OTITIS MEDIA

BY: DR. IRUNGU

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WHAT IS OTITIS MEDIA

- Inflammation of:
  - Tympanic cavity
  - Mastoid air cells
  - Petrous apex
  - Peri – labyrinthine air cells

CLASSIFICATION

1. ACUTE OTTIS MEDIA (AOM)
2. CHRONIC OTITIS MEDIA WITH EFFUSION (OME)
3. CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM)

EPIDEMIOLOGY

- Predominantly a childhood infection (< 5yeaers)
- 1st peak → < 2 years (the Eustachian tube is more horizontal & shorter in children up to 7 years)
- 2nd peak 5th decade
- By 3 years → 75% of children develop AOM
- Prevalence of >4% CSOM → major disease
  - Highest prevalence in Inuits, Aborigines, Apache, Navajo
  - High prevalence (>4%) Sierra Leone, Gambia, Kenya, Tanzania

RISK FACTORS

- Infection
- Host factors
  - Immature immunity
  - Familial history of middle ear disease (sibling history of OM)
  - Method of feeding breast vs. bottle
  - Male gender (for AOM & rAOM)
  - Race
  - AOM in 1st year of life is a risk factor for rAOM
- Anatomic/ physiologic dysfunction
  - Eustachian tube dysfunction
  - Cleft palate
- Environmental factors
  - Day care attendance
  - Smoking in households

AOM

- Usually bacterial infection accompanied by viral URTI with an abrupt onset of signs & symptoms involving the middle ear cleft.
- Recurrent AOM (rAOM) →
  - 3 or more months of AOM in 6 months
  - 4 or more months of AOM in 1 year

OME

- Persistence of fluid in the middle ear cleft for >12 weeks.
- Results in painless hearing loss and intermittent purulent ear drainage that follows AOM or arises without prior AOM.

CSOM

- Tympanic membrane perforation with otorrhea persistent for > 2 weeks (WHO criteria for any place that has high prevalence).

PATHOPHYSIOLOGY OF AOM

- Viral or bacterial URTI OR Allergy OR Reflux aspiration from nasopharynx →
  - Acute inflammatory reaction →
    - Vasodilation, exudation, leukocyte invasion, phagocytosis →
      - Obstruction of Eustachian tube

PATHOPHYSIOLOGY OF OME

- In children:
  - Eustachian tube dysfunction
  - URTI
  - Sequelae of AOME in adults
    - Allergy
    - Sinusitis
    - Nasopharyngeal carcinoma
- Though sterile, viral and bacterial DNA have been identified in OME

PATHOPHYSIOLOGY OF CSOM

- Usually a sequelae of AOM/ OME
- Hallmark is tympanic membrane perforation +/- otorrhea
- Intense inflammation in the middle ear
  - Granulation tissue
  - Cholesteatoma

MICROBIOLOGY

- AOM
  - *S. pneumonia, H. influenza, Moraxhella catarrhalis*
- COM
  - *Pseudomonas aeruginosa, S. aureus. E. coli*
- OME
  - *S. pneumoniae, H. influenza, Moraxella, Adenovirus*

AMERICAN ACADEMY OF FAMILY PHYSICIANS 2015 GUIDELINES FOR DIAGNOSIS OF AOM

- Moderate to severe bulging of TM
- New onset of otorrhea not due to acute otitis externa

OR

- Mild bulging of the TM and recent infection (> 48 hours)
- Otalgia or intense erythema of the TM

AMERICAN ACADEMY OF FAMILY PHYSICIANS 2015 GUIDELINES FOR DIAGNOSIS OF OME

- Pneumatic otoscopy to demonstrate the presence of fluid within the middle ear cleft
- Should perform tympanometry if pneumatic otoscopy not certain
- Should not intervene for 12 weeks unless hearing loss is present
- Use of topical steroids, decongestants, antihistamines → **USELESS!**

WHO GUIDELINES FOR DIAGNOSING CSOM

1. Persistent purulent otorrhea lasting > 2weeks
2. Presence of a tympanic membrane perforation

DIFFERENTIAL DIAGNOSIS OF AOM

- Bullous meningitis
- Otitis Externa
- Cholesteatoma
- Tympanosclerosis
- Tonsillitis (referred pain from the pharyngeal region to the middle ear)
- TMJ disorder
- Ramsay Hunt Syndrome
- OME trauma

INVESTIGATIONS

- Tympanometry → AOM
  - Put pressure into the ear and observe the motion of the TM. If you do not have a type A curve, refer the patient!
- Tympanocentesis → rAOM
- FBC → evidence of infection
- Ear swab if otorrhea present
- CT scan indicated when:
  - Persistent otorrhea despite topical treatment for 12 weeks
  - Presence of complications
  - Prior surgical interventions

TREATMENT

- AOM
  - Observation
  - Systemic antibiotics
  - Analgesia
  - Myringotomy +/- adenoidectomy (recurrent disease)
- CSOM
  - Aural toilet
  - Topical medications
  - Fluoroquinolone drops (esp. ciprofloxacin)
  - Systemic antibiotics if complications
  - Tympano – mastoidectomy
- OME
  - Observation
  - Myringotomy +/- adenoidectomy

ANTIBIOTICS

- 1st line
  - Amoxicillin
  - Amoxicillin – clavulanate
  - Ceftriaxone
- Alternative in penicillin allergy
  - Cephalosporins: cefuroxime
  - Clindamycin
  - Quinolones

DURATION OF TREATMENT

- < 2 years → 20 days
- 5 years → 5 - 7 days

SURGICAL MANAGEMENT

- Tympanocentesis
- Myringotomy
- Myringotomy with ventilation tube insertion
- Ventilation tube insertion with adenoidectomy
- NB: Adenoidectomy decreases the risk of rAOM, OME & otorrhea in > 4 years

CSOM RX

- Antibiotic drops +/- steroids
- Regular aural toilet
- Quinolones: Ciprofloxacin, ofloxacin most effective
- Solutions of ear irrigation
  - 1.5% acetic acid
  - Dilute H_2O_2

DIFFERENTIALS OF OME

- CSF otorrhea
- Peri - lymphatic fluid fistula

SURGICAL MANAGEMENT OF CSOM

- Myringoplaty
- Tympanoplasty
- Mastoidectomy (extensive dx involving the bone)

EXTRAREMPORAL COMPLICATIONS

- **Mastoiditis**: develops when infection tracks under the periosteum of the temporal bone to cause a **sub - periosteal abscesses**.
- Luc's abscess
- **Bezold's abscess** (infection breaks through the mastoid tip to cause a neck abscess deep to the sternocleidomastoid muscle)

INTRATEMPORAL

- Hearing loss
- CSOM
- Retraction pockets
- Cholesteatoma:
  - A **mass of keratinizing squamous epithelium and cholesterol** in the middle ear usually resulting from chronic otitis media, with squamous metaplasia or extension of squamous epithelium inward to line an expanding cystic cavity that may involve the mastoid & erode surrounding bone. Usually present in the anterior superior aspect through the TM.
- Facial nerve palsy

INTRACRANIAL

- Otitis meningitis
- Epidural abscess
- Subdural abscess
- Focal encephalitis
- Otitis hydrocephalus
- Sigmoid and lateral sinus thrombosis
- Intra - parenchymal abscess & other intracranial suppurative complications
- Dural venous thrombophlebitis (usually sigmoid sinus)

TYPED BY EFFIE NAILA

There are people who are very rich but the only thing they DON'T have is money;

then there are those who are very poor and the only thing they have is money.

- Bundi

#Jesus_Over_Everything