

# OTC OTIC

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# Over the counter (OTC) OTIC products

The ear can be divided into three parts :

The external ear

The middle ear

The inner ear

# 1-The external ear

Is the part of the ear one can see . It is made up of

- 1-Auricle (pina) : functions to collect sound and channel it towards the middle ear
- 2-The external auditory canal (ear canal):is about one inch in length ,leading directly to the ear drum , responsible for secreting cerumen (ear wax)
- 3-The ear drum : separates the external auditory canal from the middle ear

## 2-The middle ear

- Is an air filled chamber that provides direct access to the inner ear and indirect access to the nose and throat by way of the Eustachian tube .

-It houses three small bones known as the ossicles .

-When sound strikes the ear drum , it vibrates transmitting the sound vibrations to the ossicles , which in turn transmit the sound to the inner ear

# 3-The inner ear

- Is a delicate structure composed of auditory and vestibular components
  - The auditory component of the inner ear (cochlea ) is responsible for hearing
  - The vestibular component of the inner ear is responsible for maintaining balance and equilibrium

# COMMON EAR DISORDERS

# 1-Excessive cerumen (ear wax)

Contrary to the current social beliefs :” ear wax does need to be removed with objects such as fingers , cotton tipped” , because these objects cause impaction of the ear wax rather than its removal .

The external ear has a unique self cleaning mechanism . Ear canal skin is constantly shed and removed via lateral migration from tympanic membrane ( at a rate of 2 -3 mm per day ) to the external canal , where cerumen adheres to the shed skin . Movement such as chewing moves the cerumen outwards

The function of the cerumen include :

1-Lubrication of the lining of the ear canal

2-Repelling water

3-Resistance to infection owing to its acidic nature

PH4-5

4-Trapping dust , debris and foreign objects

# Symptoms of impacted cerumen

Symptoms of impacted cerumen include earache , vertigo , itching of the ear , reflex cough , dizziness , tinnitus etc.....

# Ear wax softening agents

## 1- Carbamide peroxide 6.5% in anhydrous glycerine

When Carbamide peroxide makes contact with tissue enzymes, oxygen is released, producing a foaming action. This foaming action softens impacted cerumen

- a) **Available agents** : Murine, Debrox, Dentos ear wax
- b) **Instruction for use** : patients aged 12 and older should tilt the head sideways and instill 5 -10 drops into the ear. The application tip should not be inserted into the ear canal. Patients should keep the head tilted to the side ( or insert cotton ) for several minutes to increase contact time with the cerumen. Repeat the process twice daily for up to 4 days

## **2- Olive oil**

Is used to soften ear wax and alleviate itching

## **3- Mineral oil**

Recommended as 2 drops in the affected ear (one per week has been used to liquify the cerumen , thus aiding in its removal

## **4- Hydrogen peroxide**

Has a weak antibacterial properties . As an otic solution , it may be diluted 1:1 with warm water and instilled in the ear to aid in cerumen softening and removal

**N . P.**

Patients with perforated tympanic membrane ,  
ear drainage , ear pain or a rash in the ear  
should be referred to a health care provider

## 2-Vertigo

Is a loss of equilibrium . The autonomic system may become involved if the vertigo is severe , producing dizziness , sweating and nausea. Patients expressing symptoms of vertigo ( aside from motion sickness ) should be referred to a medical care provider

# 3-Tinnitus

May be described by patients as ringing , hissing , whistling or humming noise lasting from seconds to minutes . Tinnitus has been linked to a variety of causes including head injuries , otitis media , syphilis and certain medication ( salicylates non steroidal anti-inflammatory drugs , amino glycosides , loop diuretics and chemotherapeutic agents . If tinnitus is constant or severe , a medical consult is advised

# 4-External otitis

Is inflammation of the external auditory canal secondary to a bacterial or fungal infection. Causes :

External otitis ,frequently referred to as a swimmer's ear , is thought to be most commonly the result of local trauma or prolonged exposure to moisture

Prolonged exposure to moisture ( e .g. humid environment , underwater swimming ) promotes maceration of the thin skin lining the ear canal , allowing bacteria to penetrate and grow.

Trauma to the external canal bends itself to susceptibility to damage and thus easier infiltration of microorganisms. The microorganisms isolated from patients with swimmer ear are *pseudomonas aeruginosa* and *staphylococcus aureus*.

Symptoms :

Include itching , followed by pain , an otic discharge and a possible decrease in hearing .

Treatment :

Is with a prescription otic antibiotic and corticosteroid if bacterial in origin and otic antibiotic alone if fungal origin

External otitis should not be self treated

# 5-Furuncles

Also known as boils , are small abscesses surrounding the base of a hair follicle in the outer portion of the external ear canal .

Staphylococcus aureus is typically the offending organism.

Furuncles are usually self limiting and may be managed with warm water compresses and a topical antibiotic.

# 6-Otitis media

Is a bacterial infection that is most prevalent between the ages of 3 months and 3 years owing to the length , angle and function of the Eustachian tube in children

Symptoms include ear pain , fever , fluid discharge from the ear and possible decreased hearing .

All patients with suspected otitis media must be referred to a medical care provider for evaluation and treatment

- ▣ Ear disorders affect all ages. Visible signs are not always consistent with the degree of severity or pain experienced.
- ▣ Non prescription medicines are restricted to minor self-limiting disorders affecting these areas .
- ▣ Taking a proper history and assessing the patient's complaint are important for the pharmacist to be judge whether self-treatment or referral to a physician is indicated.

- ▣ Educating patients about proper ear hygiene is important in preventing further problems.
- ▣ The warning “N ever clean the ear with anything smaller than the elbow” is frequently given as advice by physicians to help patients remember proper ear care.
- ▣ If symptoms do not resolve with proper treatment after 4 days ,or if symptoms worsen, the patient should be encouraged to contact a physician.



- ▣ Assessment of Common Otic Symptoms :
- ▣ 1-Describe the pain. How long has it been occurring?
- ▣ 2-Identify the otic disorders associated with pain and the type of pain .
- ▣ 3-Do you have fever or discharge from the ear?
- ▣ 4-Have you recently had a cold or the flu?
- ▣ 5-Have you attempted to remove the wax from your ears recently ? If so ,describe the method used.

- ▣ 6-Have you been swimming recently ,or do you routinely have problems with water remaining in your ears after bathing?
- ▣ 7-Have you recently been in an air-plaine or fast -moving elevator in which the air pressure changed suddenly?
- ▣ 8-Have you taken any medications to treat the pain?
- ▣ 9-If yes, advise the patient that aspirin , acetaminophen ,or NSAIDs can mask a fever and do not treat the cause of ear pain.

- ▣ Assessment of otic Pruritus:
- ▣ 1-When did your ears first start to itch?
- ▣ 2-Do you have a problem with psoriasis or other dermatologic conditions?
- ▣ 3-For psoriasis treat the scalp and the external ear with the appropriate medicated shampoo.
- ▣ 4-If needed, apply hydrocortisone to relieve inflammation.
- ▣ 5-Do not self-treat multiple boils or a boil in the ear canal.
- ▣ 6-Apply warm compresses to a boil located on the out side of the ear, then apply topical antibiotics.