



# **The complications of acute and chronic otitis media**

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# The complications of acute and chronic otitis media

## Objectives :

- The predisposing factors for complications
- The pathways for spreading the infections beyond the ear?
- To know the classifications of complications
- To know presentations ,clinical findings ,investigations and management of each complication.

# The complications of acute and chronic otitis media

## Predisposing factors :

- Virulent organisms.
- Chronicity of disease
- Presence of Cholesteatoma and bone erosion.
- Obstruction of natural drainage e.g. by a polyp.
- Low resistance of the patient

# The complications of acute and chronic otitis media

## Pathways of infection :

- Extension of infection is by bone erosion due to a cholesteatoma.
- Vascular extension (retrograde thrombophlebitis).
- Congenital dehiscence.
- Fracture lines.
- Round or oval window membrane to the labyrinth.
- Dehiscence due to previous surgery.

# The complications of acute and chronic otitis media

## Classification :

- Intra-cranial complications.
- Intratemporal complications.
- Extra-cranial complications.

# **Intra-cranial complications**

- ***Extradural Abscess***
- ***Subdural Abscess***
- ***Meningitis***
- ***Venous Sinus Thrombosis***
- ***Brain Abscess***

# Intra-cranial complications

**What are the natural barriers between brain and temporal bone ?**

- Bone .
- Meninges .

# Extradural abscess

- Collection of pus against the dura.
- middle or posterior cranial fossa.
- Extradural abscess is the commonest intracranial complication of otitis media.



# Extradural abscess

## Clinical Picture :

- Persistent headache on the side of otitis media.
- Pulsating discharge.
- Fever
- Asymptomatic (discovered during surgery)

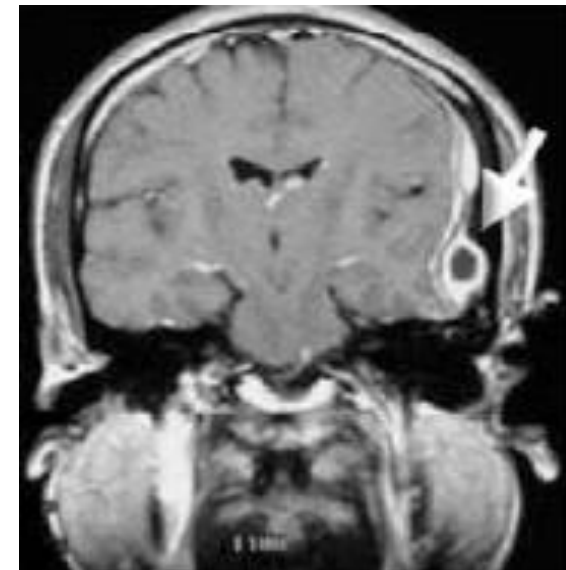
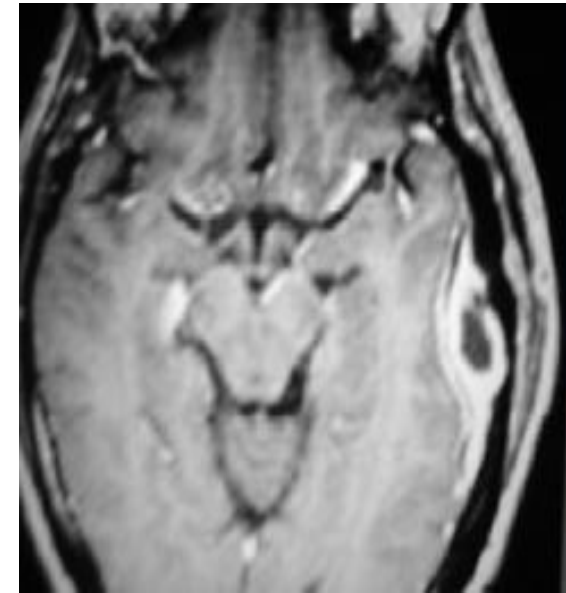
# Extradural abscess

## Diagnosis:

- CT scans reveal the abscess as well as the middle ear pathology.

## Treatment:

- Mastoidectomy and drainage of the abscess.



# ***Subdural abscess***

## **Definition :**

- Collection of pus between the dura and the arachnoid.
- It' s a rare pathology

## **Clinical picture :**

- Headache without signs of meningeal irritation
- Convulsions
- Focal neurological deficit (paralysis, loss of sensation, visual field defects)

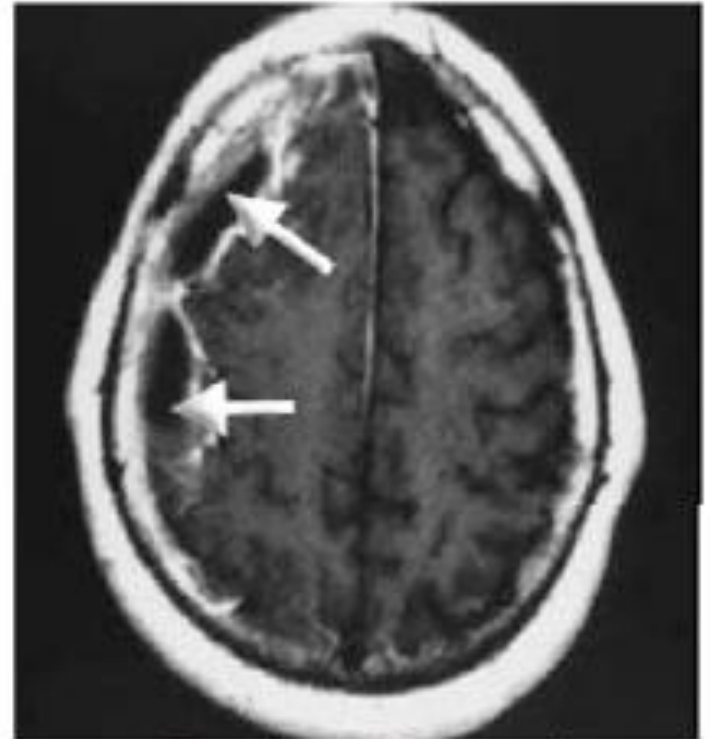
# ***Subdural abscess***

## **Investigations :**

- CT scan, MRI

## **Treatment:**

- Drainage (neurosurgeons)
- Systemic antibiotics
- Mastoidectomy



Sub-dural  
Absecss

# ***Meningitis***

## **Definition :**

- Inflammation of meninges (pia & arachinoid).

## **Pathology:**

- Occurs during acute exacerbation of chronic unsafe middle ear infection.

# ***Meningitis***

## **Clinical picture:**

- **General symptoms and signs:**
  - high fever, restlessness, irritability,
  - photophobia, and delirium.
  
- **Signs of meningeal irritation?**

# Meningitis

## Diagnosis :

- Lumbar puncture is diagnostic.



Lumbar Puncture

## Treatment:

- Treatment of the complication itself and control of ear infection:
  - Specific antibiotics.
  - Antipyretics and supportive measures
  - Mastoidectomy to control the ear infection.

# ***Venous Sinus Thrombosis***

## **Definition :**

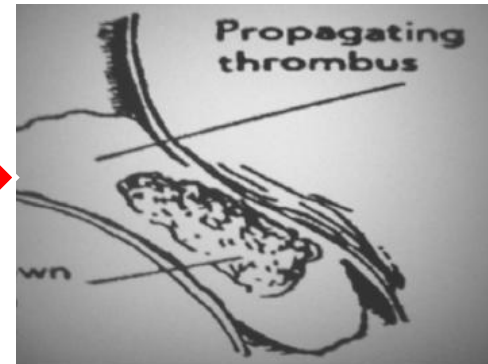
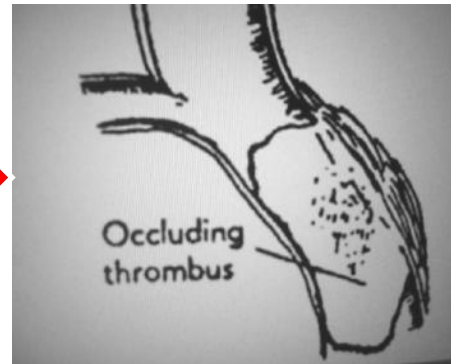
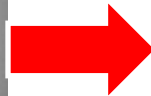
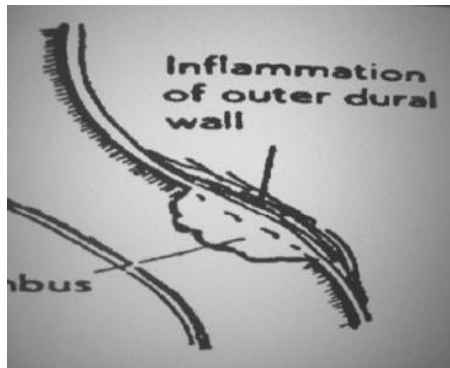
- Thrombophlebitis of the venous sinus.

## **Etiology:**

- It usually develops secondary to direct extension.



# Venous Sinus Thrombosis



# ***Venous Sinus Thrombosis***

## **Clinical picture:**

- Headache, vomiting, and papilledema (increase intracranial pressure).
  
- **Signs of blood invasion:**
  - (spiking) fever with rigors and chills .
  - persistent fever (septicemia).
  
- Positive **Greissinger's sign** which is edema and tenderness over the area of the mastoid emissary Vein.

# ***Venous Sinus Thrombosis***

## **Diagnosis**

- – CT scan with contrast.
- – MRI, MRA, MRV
- – Angiography, venography.
- – Blood cultures is positive during the febrile phase.

# ***Venous Sinus Thrombosis***

## **Treatment :**

### – Medical:

- Antibiotics and supportive treatment.
- Anticoagulants.

### – Surgical:

- Mastoidectomy with exposure of the affected sinus and the intra-sinus abscess is drained.

# **Brain Abscess**

## **Definition :**

- – Localized suppuration in the brain substance.
- – It is most lethal complication of suppurative otitis media.

## **Incidence:**

- – 50% is Otogenic brain abscess.

# **Brain Abscess**

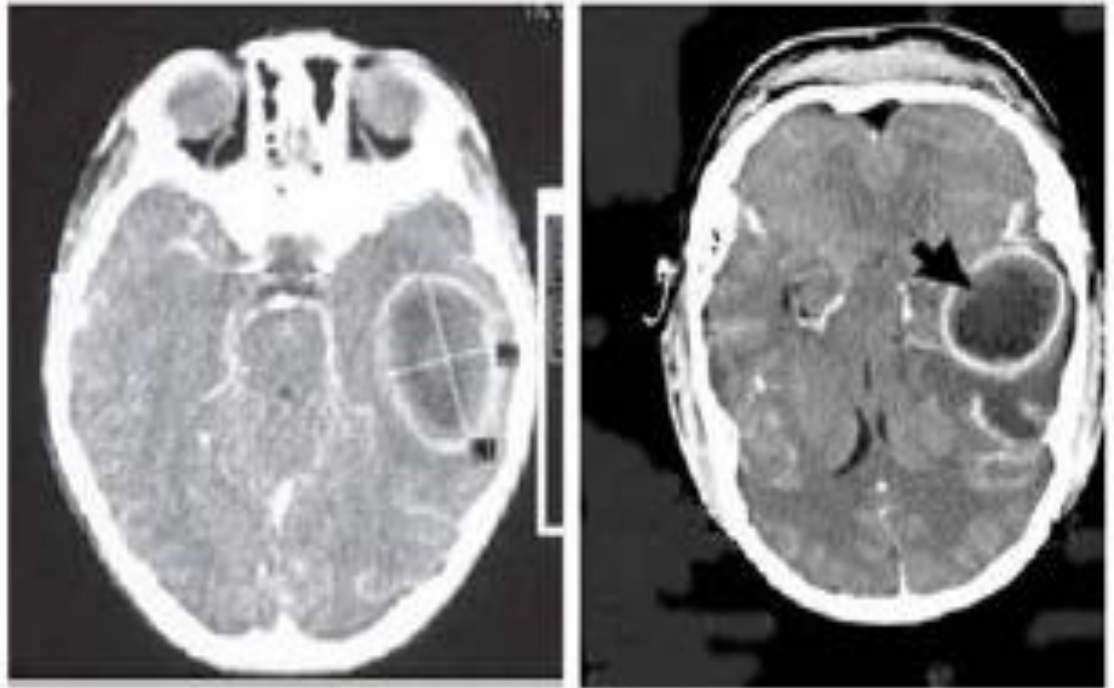
## **Pathology :**

- Site: Temporal lobe or Less frequently, in the cerebellum. (more dangerous).

# Brain Abscess

## Diagnosis :

- – CT scans.
- – MRI



Cerebral Abscess

# Brain Abscess

## Treatment :

### – Medical:

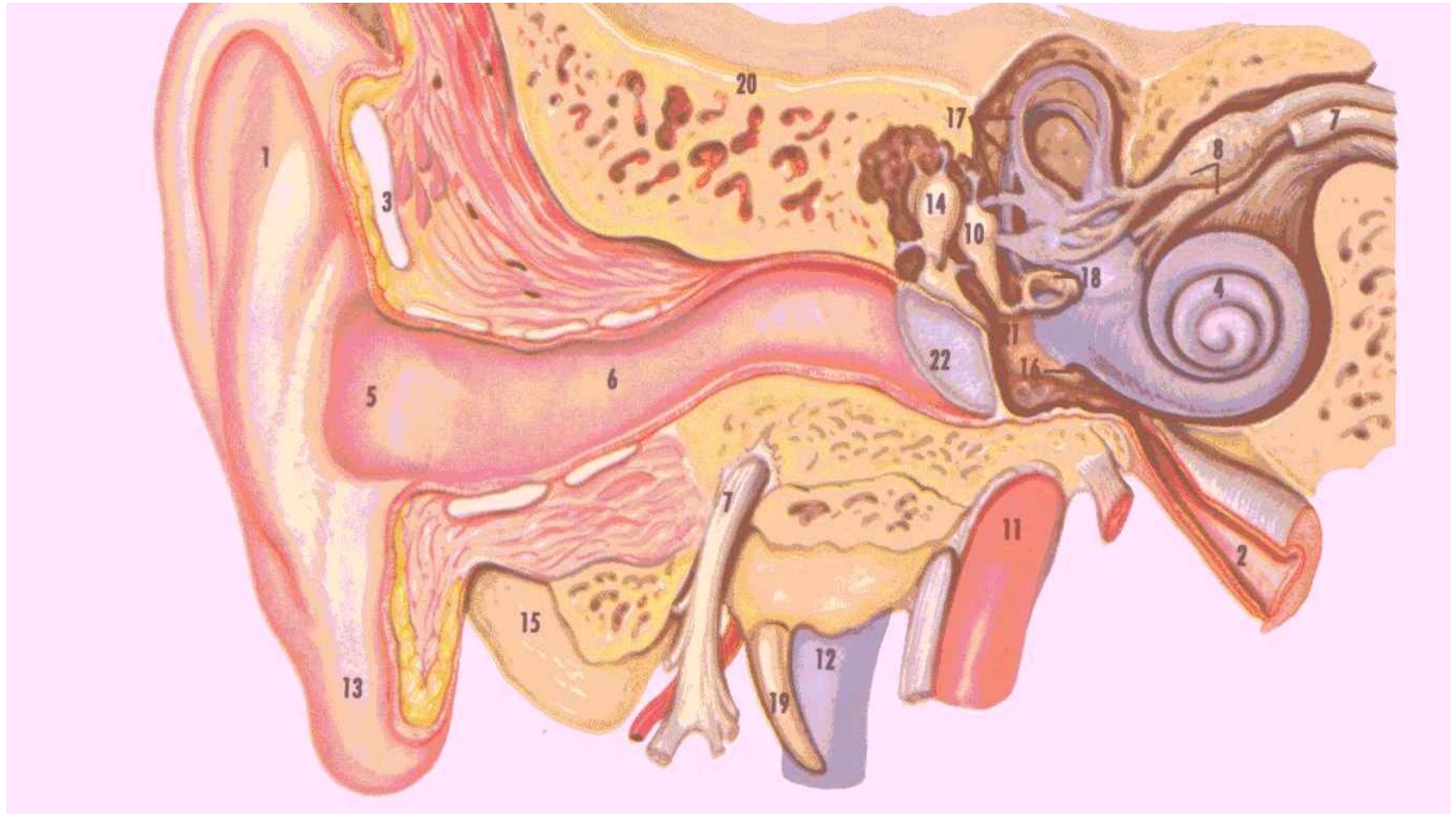
- Systemic antibiotics.
- Measure to decrease intracranial pressure.

### – Surgical:

- Neurosurgical drainage of the abscess .
- mastoidectomy operation after subsidence of the acute stage.



# Intratemporal complications



# **Intratemporal complications**

- **Labyrinthitis**
- **Ossicular fixation or erosions**
- **Labyrinthine fistula**
- **Facial nerve paralysis**
- **Mastoiditis /mastoid abscess**

# Labyrinthine fistula

## Definition :

- communication between middle and inner ear

## Atiology :

- It is caused by erosion of boney labyrinth due cholesteatoma.

# Labyrinthine fistula

## Clinical picture :

- Hearing loss.
- Attack of vertigo mostly during straining ,sneezing and lifting heavy object.
- Positive fistula test.

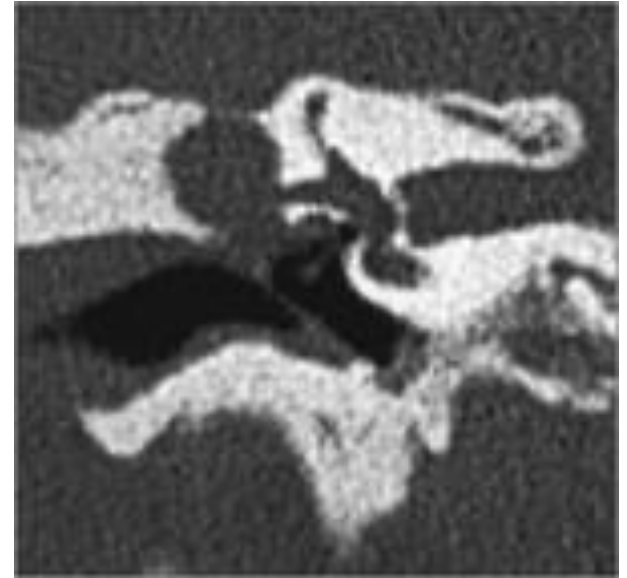
# Labyrinthine fistula

## Diagnosis:

- High index of suspicion
- longstanding disease
- fistula test
- Ct scan of temporal bone

## Treatment :

Mastoidectomy.



# Facial nerve paralysis

- Congenital or acquired dehiscence of nerve canal.
- It is possibly a result of the inflammatory response within the fallopian canal to the acute or chronic otitis media.
- Tympanic segment is the most common site to be involved.

# Facial nerve paralysis

## Diagnosis :

- Clinically
- May occur in acute or chronic otitis media.
- CT scan.



# Facial nerve paralysis

## Treatment :

- Acute otitis media and acute mastoiditis :  
(cortical mastoidectomy +ventilation tube).
- chronic otitis media with cholesteatoma:  
(mastoidectomy  $\pm$  facial nerve decompression )



# MASTOIDITIS

## **Definition :**

It is the inflammation of mucosal lining of antrum and mastoid air cells system.

# Acute Mastoiditis

## Pathology :

- Production of pus under tension.
- Hyperaemic decalcification.
- Osteoclastic resorption of bony walls.

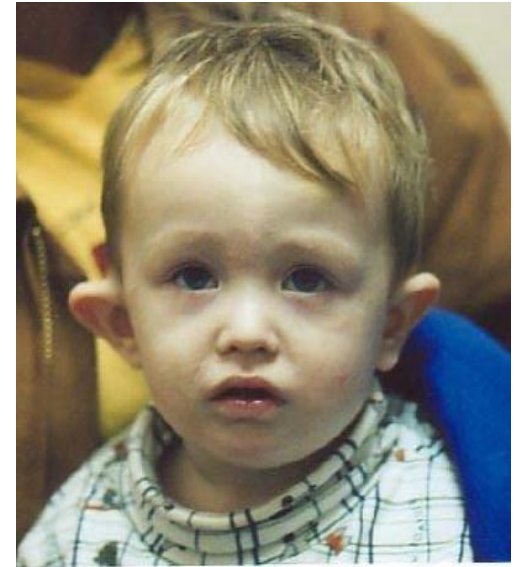
# Acute Mastoiditis

## Symptoms:

- Earache
- Fever
- Ear discharge

## Signs:

- Mastoid tenderness
- Sagging of posterosuperior meatal wall
- TM perforation
- Swelling over mastoid
- Hearing loss



# Mastoid abscess

## Investigation :

- CT scan temporal bones.
- Ear swab for culture and sensitiveity.



# Mastoid abscess

## **Medical treatment:**

- Hospitalize
- Antibiotics
- Analgesics

## **Surgical treatment:**

- Myringotomy
- Cortical mastoidectomy

# Extracranial complications

- **Extension of infection to the neck.**
- **Bezold abscess ( extension of infection from mastoid to SCM).**



**THANKS**