# OTITIS EXTERNA

# CLASSIFICATION

## 1. INFECTIVE GROUP

BACTERIAL

- Localized otitis externa (Furuncle)
- Diffuse otitis externa
- Malignant otitis externa

FUNGAL

- Otomycosis

VIRAL

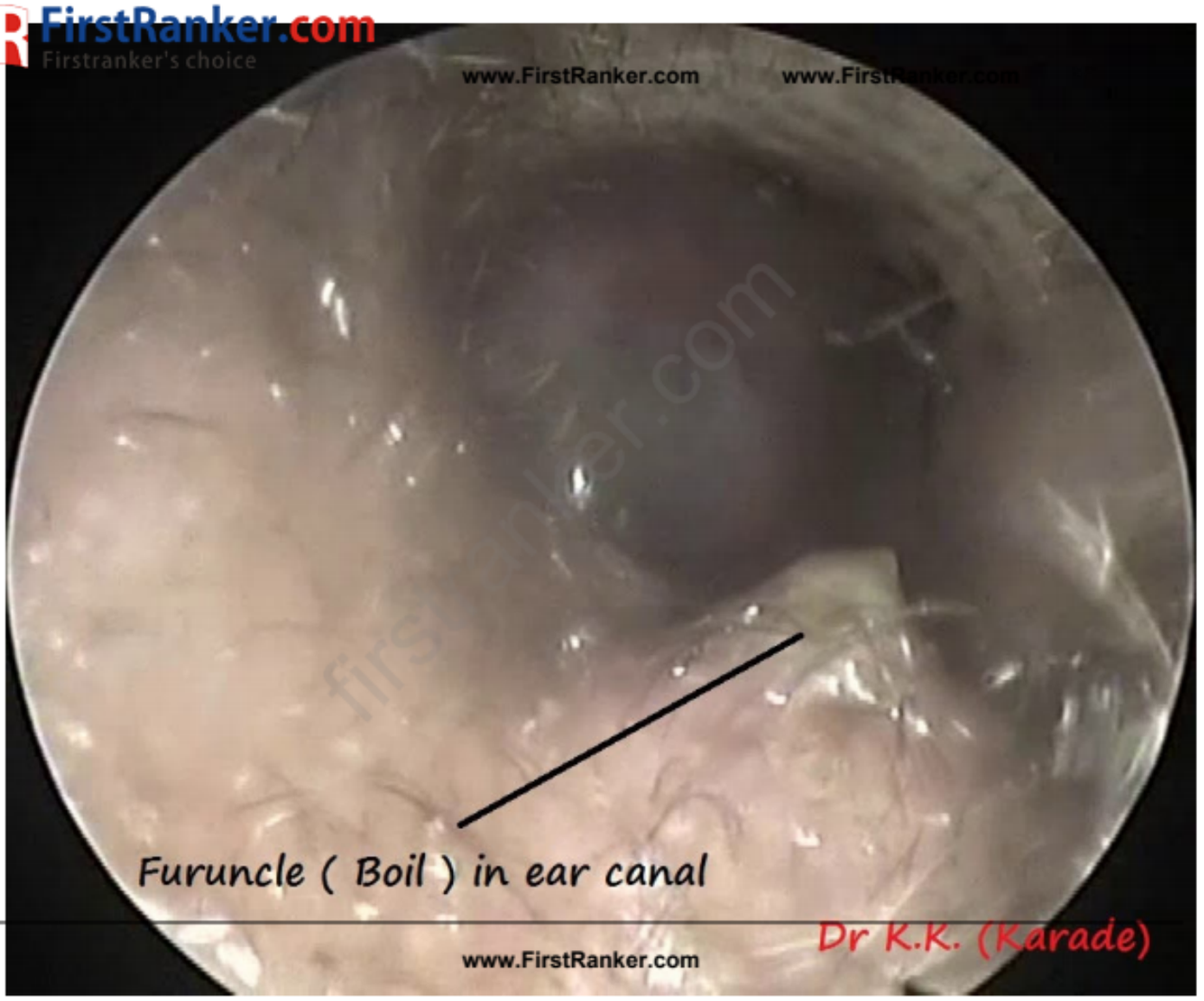
- Herpes zoster oticus
- Otitis externa haemorrhagica

## 2.REACTIVE GROUP

- Eczematous otitis externa
- Seborrhoeic otitis externa
- Neurodermatitis

# Furuncle (localized acute otitis externa)

- A furuncle is a staphylococcal infection of the hair follicle.
- cartilaginous part of the meatus.
- Usually single, the furuncles may be multiple.
- Pain,tenderness,painful movements of pinna,jaw,enlarged lymphnodes[Periauricular lymph nodes (anterior, posterior and inferior)]



- Treatment of Furuncle without abscess formation, consists of **systemic antibiotics, analgesics and local heat.**
- An ear pack of 10% ichthammol glycerine provides splintage and reduces pain. Hygroscopic action of glycerine reduces oedema, while ichthammol is mildly antiseptic.
- If abscess has formed, incision and drainage should be done.

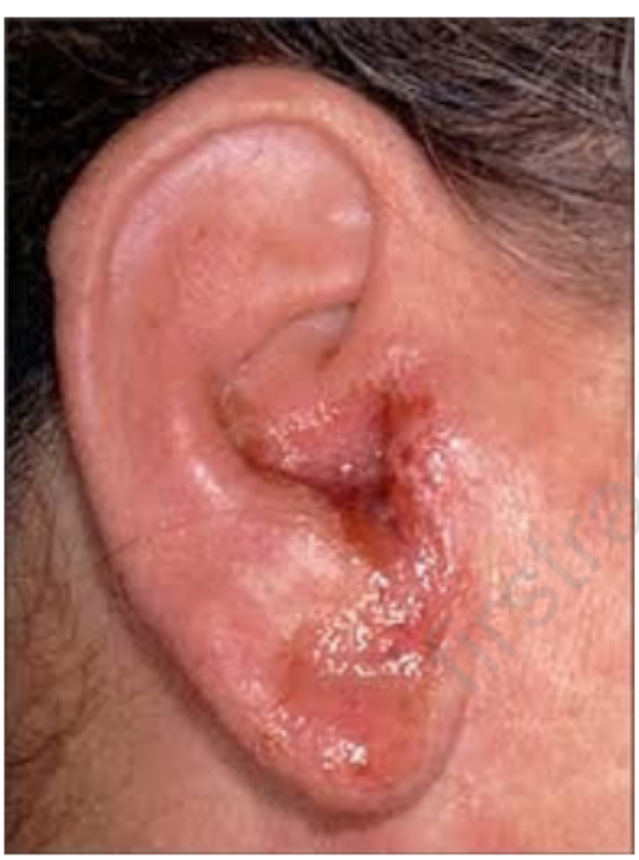
- In case of ***recurrent furunculosis,***
- diabetes should be excluded, and
- attention paid to the patient's nasal vestibules which may harbour staphylococci and the infection transferred by patient's fingers.
- Staphylococcal infections of the skin as a possible source should also be excluded and suitably treated.

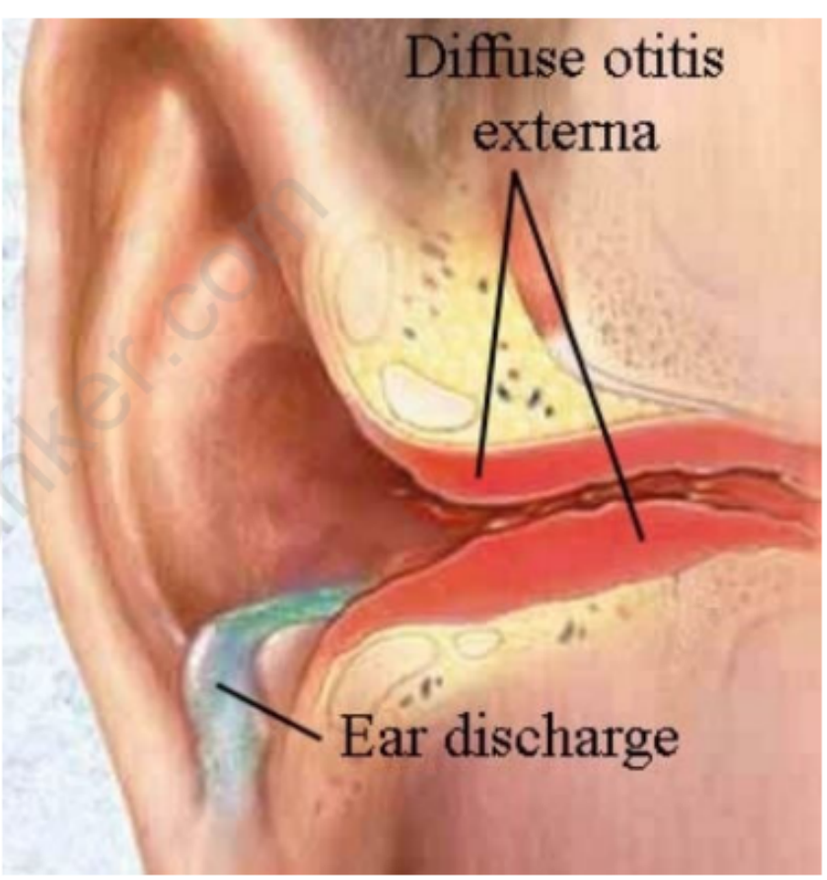
# Diffuse otitis externa.

- It is diffuse inflammation of meatal skin which may spread to involve the pinna and epidermal layer of tympanic membrane.
- ***Aetiology.***
- Disease is commonly seen in hot and humid climate and in swimmers.
- Excessive sweating **changes the pH of meatal skin from that of acid to alkaline** which favours growth of pathogens.
- This is by
- (i) trauma to the meatal skin and
- (ii) invasion by pathogenic organisms.

- *Common organisms* responsible for otitis externa are ***Staphylococcus aureus, Pseudomonas pyocyaneus, Bacillus proteus*** **and** ***Escherichia coli*** but more often the infection is mixed.

- *Acute phase* is characterized by
- **hot burning sensation in the ear**, followed by pain which is aggravated by movements of jaw.
- Ear starts **oozing thin serous discharge** which later becomes thick and purulent.
- **Meatal lining becomes inflamed and swollen.**
- Collection of debris and discharge accompanied with meatal swelling gives rise to **conductive hearing loss.**
- In severe cases, **regional lymph nodes become enlarged and tender with cellulitis of the surrounding tissues.**





- *Chronic phase* is characterized by **irritation and strong desire to itch.** This is responsible for acute exacerbations and reinfection.
- Discharge is scanty and may dry up to form **crusts.**
- Meatal skin which is thick and swollen may also **show scaling and fissuring.**
- Rarely, the skin becomes hypertrophic leading to **meatal stenosis (*chronic stenotic otitis externa*).**

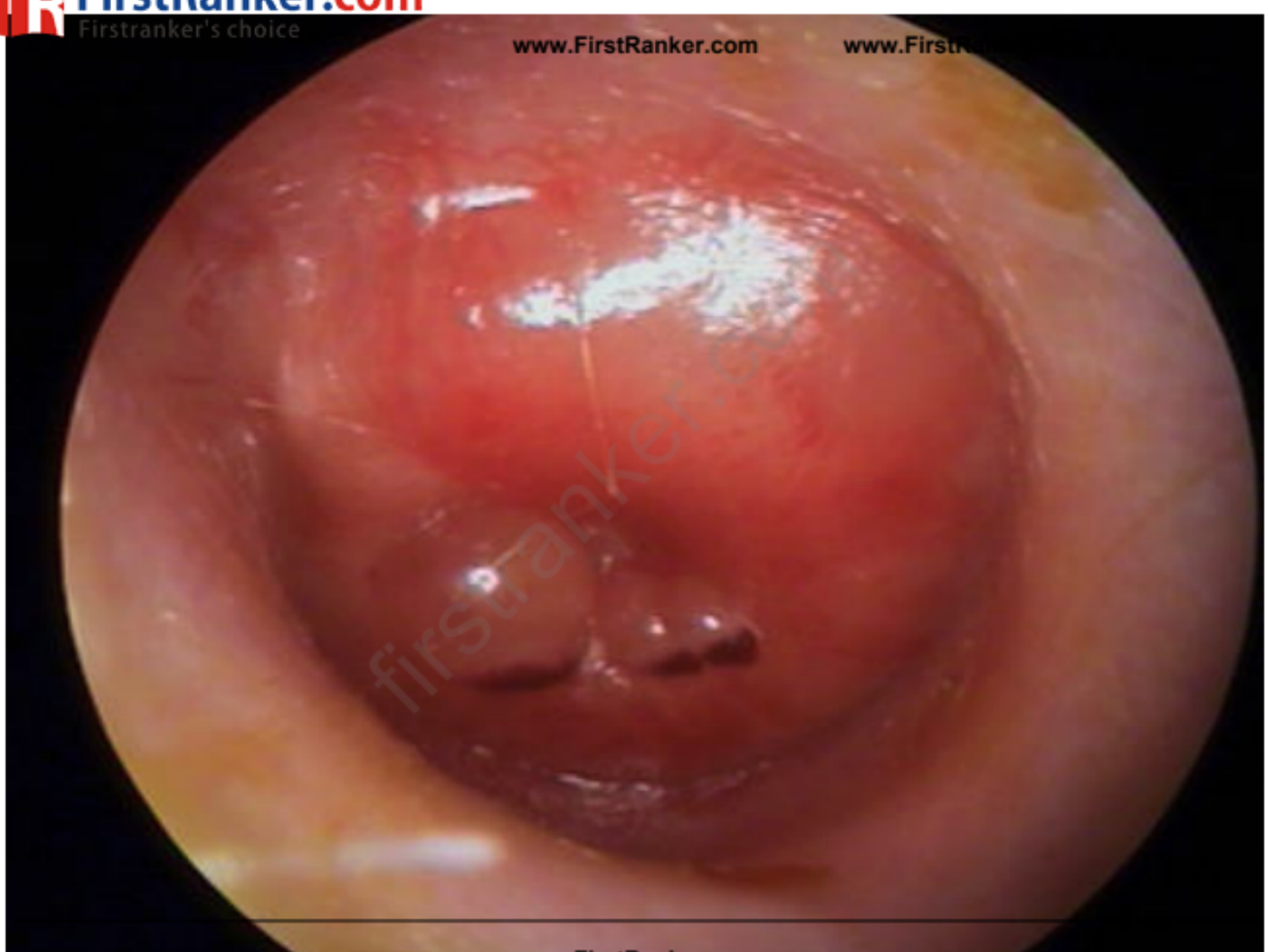
- ***Treatment***. *Acute phase* is treated as follows:
- **(i) *Ear toilet.***
- It is the most important single factor in the treatment of diffuse otitis externa
- anteroinferior meatal recess
- Ear toilet can be done by dry mopping, suction clearance or irrigating the canal with warm, sterile normal saline.

- **(ii) *Medicated wicks*.**
- After thorough toilet, a gauze wick soaked in antibiotic steroid preparation is inserted in the ear canal .
- Local steroid drops help to relieve oedema, erythema and prevent itching.
- Aluminium acetate (8%) or silver nitrate (3%) are mild astringents and can be used in the form of a wick to form a protective coagulum to dry-up an oozing meatus.
- **(iii) *Antibiotics*.** Broad-spectrum systemic antibiotics are used when there is cellulitis and acute tender lymphadenitis.
- **(iv) *Analgesics*.** For relief of pain.

- *Chronic phase.* Treatment aims at
- (i) reduction of meatal swelling so that ear toilet can be effectively done and
- (ii) alleviation of itching so that scratching is stopped and further recurrences controlled.
- A gauze wick soaked in **10% ichthammol glycerine** and inserted into the canal helps to reduce swelling. This is followed by ear toilet with particular attention to anteroinferior meatal recess.
- Itching can be controlled by topical application of antibiotic steroid cream.
- When the meatal skin is thickened to the point of obstruction and resists all forms of medical treatment, i.e. chronic stenotic otitis externa, it is surgically excised, bony meatus is widened with a drill and lined by split-skin graft

# Otitis externa haemorrhagica

- It is characterized by formation of **haemorrhagic bullae** on the tympanic membrane and deep meatus.
- It is probably **viral** in origin
- The condition causes **severe pain in the ear and blood-stained discharge when the bullae rupture.**
- Treatment with **analgesics** is directed to give relief from pain.
- **Antibiotics** are given for secondary infection of the ear canal, or middle ear if the bulla has ruptured into the middle ear.



# OTITIS EXTERNA (CONTD)



Otomycosis

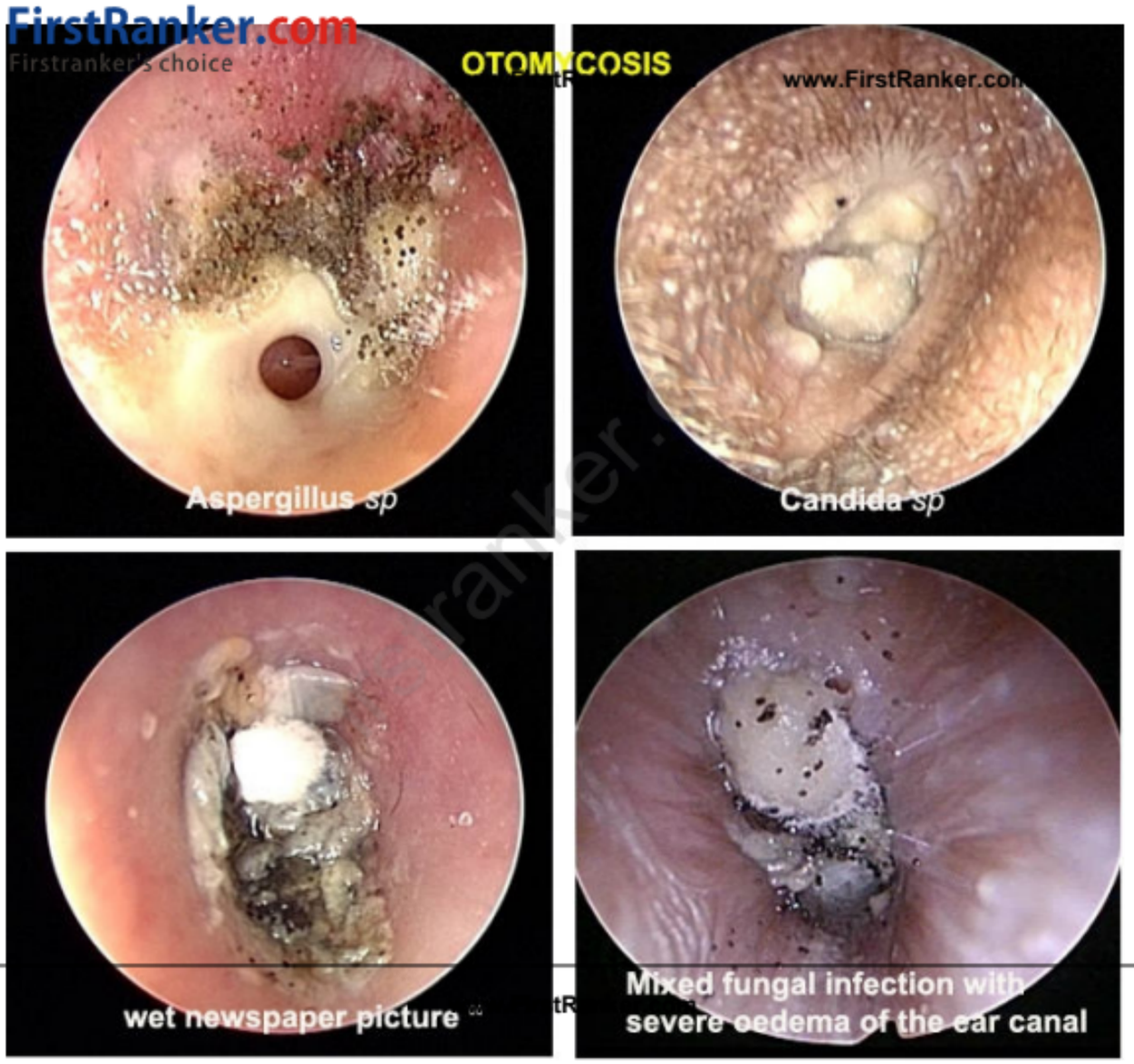
Herpes zoster oticus

Malignant otitis externa

# Otomycosis

- Otomycosis is a fungal infection of the ear canal that often occurs due to ***Aspergillus niger, A. fumigatus*** **or** ***Candida albicans***.
- It is seen in hot and humid climate of tropical and subtropical countries.
- Secondary fungal growth is also seen in patients using topical antibiotics for treatment of otitis externa or middle ear suppuration.

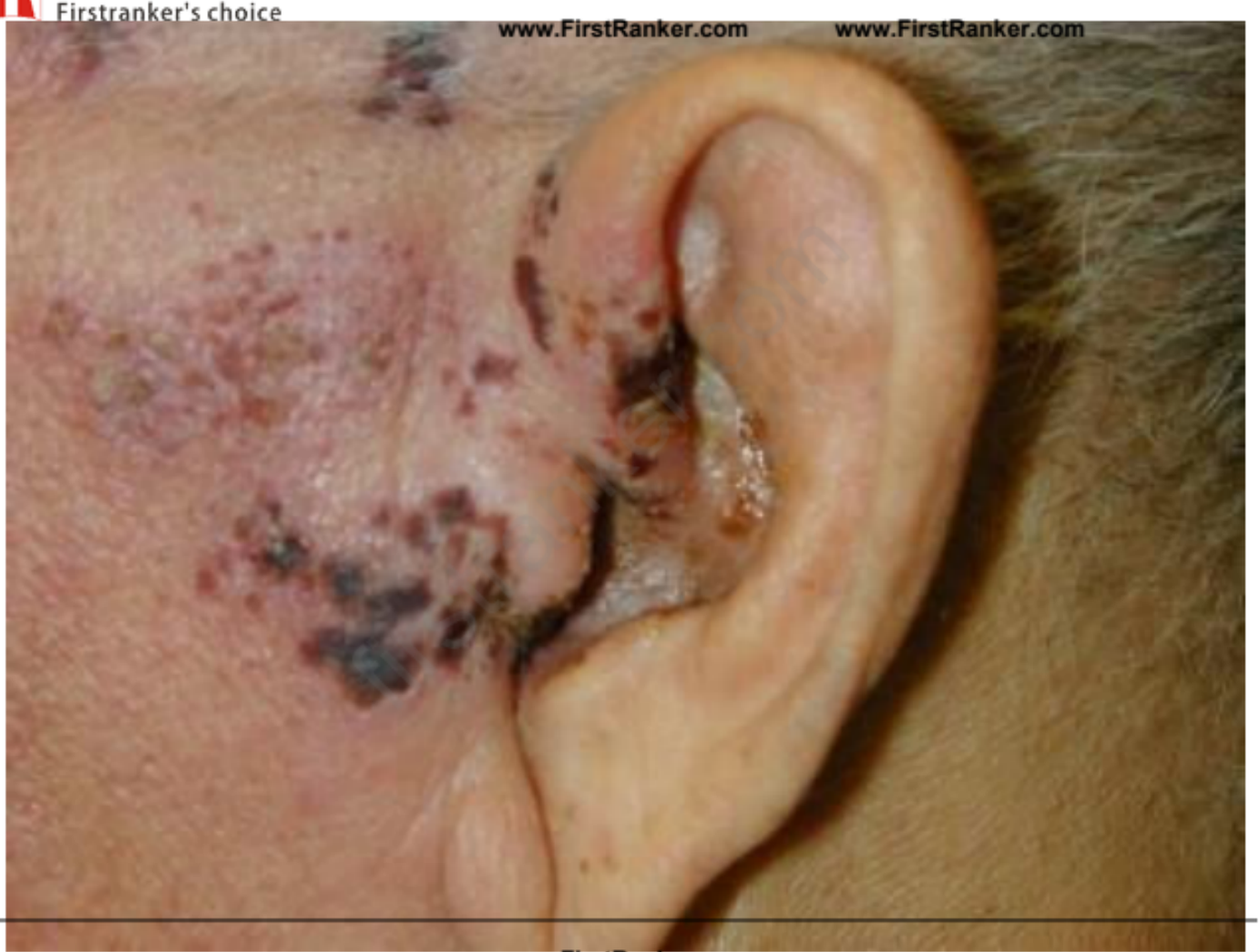
- The *clinical features* of otomycosis include **intense itching, discomfort or pain in the ear, watery discharge with a musty odour and ear blockage**.
- The fungal mass may appear white,brown or black and has been likened to a wet piece of filter paper.
- Examined with an otoscope, *A. niger* appears as blackheaded filamentous growth, *A. fumigatus* as pale blue or green and Candida as white or creamy deposit.
- Meatal skin appears sodden, red and oedematous.



- *Treatment* consists of thorough ear toilet.
- Specific antifungal agents can be applied.
- **Nystatin** (100,000 units/mL of propylene glycol) is effective against Candida.
- Other broad-spectrum antifungal agents include **clotrimazole and povidone iodine**.
- **Two per cent salicylic acid in alcohol** is also effective.
- Antifungal treatment should be continued for a week even after apparent cure to avoid recurrences.
- Ear must be kept dry.
- Bacterial infections are often associated with otomycosis and treatment with an antibiotic/steroid preparation helps to reduce inflammation and oedema and thus permitting better penetration of antifungal agents.

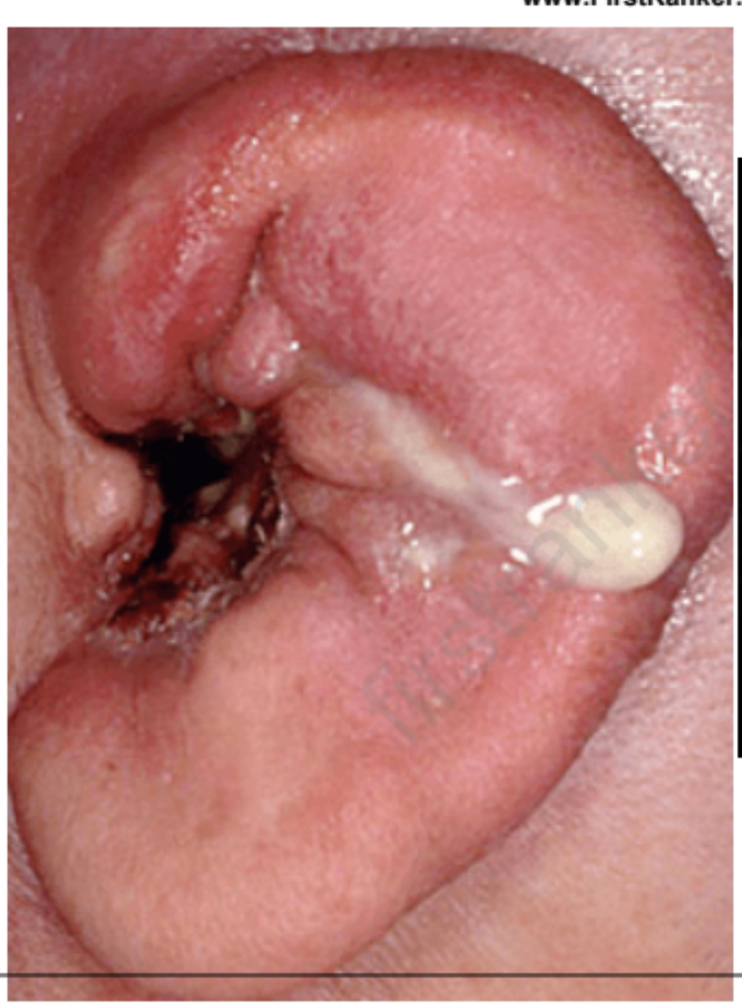
# Herpes zoster oticus.

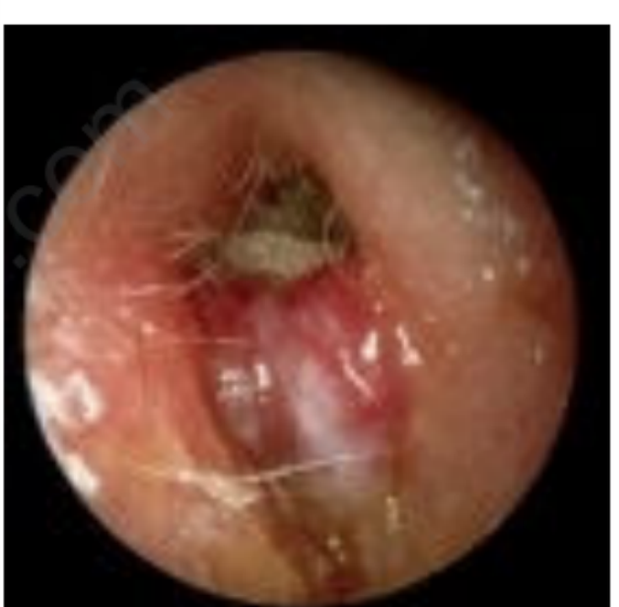
- It is characterized by formation of vesicles on the tympanic membrane, meatal skin, concha and postauricular groove.
- The VIIth and VIIIth cranial nerves may be involved.



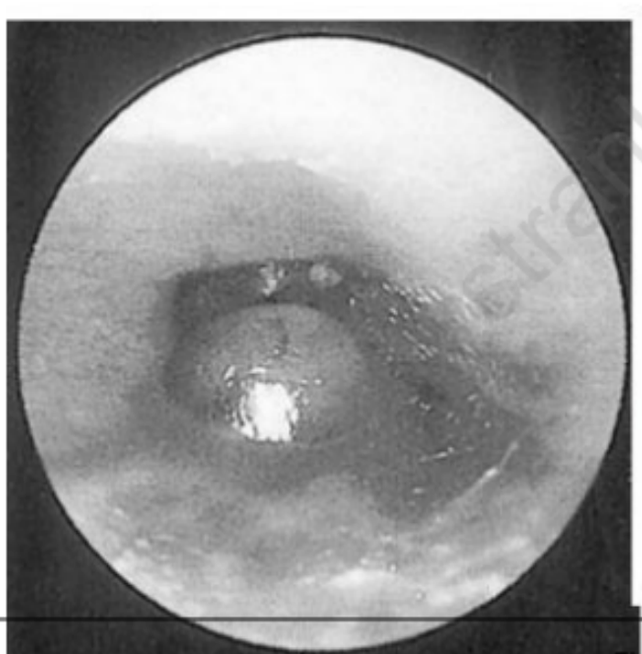
# Malignant (necrotizing) otitis externa.

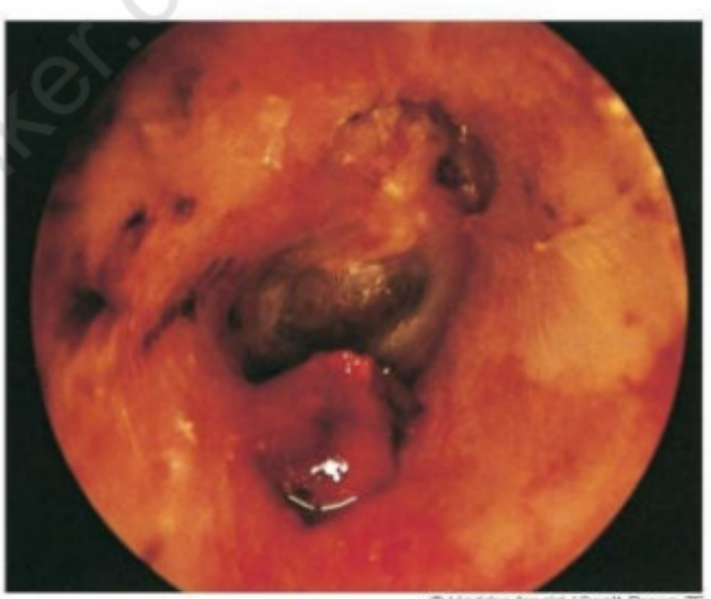
- It is an inflammatory condition caused by **pseudomonas** infection usually in **the elderly diabetics, or in those on immunosuppressive drugs**.
- Its early manifestations resemble diffuse otitis externa but there **is excruciating pain and appearance of granulations in the ear canal**.
- **Facial paralysis** is common.
- Infection may spread to the skull base and jugular foramen causing **multiple cranial nerve palsies.**
- Anteriorly, infection spreads to temporomandibular fossa, posteriorly to the mastoid and medially into the middle ear and petrous bone.



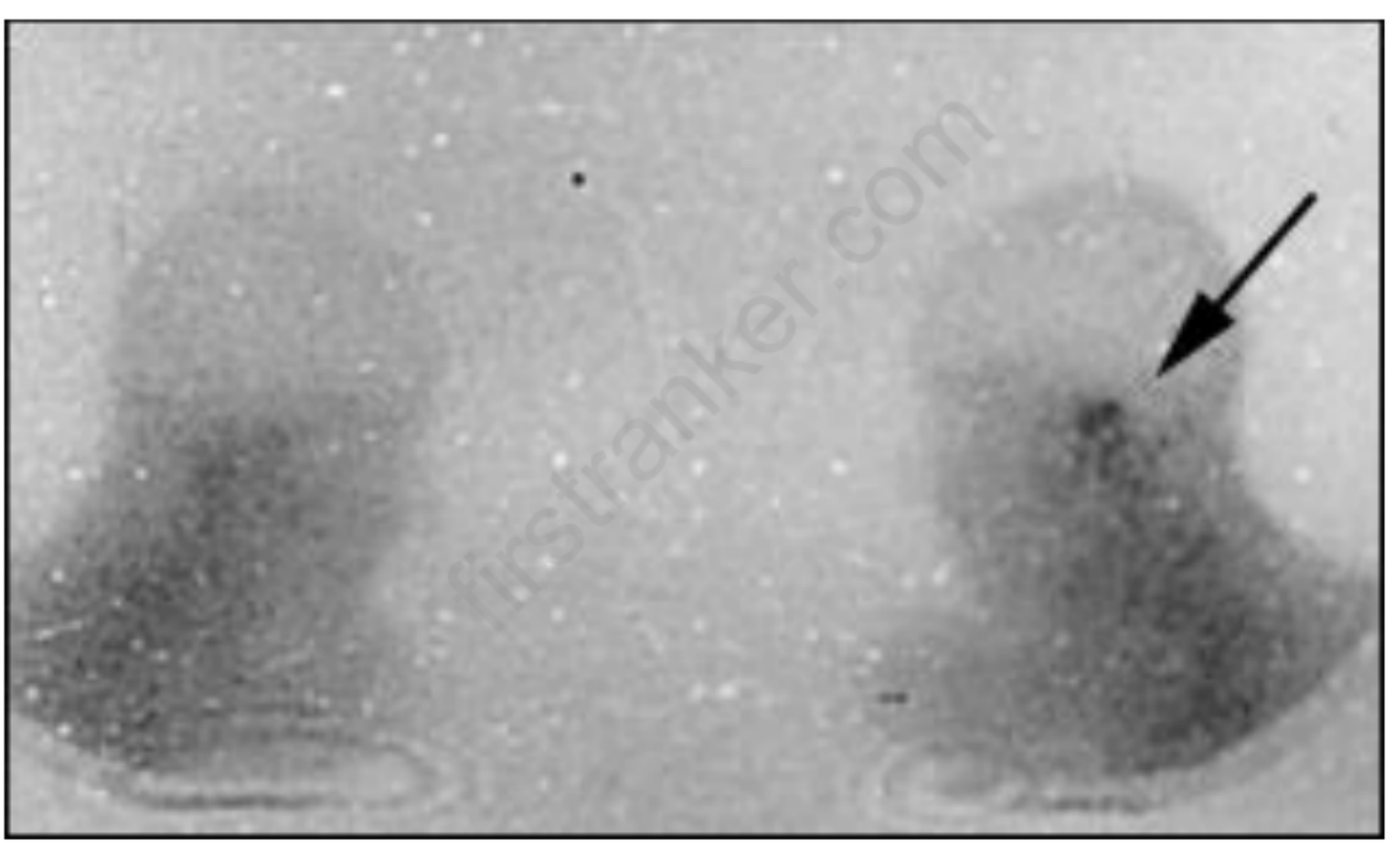


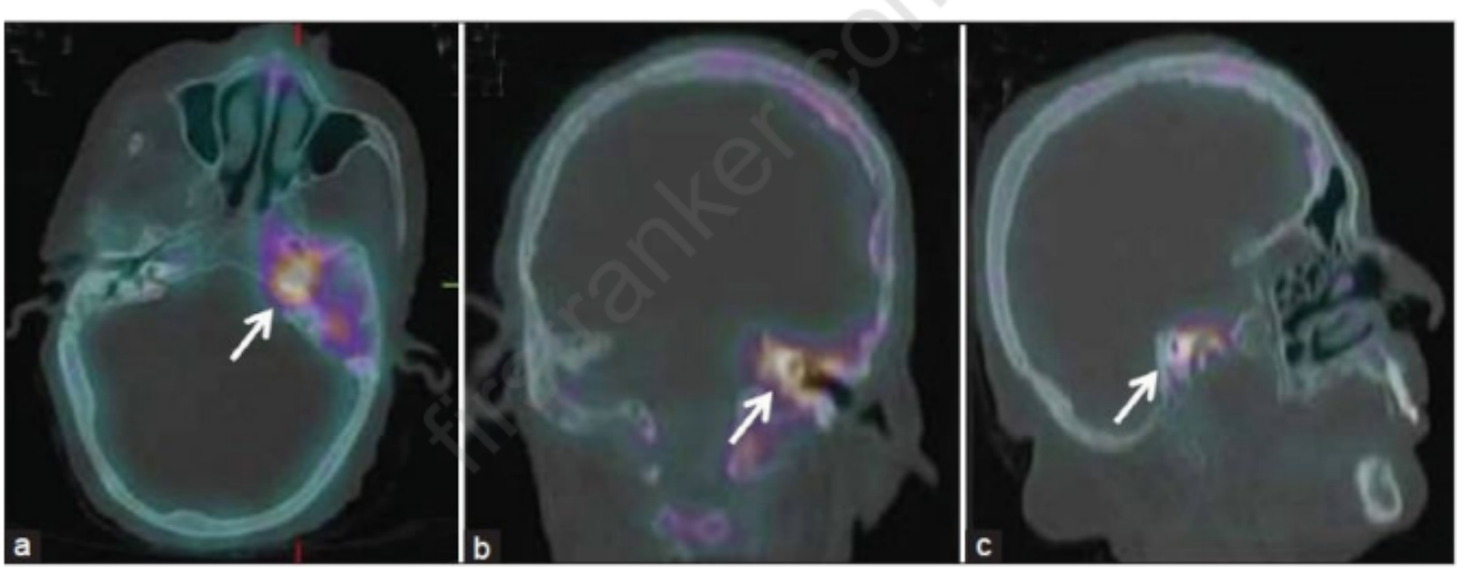
Hallmark finding: granulation tissue on floor of the ear canal at the bony-cartilaginous junction





- *Diagnosis*.
- **Severe otalgia in an elderly diabetic patient with granulation tissue in the external ear canal at its cartilaginous– bony junction** should alert the physician of necrotizing otitis externa.
- **CT scan** may show bony destruction but is often not helpful.
- **Gallium-67** is more useful in diagnosis and follow-up of the patient.
- It is taken up by monocytes and reticuloendothelial cells, and is indicative of soft tissue infection. It can be repeated every 3 weeks to monitor the disease and response to treatment.
- **Technetium 99** bone scan reveals bone infection but test remains positive for a year or so and cannot be used to monitor the disease.





- *Treatment*. It consists of:
- (i**) Control of diabetes**.
- (ii) **Toilet of ear canal.**
- (iii**) Antibiotic treatment** against causative organism, which in most ears is *P. aeruginosa,* but sometimes other organisms which can be found by culture and sensitivity.
- Antibiotic treatment is continued for 6–8 weeks, sometimes more.

- Antibiotics found effective are:
- • Gentamicin combined with ticarcillin. They are given intravenously. Gentamicin is both ototoxic and nephrotoxic, and ticarcillin may produce penicillin-like reactions.
- • Third-generation cephalosporins, e.g. ceftriaxone 1–2 g/day i.v. or ceftazidime 1–2 g/day i.v. are usually combined with an aminoglycoside.
- • Quinolones (ciprofloxacin, ofloxacin and levofloxacin) are also effective and can be given orally. They can be combined with rifampin. Ciprofloxacin 750 mg OD orally can be used. Oral therapy with quinolones obviates the need for admission for i.v. injections.
- If patient is not responsive, culture and sensitivity of ear discharge should guide the surgeon.
- **Prolonged antibiotic treatment has replaced radical surgery and resections done earlier for this condition.**

# OTITIS EXTERNA(CONTD)

Eczematous otitis externa

Seborrhoeic otitis externa

Neurodermatitis

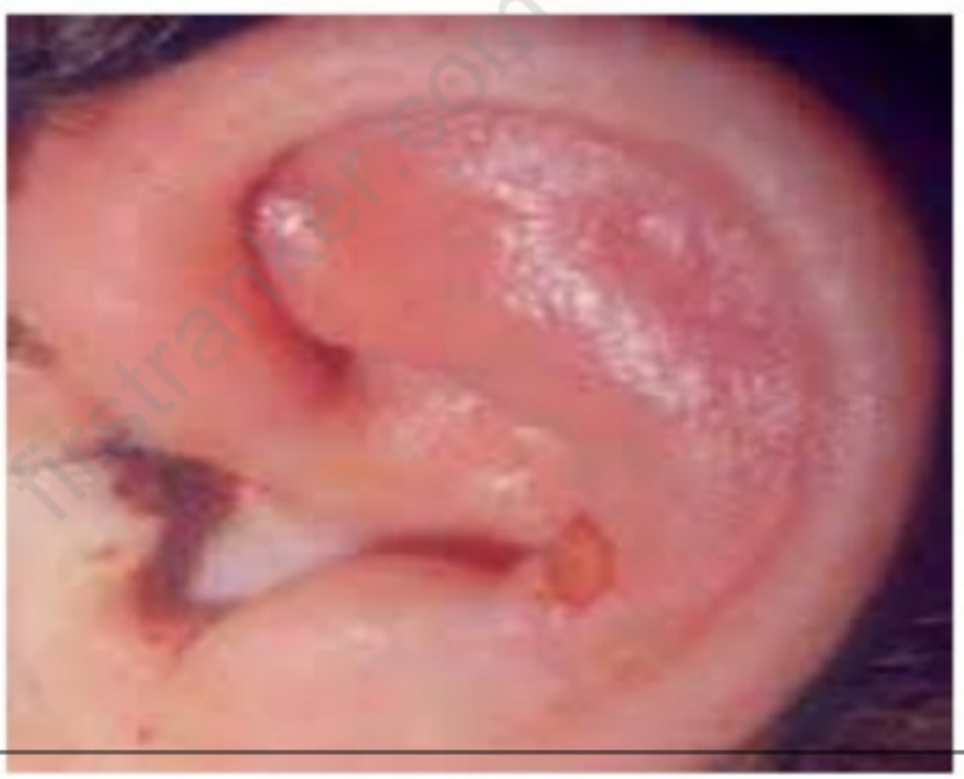
Keratosis obturans

# Eczematous otitis externa

- It is the result of hypersensitivity to infective organisms or topical ear drops such as chloromycetin or neomycin, etc.
- It is marked by intense irritation,vesicle formation, oozing and crusting in the canal.
- Treatment is withdrawal of topical antibiotic causing sensitivity and application of steroid cream.

# Eczematous otitis externa

- Hypersensitivity reaction
  - Drpos
  - Ornaments
  - Ear rings
- Withdrawl of the causative agents
- Steroid cream



# Seborrhoeic otitis externa.

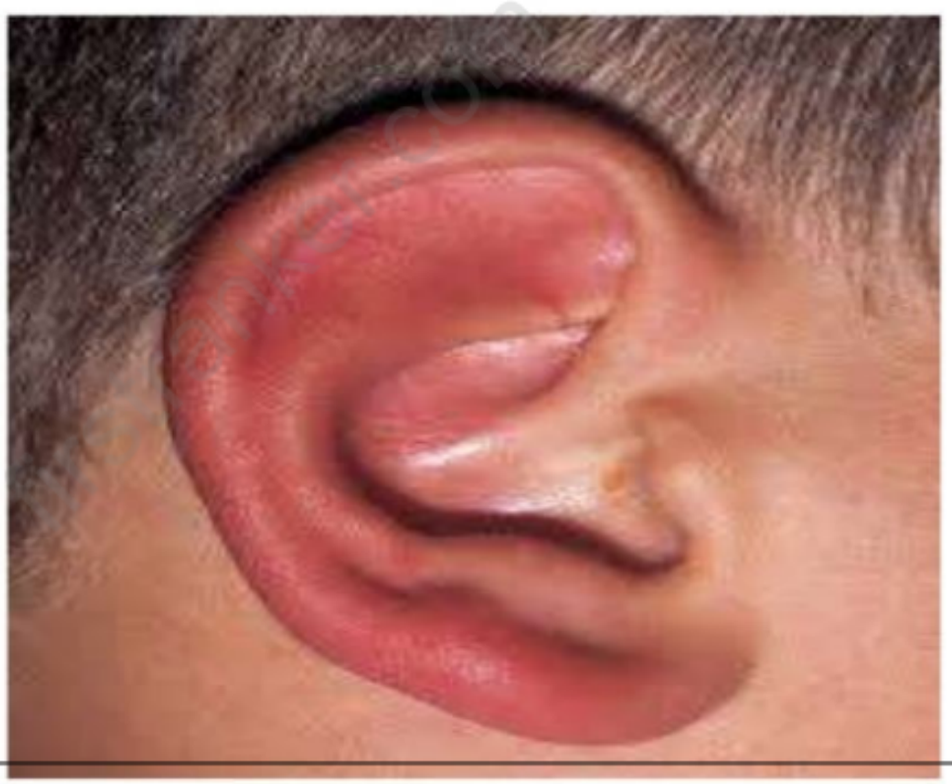
- It is associated with seborrhoeic dermatitis of the scalp.
- Itching is the main complaint. Greasy yellow scales are seen in the external canal, over the lobule and postauricular sulcus.
- Treatment consists of ear toilet, application of a cream containing salicylic acid and sulfur, and attention to the scalp for seborrhoea.

# Neurodermatitis.

- It is caused by compulsive scratching due to psychological factors.
- Patient's main complaint is intense itching.
- Otitis externa of bacterial type may follow infection of raw area left by scratching.
- Treatment is sympathetic psychotherapy and that meant for any secondary infection.
- Ear pack and bandage to the ear are helpful toprevent compulsive scratching

# Neurodermatitis

- Psychological disorder
- Compulsive scrathing
- Intense itching
- Secondary infection



# Keratosis obturans

- Collection of a pearly white mass of desquamated epithelial cells in the deep meatus is called keratosis obturans.
- This, by its pressure effect, causes absorption of bone leading to widening of the meatus so much so that facial nerve may be exposed and paralyzed.
- **(a) *Aetiology.***
- It is commonly seen between 5 and 20 years
- and may affect one or both ears.
- It may sometimes be associated with bronchiectasis and chronic sinusitis.
- Normally, epithelium from surface of tympanic membrane migrates onto the posterior meatal wall.
- Failure of this migration or obstruction to migration caused by wax may lead to accumulation of the epithelial plug in the deep meatus.

# *Clinical features*

- Presenting symptoms may be **pain in the ear, hearing loss, tinnitus and sometimes ear discharge.**
- On examination, ear canal may be full of **pearly white mass of keratin material** disposed in several layers.
- Removal of this mass may show widening of bony meatus with ulceration and even granuloma formation.

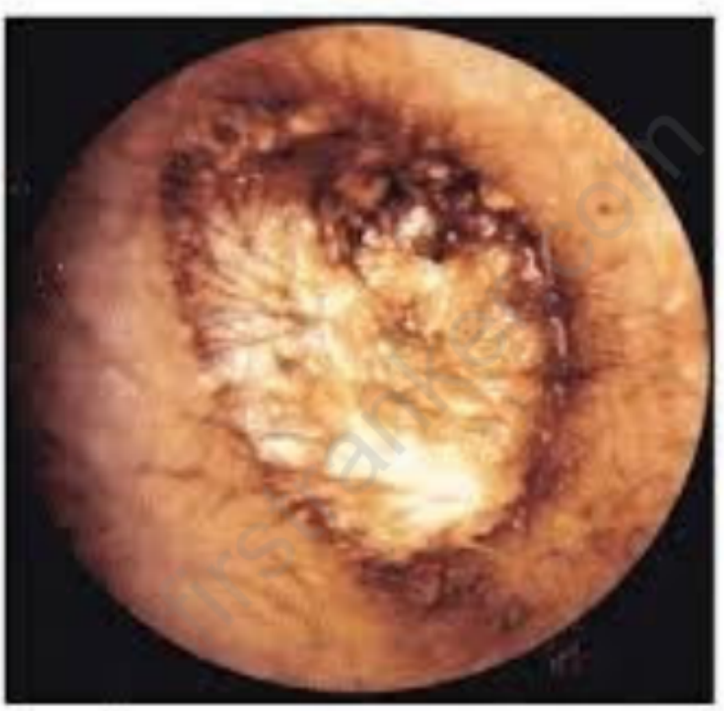


Figure 4: Septic keratosis obturans by year 5.

# *Treatment*

- Keratotic mass is removed either by syringing or instrumentation, similar to the techniques employed for impacted wax.
- Secondary otitis externa may be presentand should be treated.
- Patient should be periodically checked and any reaccumulations removed.
- Recurrence can be checked to some extent by the use of keratolytic agent such as 2% salicylic acid in alcohol

# THANK YOU