

# **Diagnostic Algorithm and Standard Treatment Guidelines for Management of Common Ear Conditions**

## **Background**

Deafness is defined as the inability to use hearing as a primary channel for receiving speech, even with amplification. Hearing loss is hearing impairment of various degrees.

It is estimated that there are approximately 63 million people in India suffering from hearing impairment. A significant proportion of cases of hearing loss are due to common ear diseases, which if diagnosed early and managed properly can significantly reduce the burden of decreased hearing.

Considering the burden of the problem and the burden of disability due to decreased hearing/deafness, there was a pressing need for developing guidelines for diagnosis and treatment of patients with ear diseases.

We have developed, in consultation with some of the leading experts in the country, an Algorithm for diagnosing common ear conditions and Treatment Guidelines for managing these conditions. The principal objective of this exercise is to aid in reducing the burden of preventable hearing loss in the country.

These guidelines have been developed with the objective of helping physicians, general practitioners or pediatricians at the primary and secondary level, who are often the first interface with a majority of patients, in arriving at a diagnosis of common ear conditions and instituting proper management.

## **Standard Treatment Guidelines**

These guidelines are intended to cover the management of the common ear conditions which may lead to hearing impairment.

**Common ear conditions which may lead to hearing impairment.** (Click on the links below to see the guidelines)

1. [Ear Wax](#)
2. [External auditory canal infections](#)
3. [Otomycosis](#)
4. [Acute Suppurative Otitis Media - ASOM](#)
5. [Chronic Suppurative Otitis Media - CSOM \(Safe type\)](#)
6. [Chronic Suppurative Otitis Media - CSOM \(Unsafe type\)](#)
7. [Otitis Media with Effusion - OME](#)

Apart from these common ear conditions leading to decreased hearing there are other causes of preventable hearing loss, like excessive use of ototoxic drugs and noise induced hearing loss. These are also important causes of hearing loss and should receive adequate consideration.

Early screening for hearing loss and early rehabilitation is recommended to reduce the disability caused by hearing impairment.

## **Ear Wax-**

### **Signs and Symptoms**

- » Wax seen in the ear
- » Pain / decreased hearing / itching in ear

### **Treatment**

- » In case of severe pain analgesic should be given
- » Wax softener ear drops, 3-5 drops three times a day for 4-5 days
- » Removal of the wax by gentle syringing (refer the patient if you are not familiar with the procedure of syringing)
- » If pain persists refer to an ENT specialist

### Advice to the patient

- » Not to instill oil in the ear
- » Not to use ear buds or any sharp object for cleaning the ear

### **External Ear Canal Infections**

Otitis externa, Furunculosis

### Signs and symptoms

- » Pain and heaviness in the ear
- » Tenderness and swelling of the ear canal and surrounding area
- » Decreased hearing

### Treatment

- » Topical ear drops (Steroid and antibiotic combination)
- » 10% Ichthammol glycerine packing (to be changed or removed after 24 hours)
- » Anti-inflammatory drugs
- » Systemic antibiotics [Amoxycillin+Cloxacillin / Amoxycillin]
- » If no improvement is seen in 5-7 days, refer to an ENT specialist

### Advice to the patient

- » Not to scratch the ear with pointed objects
- » Keep the ear dry (prevent water from getting into the ear)

### **Otomycosis-**

#### Signs and symptoms

- » Pain and heaviness in the ear
- » Itching in the ear
- » Decreased hearing
- » Whitish debris/ spores in the ear canal

#### Treatment

- » Antifungal ear drops three drops three times a day
- » Topical cleaning
- » Gentle syringing and dry mopping

### **Acute Suppurative Otitis Media (ASOM)-**

#### Signs and symptoms:

- » Earache/fever/excessive
- » Crying/URI/decreased hearing/ear discharge
- » Congestion/bulging/perforation of the tympanic membrane

#### Treatment

##### 1. Antibiotic therapy

- » Amoxycillin:
- » For children: 40- 60 mg/kg in three divided doses for 10-14 days
- » For adults: 500mg three times a day for 7 days. OR
- » Co-trimoxazole or Erythromycin (if allergic to penicillin) OR
- » Co-amoxyclav/Cefaclor (in case of no-response for 48-72

hours with above drugs)

##### 2. Anti-inflammatory drugs for three days/till symptoms subside

##### 3. In case of discharge – Borospirit/Ciprofloxacin/Ofloxacin ear drops

**Refer to an ENT specialist if-**

- » Patient develops features like vomiting with headache/facial palsy/dizziness/mastoid tenderness
- » Symptoms worsen even after 48 hours of second line medical treatment

**Advice to the patient-**

- » Keep the ear dry (prevent water from getting into the ear)
- » In case of discharge – dry mopping of the ear with a clean cotton wick.
- » Not to put any indigenous eardrops

**Chronic Suppurative Otitis Media CSOM (Safe Type)**

**Signs and symptoms**

- » Mucopurulent ear discharge for 3 months or longer hearing impairment
- » Central perforation of the tympanic membrane

**Treatment**

- » Dry mopping of the ear using a cotton wick (or gentle suction under vision)
- » Topical Borospirit/Ciprofloxacin/Ofloxacin with/without steroid ear drops
- » If fungal infection is suspected/seen – add topical anti-fungal agent (like Clotrimazole)
- » If acute symptoms like increased discharge/pain appear then add systemic antibiotics (as per ASOM treatment guidelines)
- » After control of infection the patient should be referred to an ENT specialist for surgical management.

**Advice to the patient**

- » Keep the ear dry (prevent water from getting into the ear)
- » Dry mopping of the ear with a clean cotton wick
- » Not to put any indigenous eardrops

**Chronic Suppurative Otitis Media with Cholesteatoma (Unsafe Type)**

**Signs and symptoms:**

- » Foul smelling ear discharge
- » Hearing impairment
- » On examination - retraction pocket or perforation of tympanic membrane with whitish flakes (cholesteatoma). Granulations or a polyp may be present.

**Treatment:**

All patients with unsafe CSOM need urgent referral to an ENT specialist because without treatment, serious, even fatal complications may occur. The treatment is essentially surgical.

**Danger Signs for immediate referral:**

Severe headache	Projectile vomiting
Vertigo	Neck rigidity
Facial nerve paralysis	Mastoid abscess

## **Otitis Media with Effusion (OME)**

Signs and symptoms

- » Decreased hearing/fullness
- » Sometimes ear-ache

**On examination** - dull, retracted ear drum sometimes with air bubbles and a visible air-fluid level

### **Treatment**

- » Most cases in children follow a course of spontaneous resolution so a policy of wait and watch with monthly follow up for three months is recommended.
- » If features of ASOM develop manage as per [ASOM treatment guidelines](#)
- » If the effusion does not resolve even after three months then referral is indicated

### **Diagnostic Algorithm**

This diagnostic algorithm has been prepared keeping in mind the common presenting complaints of patients coming with ear infections. The common presenting symptoms are: pain in the ear, discharge from the ear, hearing loss and combinations of these complaints. We have made a simple algorithm which can be used by the health care provider to arrive at a diagnosis on the basis of the history of patients. The next level of diagnosis is based on the examination of the ear. This is possible at centers where facilities of otoscopy using an otoscope are available. Accordingly the health care provider can either refer the patient to an ENT specialist for further detailed evaluation and management or if possible, can manage the patient as per the treatment guidelines.

## Diagnostic Algorithm Diagram

### DIAGNOSTIC ALGORITHM FOR COMMON EAR CONDITIONS

