

The complications of acute and chronic otitis media

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What are the predisposing factors
for developing complications ?

Predisposing factors

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

What are the pathways for spreading the infections beyond the ear?

Pathways of infection

- extension of infection is by bone erosion due to a cholesteatoma.
- Vascular extension (retrograde thrombophlebitis).

Extension along preformed pathways as

- Congenital dehiscence
- fracture lines
- Round or oval window membrane to the labyrinth
- Dehiscence due to previous surgery

How do you classify the complications?

Classification

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

Intra-cranial complications

What are the natural barriers between
brain and temporal bone ?

What are the intracranial complications?
What is the commonest ?

How does patient with possible
intracranial complications present with ?

What investigations to do to diagnose such
complications ?

Intra-cranial complications

Extradural Abscess:

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

Intra-cranial complications

Extradural abscess:

Clinical Picture

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

Intra-cranial complications

Extradural abscess:

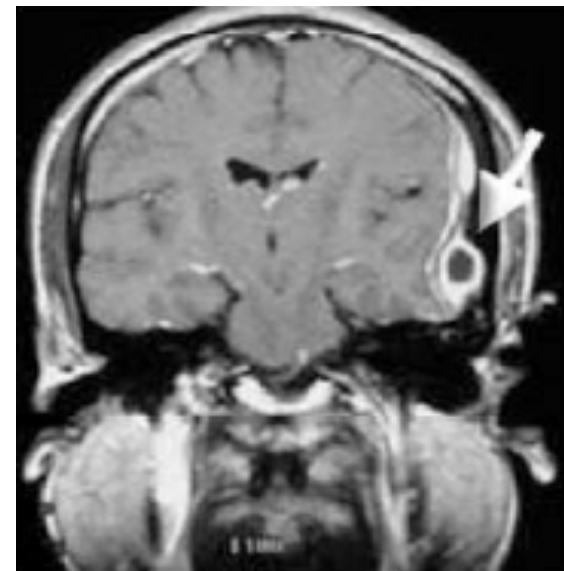
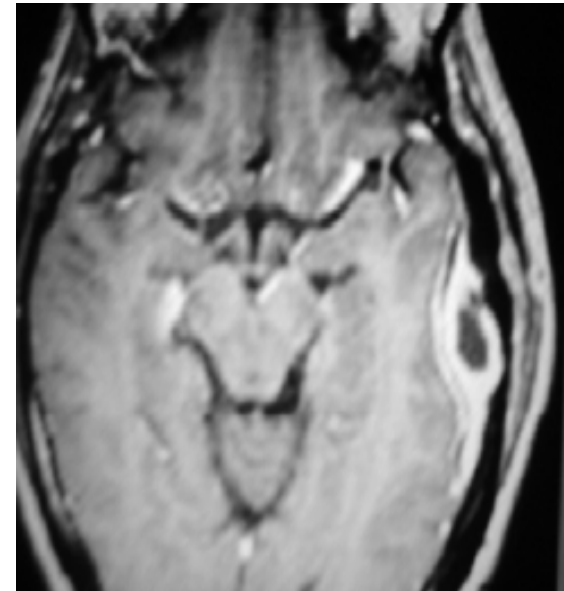
Diagnosis

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



Treatment:

- Mastoidectomy and drainage of the abscess



Intra-cranial complications

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)

Intra-cranial complications

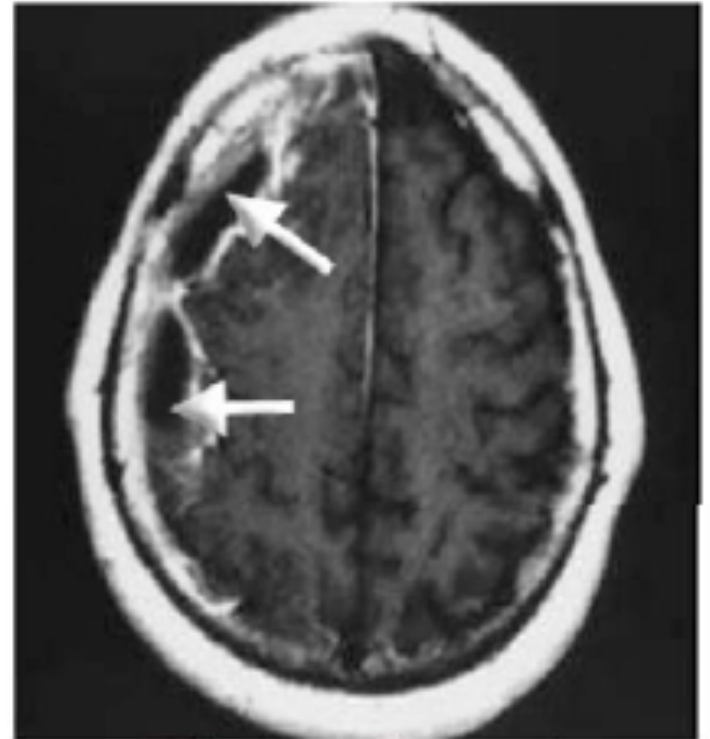
Subdural Abscess:

Investigations

- CT scan, MRI

Treatment:

- Drainage (neurosurgeons)
- Systemic antibiotics
- Mastoidectomy



Sub-dural
Abscess

Intra-cranial complications

Meningitis

Definition

- Inflammation of meninges (pia & arachinoid)

Pathology:

- Occurs during acute exacerbation of chronic unsafe middle ear infection.
- Two forms:
 - Circumscribed meningitis: no bacteria in CSF.
 - Generalized meningitis: bacteria are present in CSF

Intra-cranial complications

Meningitis

Clinical picture:

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

Intra-cranial complications

Meningitis

— Signs of meningeal irritation:

- Neck rigidity.
- Positive Kernig's sign: difficulty to straighten the knee while the hip is flexed

Positive Brudzinski's sign:

- passive flexion of one leg results in a similar movement on the opposite side or
- if the neck is passively flexed, flexion occurs in the hips and knees



Intra-cranial complications

Meningitis

Diagnosis

- – Lumbar puncture is diagnostic:

Treatment:

– Treatment of the complication itself and control of ear infection:

- Specific antibiotics.
- Antipyretics and supportive measures
- Mastoidectomy to control the ear infection.



Lumbar Puncture

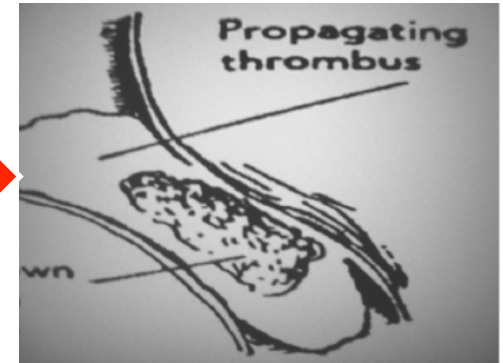
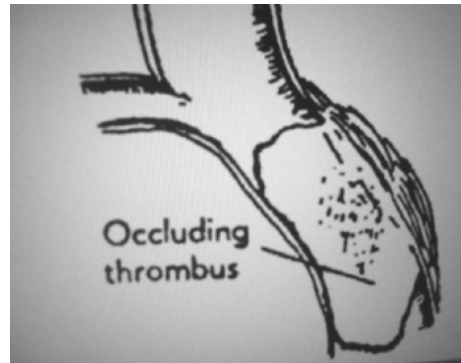
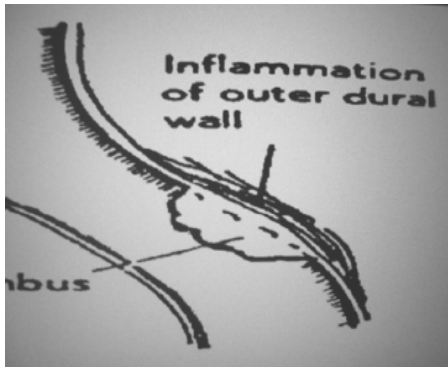
Intra-cranial complications

Venous Sinus Thrombosis:

Definition

- Thrombophlebitis of the venous sinus.
- Etiology:
- It usually develops secondary to direct extension

Intra-cranial complications



Intra-cranial complications

Venous Sinus Thrombosis

Clinical picture:

- 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.

- Signs of increased intracranial pressure:
headache, vomiting, and papilledema.

Intra-cranial complications

Venous Sinus Thrombosis:

Diagnosis

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

Intra-cranial complications

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.

Intra-cranial complications

Brain Abscess:

Definition

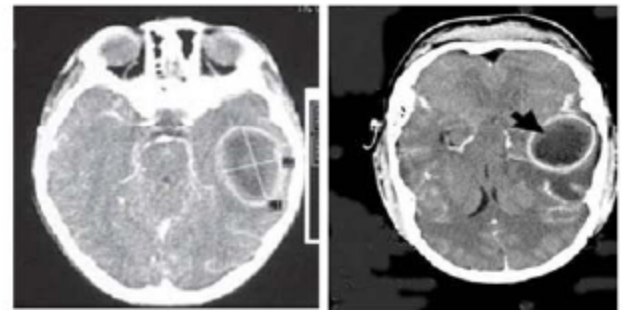
- – Localized suppuration in the brain substance.
- – It is most lethal complication of suppurative otitis media
- Incidence:
 - – 50% is Otogenic brain abscess

Intra-cranial complications

Brain Abscess

Pathology

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



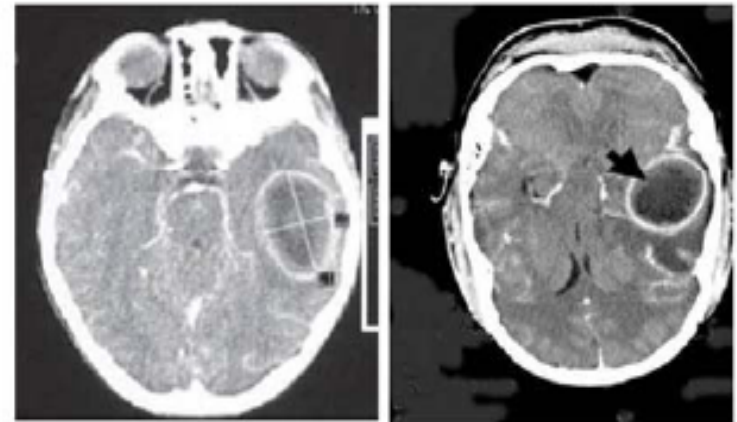
Cerebral Abscess

Intra-cranial complications

Brain Abscess

Diagnosis

- – CT scans.
- – MRI



Cerebral Abscess

Intra-cranial complications

Brain Abscess

Treatment

Medical:

- Systemic antibiotics.
- Measure to decrease intracranial pressure.

– Surgical:

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

1. What are the intratemporal complications do you know ?

Intratemporal complications

1. Labyrinthine fistula

Definition:

- communication between middle and inner ear

Atiology :

- It is caused by erosion of boney labyrinth due cholesteatoma

Interatemporal complications

1. Labyrinthine fistula

Clinical picture :

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

Interatemporal complications

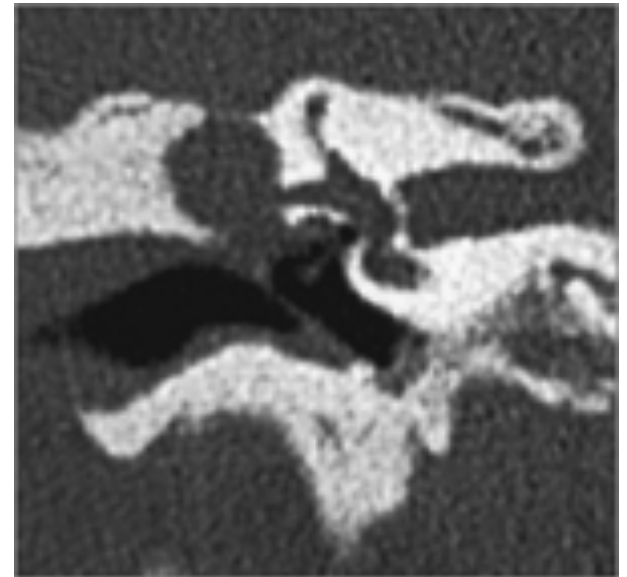
Labyrinthine fistula :

Diagnosis:

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

Treatment :

Mastoidectomy



Intratemporal complications

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 infection acute or chronic otitis media
- Tympanic segment is the most common site to be involved

Intratemporal complications

Facial nerve paralysis

Diagnosis

- Clinical
- May occur in acute or chronic otitis media
- Ct scan



Intratemporal complications

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.

Intratemporal complication

Acute Mastoiditis

Pathology

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

Symptoms:

- Earache
- Fever
- Ear discharge

Signs:

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



Investigations

Investigation :

- CT scan temporal bones
- Ear swab for culture and sensitivity



TREATMENT

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