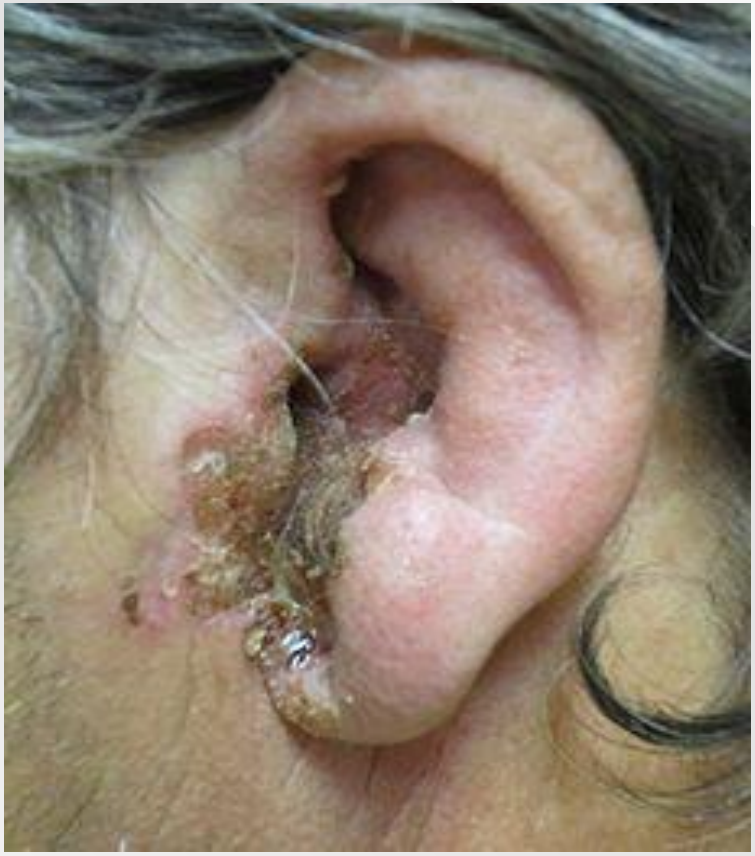
Symptoms

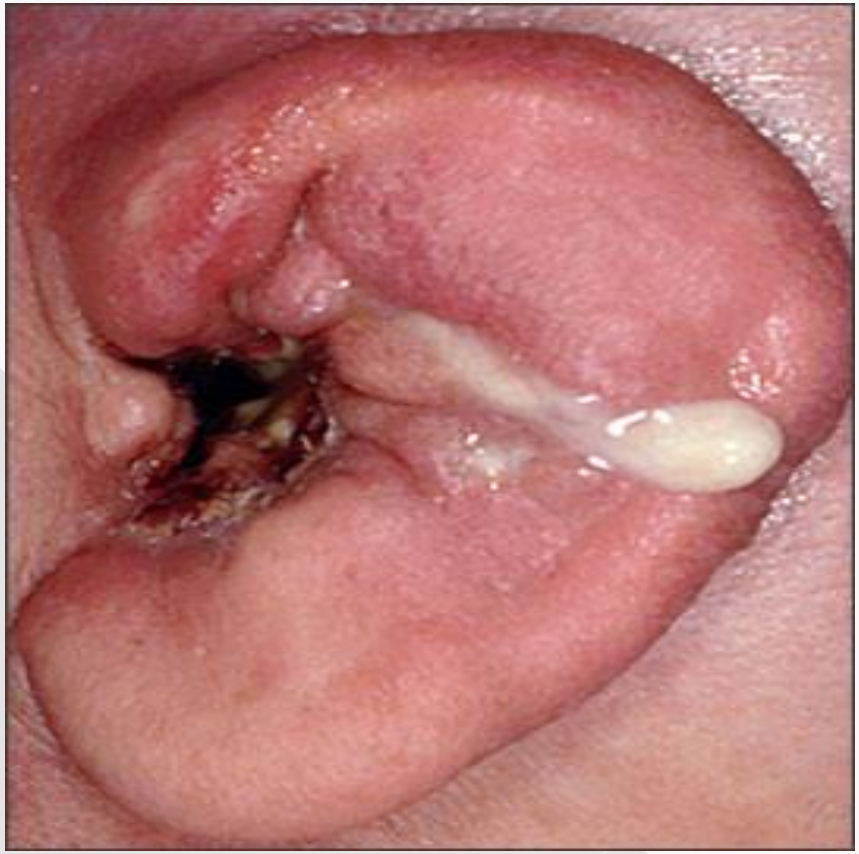
- *The overwhelming symptom* is a constant deep otalgia. >> that interferes with **sleep** and **persists** even after swelling of the external ear canal may have resolved with topical antibiotic treatment.

- Chronic otorrhea.
- Aural fullness
- may cause 7–12th cranial nerve palsies
- meningitis,
- sigmoid sinus thrombosis,
- brain abscess and death.

Signs

- *Signs*
- Inflammation and granulation.
- Purulent secretions.
- Occluded canal and obscured TM.
- Cranial nerve involvement





Diagnosis

The condition should be suspected in a patient with granulation tissue deep in the external meatus which does not settle with the usual treatment.

The diagnosis is often not considered until a cranial nerve palsy has developed.

1. Histological and microbiological examination of granulation tissue

2. a high definition CT scan of the petrous temporal bone are required to make the diagnosis.

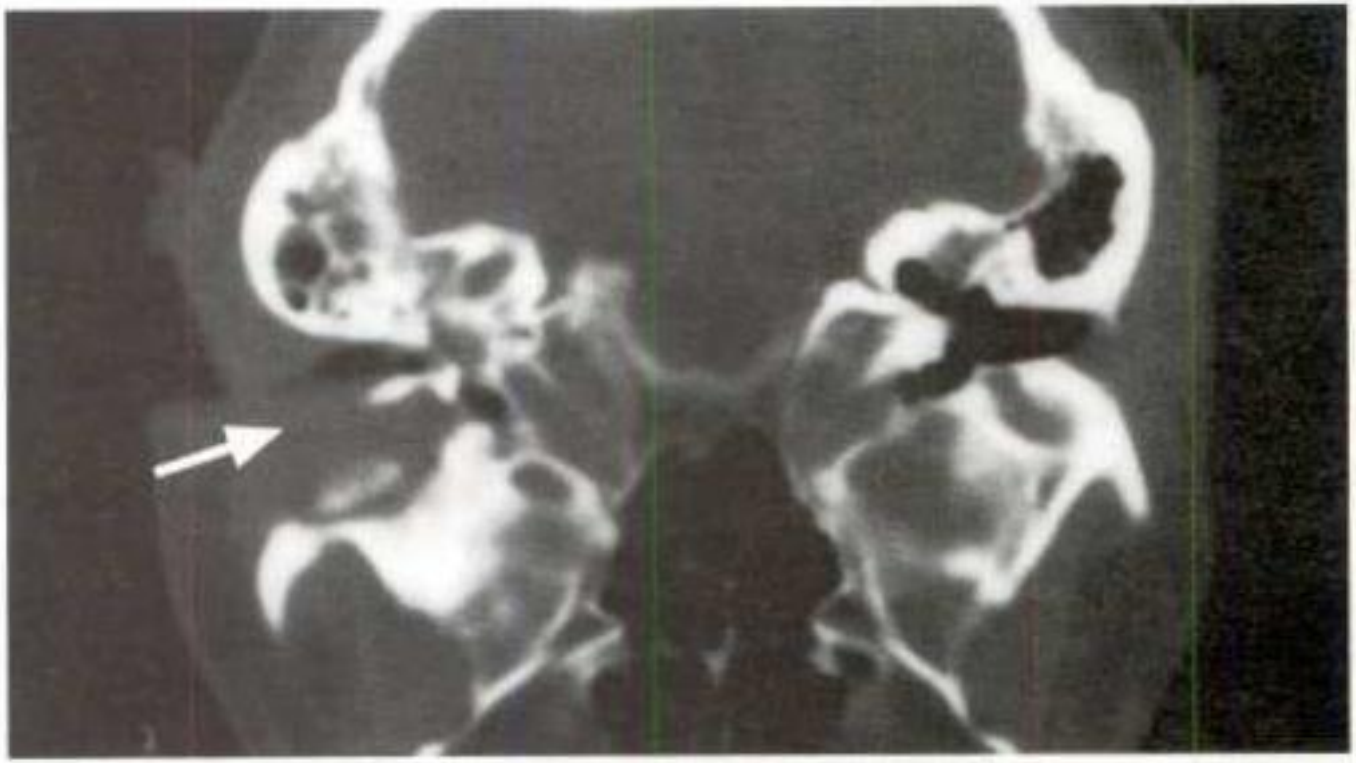
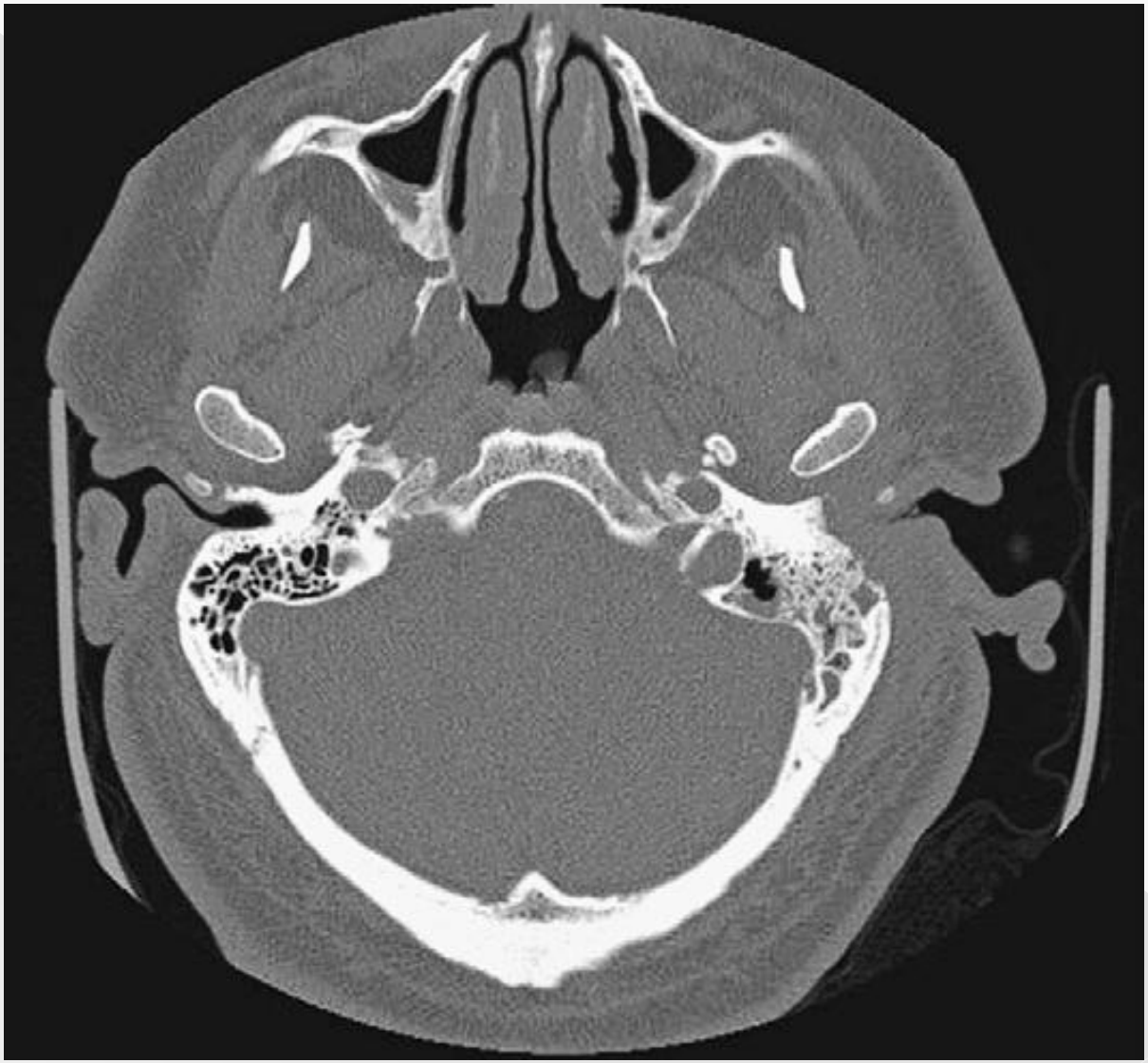


Fig. 2 **A case of malignant otitis externa showing extensive destruction of the temporal bone.** The facial nerve is frequently affected, but the other lower cranial nerves (glossopharyngeal, vagus and hypoglossal) become involved as the osteomyelitis spreads.



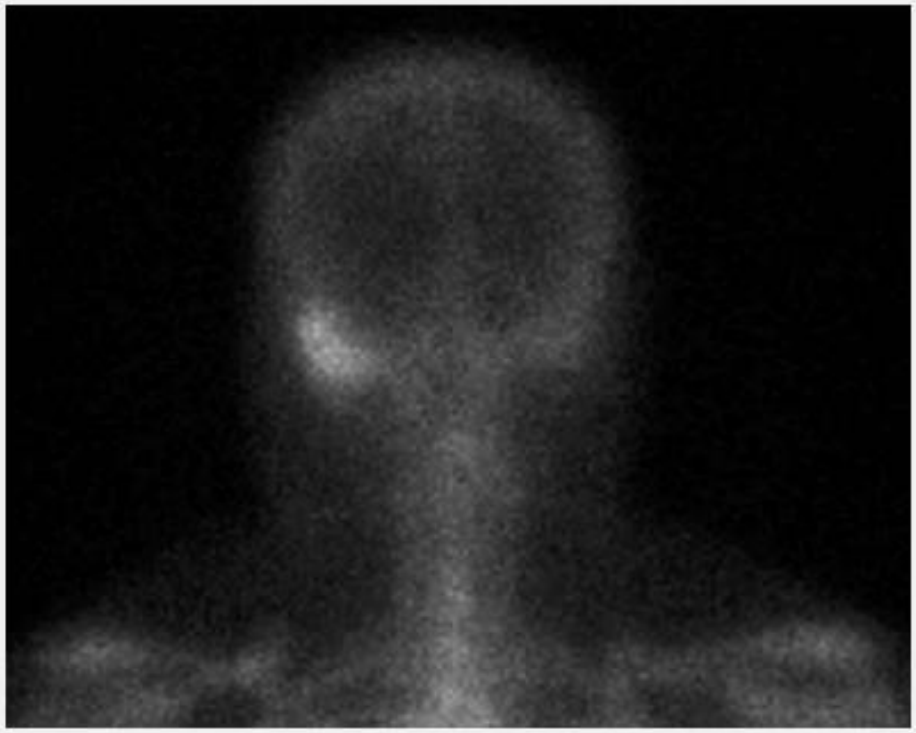


Figure 135.8 Bone scan of a patient with necrotizing otitisexterna.

Treatmentt

- Appropriate intravenous antibiotics as gleaned from the culture and sensitivity results should be commenced.

- The dose and duration of treatment is decided after discussion with a senior microbiologist and by monitoring clinical response but often therapy has to be continued for six weeks or more.

- Even with aggressive treatment there is still a significant mortality.
- Opiate analgesia may be required to control the deep otalgia.
- Local canal debridement