

STANDARD TREATMENT WORKFLOW (STW)

Otorrhoea

Alok Thakar¹, Anupam Mishra², A Ramesh³, Harpreet Kochar⁴, Col B. K. Prasad⁵, Anuja Bhargava⁶, Prem Sagar⁷

¹All India Institute of Medical Sciences, Delhi, ²King George's Medical, Lucknow, ³St John's Medical College, Bangalore, ⁴Private Practice, Greater Noida, ⁵Command Hospital, Lucknow, ⁶Ira Medical College, Lucknow, ⁷All India Institute of Medical Sciences Delhi

CORRESPONDING AUTHOR

Dr Alok Thakar, All India Institute of Medical Sciences, Delhi

Email: drathakar@gmail.com

CITATION

Thakar A, Mishra A, Ramesh A, Kochar H, Prasad BK, Bhargava A, Sagar P. Otorrhoea. Journal of the Epidemiology Foundation of India. 2024;2(1Suppl):S163-S164.

DOI: <https://doi.org/10.56450/JEFI.2024.v2i1Suppl.082>

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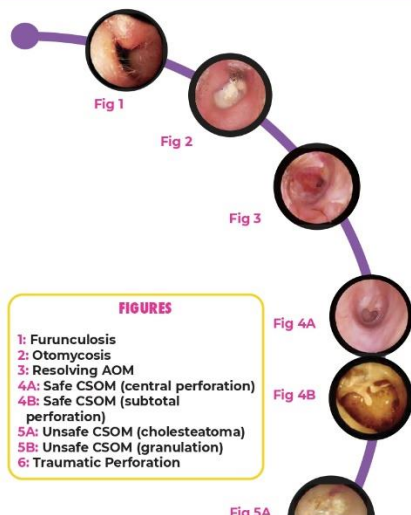
October 2024


Department of Health Research
Ministry of Health and Family Welfare, Government of India


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Standard Treatment Workflow (STW) for the Management of OTORRHOEA ICD-10-H92.10

CLINICAL SCENARIOS



DISEASES OF EXTERNAL EAR

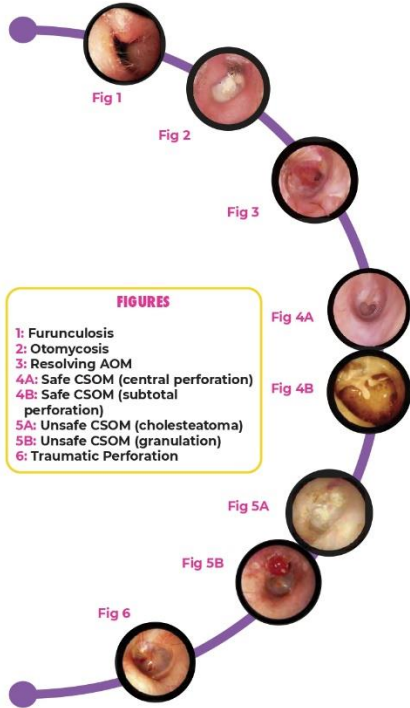
- Serous/purulent discharge with significant tenderness of external ear amidst edema (localized-pus: furunculosis or generalized: **Acute otitis externa** denoting Staph/ Pseudomonas infection)
- Thick discharge with itching usually in hot/ humid climate: **Ootomycosis** (Candida- white spores; Aspergillus- black spores) [Fig 2]
- Scanty serous discharge & itching with desquamated debris in ear canal **Eczematous otitis externa** (EAC)

DISEASES OF MIDDLE EAR

- URI with severe ear pain (manifested in children as inconsolable crying and ear tugging), relieved with episode of mucopurulent blood stained otorrhoea: **Resolving AOM** [Fig 3]
- Mucopurulent discharge > 12 weeks : CSOM
 - Active : otorrhoea in last 12 weeks
 - Inactive : no otorrhoea in last 12 weeks
 - Safe type : central perforation [Fig 4A] and total perforation [Fig 4B]
 - Unsafe type : cholesteatoma [Fig 5A] and granulation [Fig 5B]
- Recurrent painless profuse mucopurulent discharge with sale

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CLINICAL SCENARIOS



- FIGURES**
- 1: Furunculosis
 - 2: Otomycosis
 - 3: Resolving AOM
 - 4A: Safe CSOM (central perforation)
 - 4B: Safe CSOM (subtotal perforation)
 - 5A: Unsafe CSOM (cholesteatoma)
 - 5B: Unsafe CSOM (granulation)
 - 6: Traumatic Perforation

DISEASES OF EXTERNAL EAR

- Serous/purulent discharge with significant tenderness of external ear amidst edema (localized-pus: furunculosis or generalized: **Acute otitis externa** denoting Staph/ Pseudomonas infection)
- Thick discharge with itching usually in hot/ humid climate: **Otomycosis** (Candida- white spores; Aspergillus- black spores) [Fig 2]
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DISEASES OF MIDDLE EAR

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- Mucopurulent discharge > 12 weeks : CSOM
 - Active : otorrhoea in last 12 weeks
 - Inactive : no otorrhoea in last 12 weeks
 - Safe type : central perforation [Fig 4A] and total perforation [Fig 4B]
 - Unsafe type : cholesteatoma [Fig 5A] and granulation [Fig 5B]
- Recurrent painless profuse mucopurulent discharge with pale granulations/ multiple perforations unresponsive to antibiotics: **Tubercular otitis media** should be suspected and needs biopsy confirmation
- Bloody otorrhoea following Trauma: **Traumatic perforation**
- Acute onset bloody discharge with neural deficits/ neck nodes: **Neoplasia**
- Watery otorrhoea (may be associated with trauma): **CSF Otorrhoea**

CLINICAL EXAMINATIONS	INVESTIGATIONS	RED FLAGS FOR REFERRAL TO DISTRICT LEVEL
<ul style="list-style-type: none"> • Otoscopy as a part of Complete ENT examination by primary physician (Tele-otoscopy interpreted by physician) • Hearing evaluation by conversation/ whisper/ Tuning forks tests • General and systemic clinical examination 	<ul style="list-style-type: none"> • Pure tone audiometry • Routine hemogram including blood sugar (fasting and postprandial) • CT/ MRI in suspected complications (refer to red flags) • Soft tissue x ray nasopharynx (To examine adenoid enlargement in children) • Culture & sensitivity of aural secretions. 	<ul style="list-style-type: none"> • Periaural abscess or cellulitis • High grade fever, dizziness and toxic appearance • Severe headache with neck stiffness/vomiting / altered sensorium. • Facial palsy/ Neurological deficits • Diabetic with severe deep seated ear pain / neural deficits (Skull base osteomyelitis) • Physical trauma with bloody/ watery discharge (suspected CSF leak) • Suspected tuberculosis/ neoplasm
MANAGEMENT		
<p>PHC / PRIMARY LEVEL</p> <ul style="list-style-type: none"> • Acute otitis externa: Oral Ciprofloxacin/ Amoxicillin clavulanic acid combination for 7-10 days (2 weeks maximum) and analgesics. Ichthammol glycerine (1:9) packing of EAC in moderate to severe edema. Refer pus pointing furuncle to DH • Otomycosis: Cleaning and Clotrimazole ear drops • Eczematous otitis externa: Ciprofloxacin ear drops with steroid combination. • AOM / Resolving AOM: Oral amoxicillin / Erythromycin / Clarithromycin for 10 days. With no response in 3 days start Amoxicillin clavulanic acid combination for 10 days. Refer to DH if no resolution • Inactive CSOM: Referral to DH for surgery. • Active CSOM: Ciprofloxacin ear drops with dry mopping & referral to DH for surgery. A course of oral antibiotics maybe prescribed in ase of persistent otorrhoea after topical antibiotics • Traumatic perforation: Topical antibiotics for otorrhoea if any and maintain ear dry till healing complete • In case of suspicion of complications start intravenous Amoxicillin clavulanic acid combination and refer to DH 		<p>DISTRICT HOSPITAL</p> <ul style="list-style-type: none"> • Surgical interventions except neurosurgical interventions (eg I&D, tympanoplasty, mastoidectomy) • Biopsy in suspected neoplasm • Medical management of medical co-morbidities such as diabetes, tuberculosis, meningismus/ meningitis <p>TERTIARY LEVEL</p> <p>Surgical management particularly of intracranial complications including neurosurgical interventions</p>
<ul style="list-style-type: none"> • Patient to be educated for proper technique of ear mopping, contralateral lie (10 min) following instillation of drops & avoiding water entry e.g ear-plugs during bathing • To ensure adequate immunization (measles/ H.Influenza/ Pneumococcus) in recurrent AOM and to adopt correct posture during breastfeeding while avoiding bottle feeding • Pus culture sensitivity to guide antibiotic regime in recurrent/ complicated cases • Patient education to refrain from indigenous (oil/ hot water/ acid etc) ear treatments 		

KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES

ABBREVIATIONS	CT: Computerized Tomogram MRI: Magnetic Resonance Imaging	AOM: Acute Otitis Media CSOM: Chronic Suppurative Otitis Media	EAC: External Auditory Canal URI: Upper Respiratory Infection
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