

Ear IV

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)

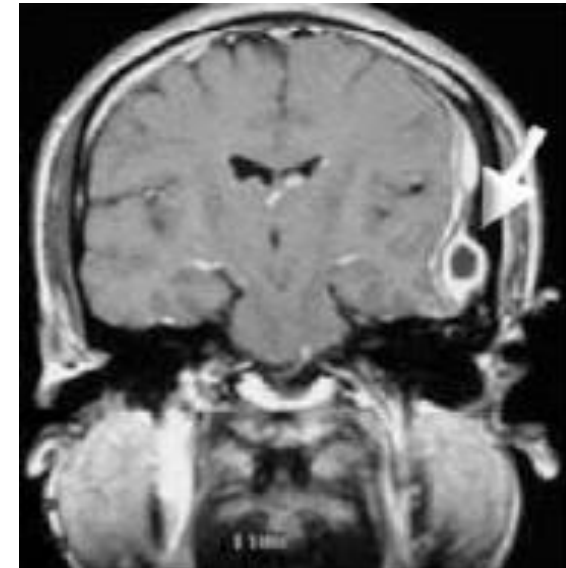
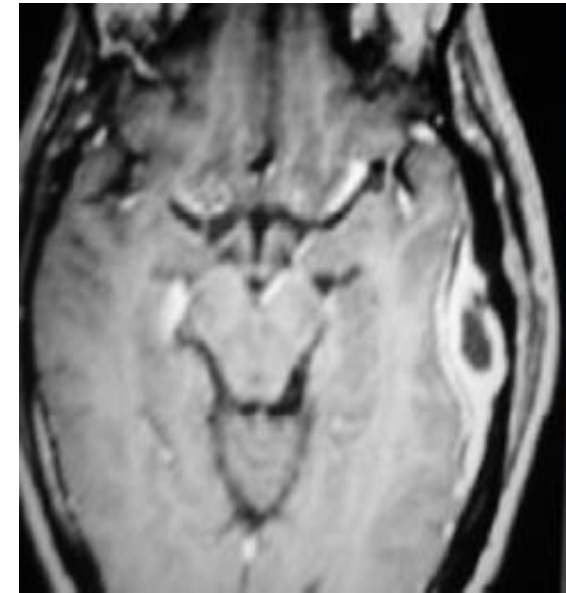
Extradural abscess

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)

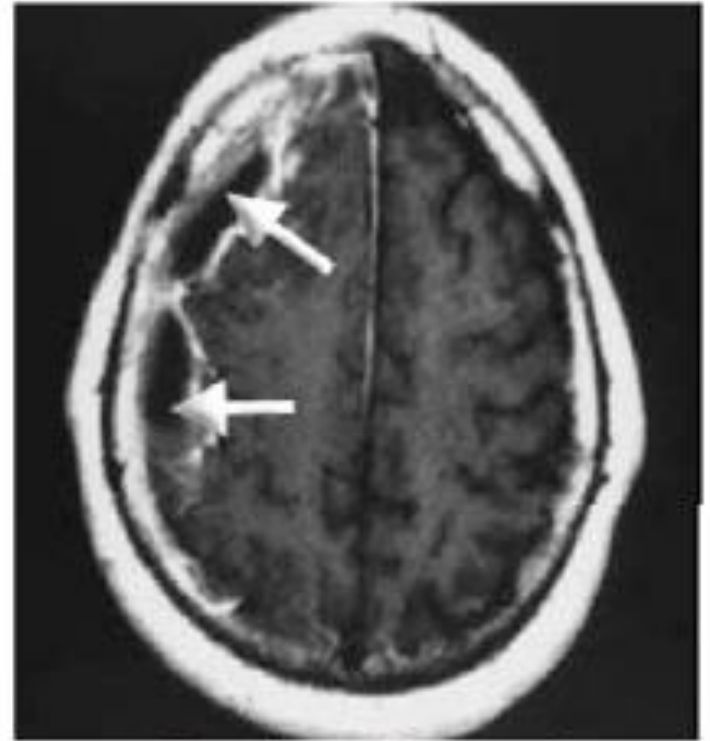
Subdural abscess

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

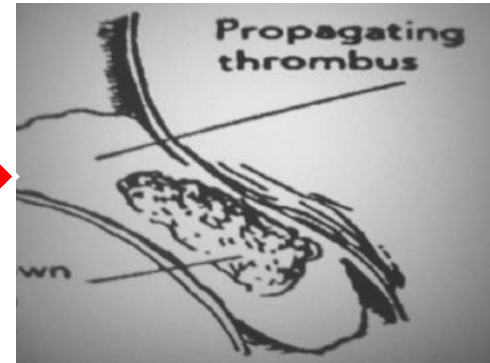
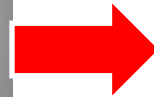
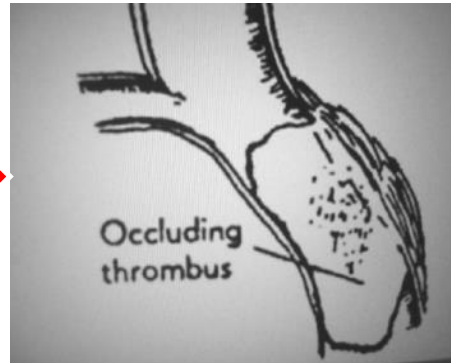
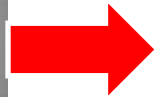
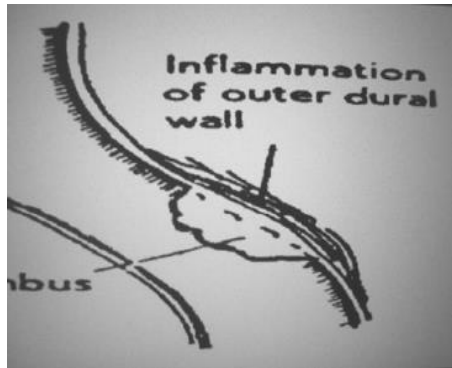
Definition :

- 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

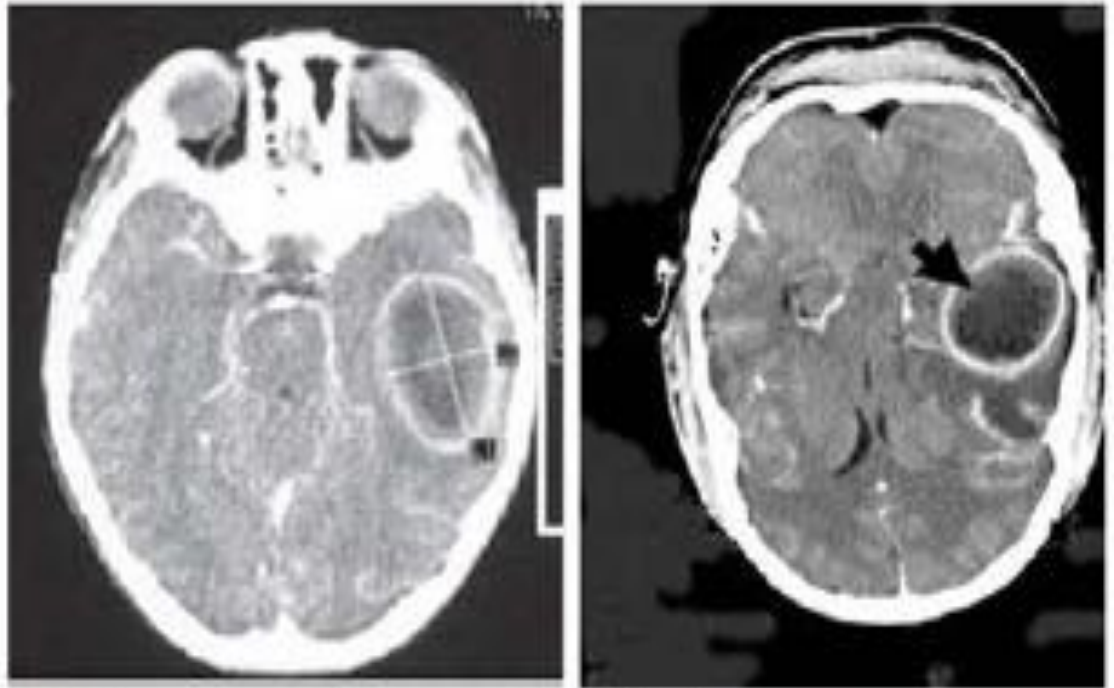
Pathology :

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

Brain Abscess

Diagnosis :

- – CT scans.
- – MRI



Cerebral Abscess

Brain Abscess

Treatment :

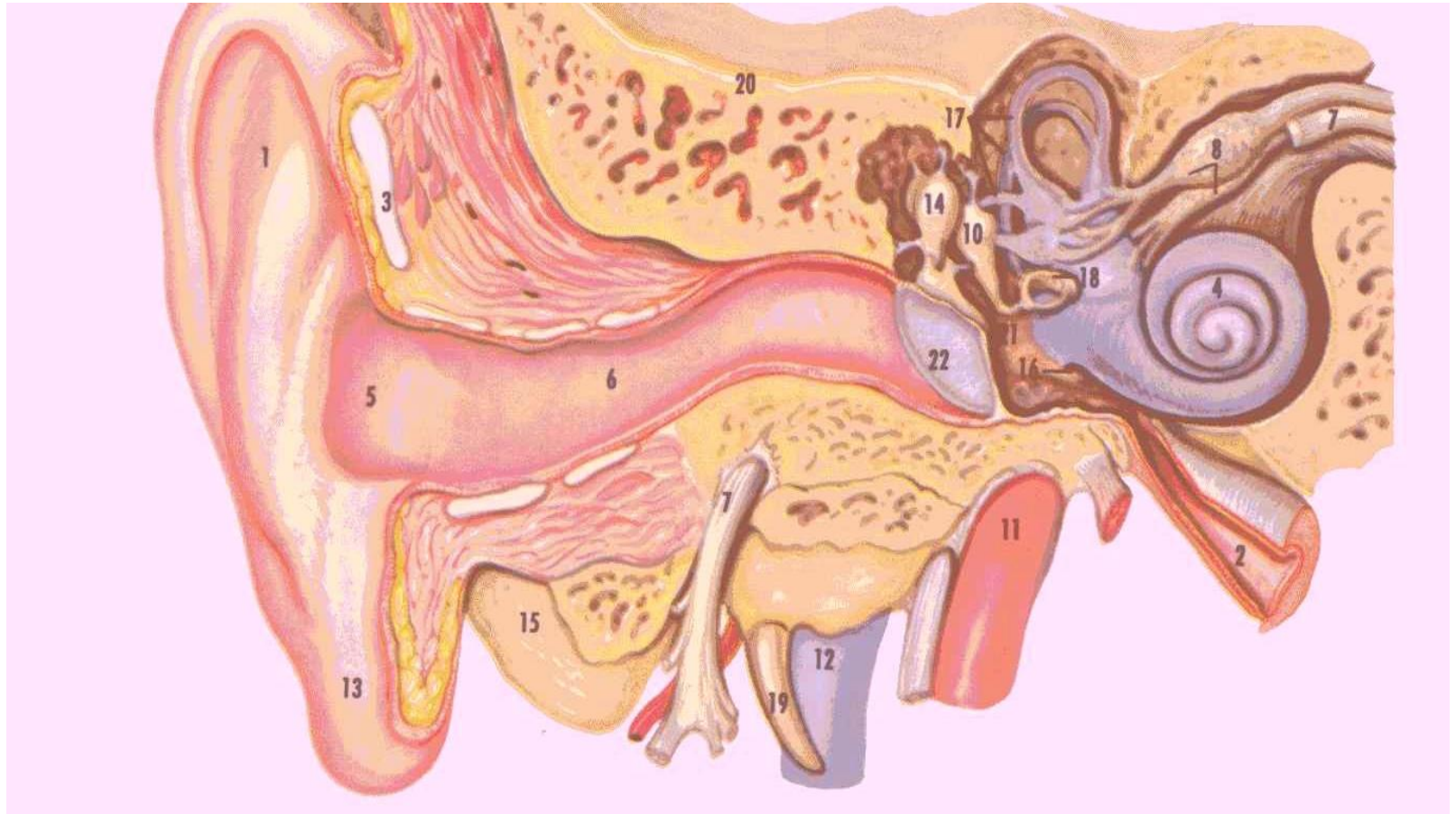
– Medical:

- 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.

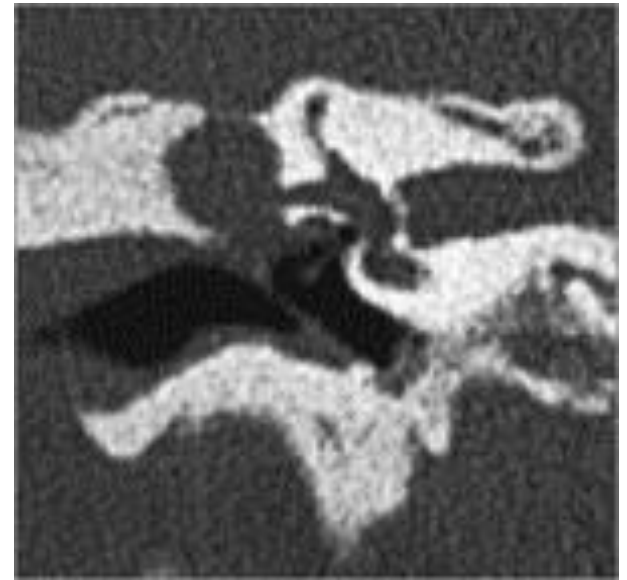
Labyrinthine fistula

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.

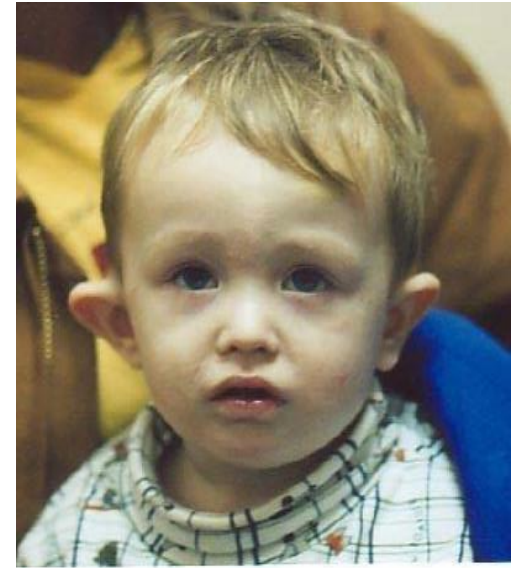
Acute Mastoiditis

Symptoms:

- Earache
- Fever
- Ear discharge

Signs:

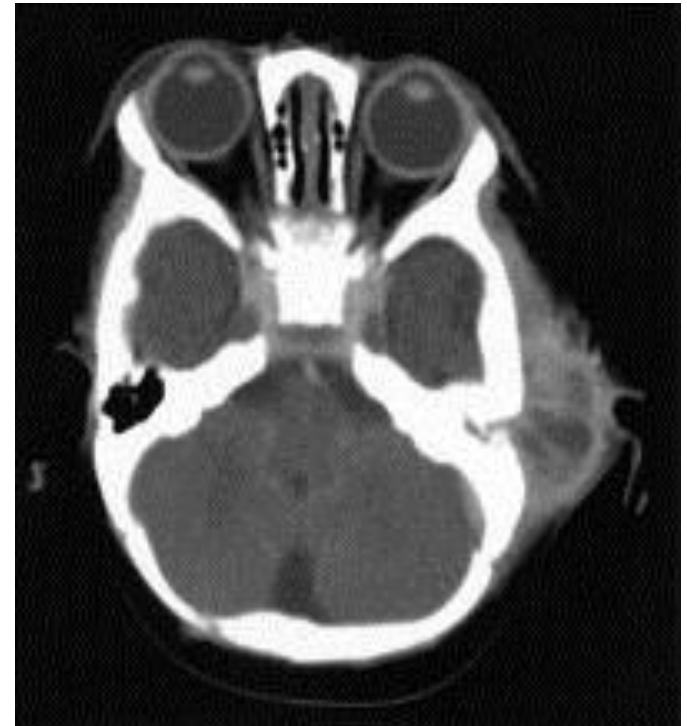
- Mastoid tenderness
- Sagging of posterosuperior meatal wall
- TM perforation
- Swelling over mastoid
- Hearing loss



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