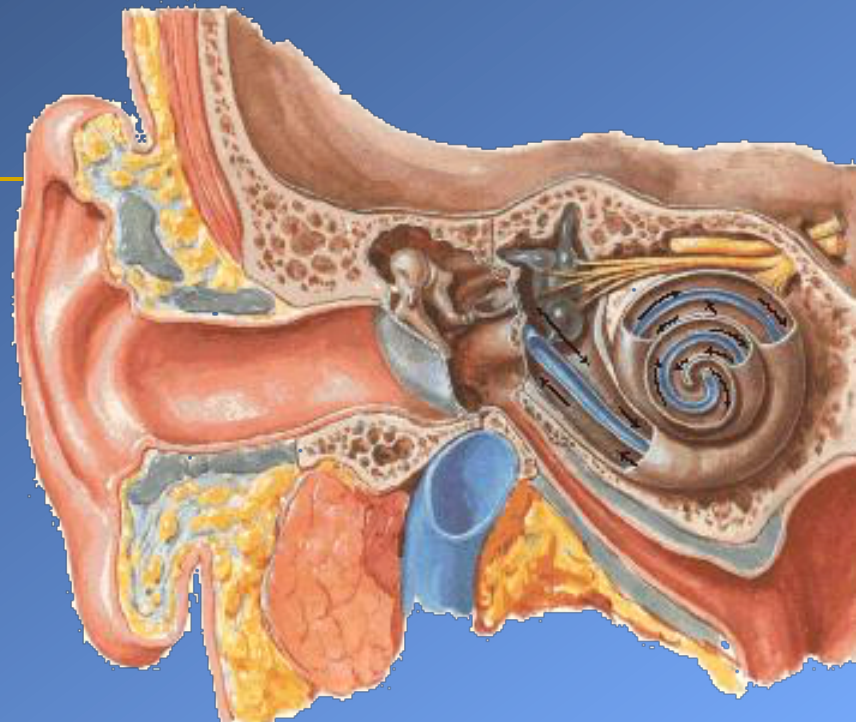


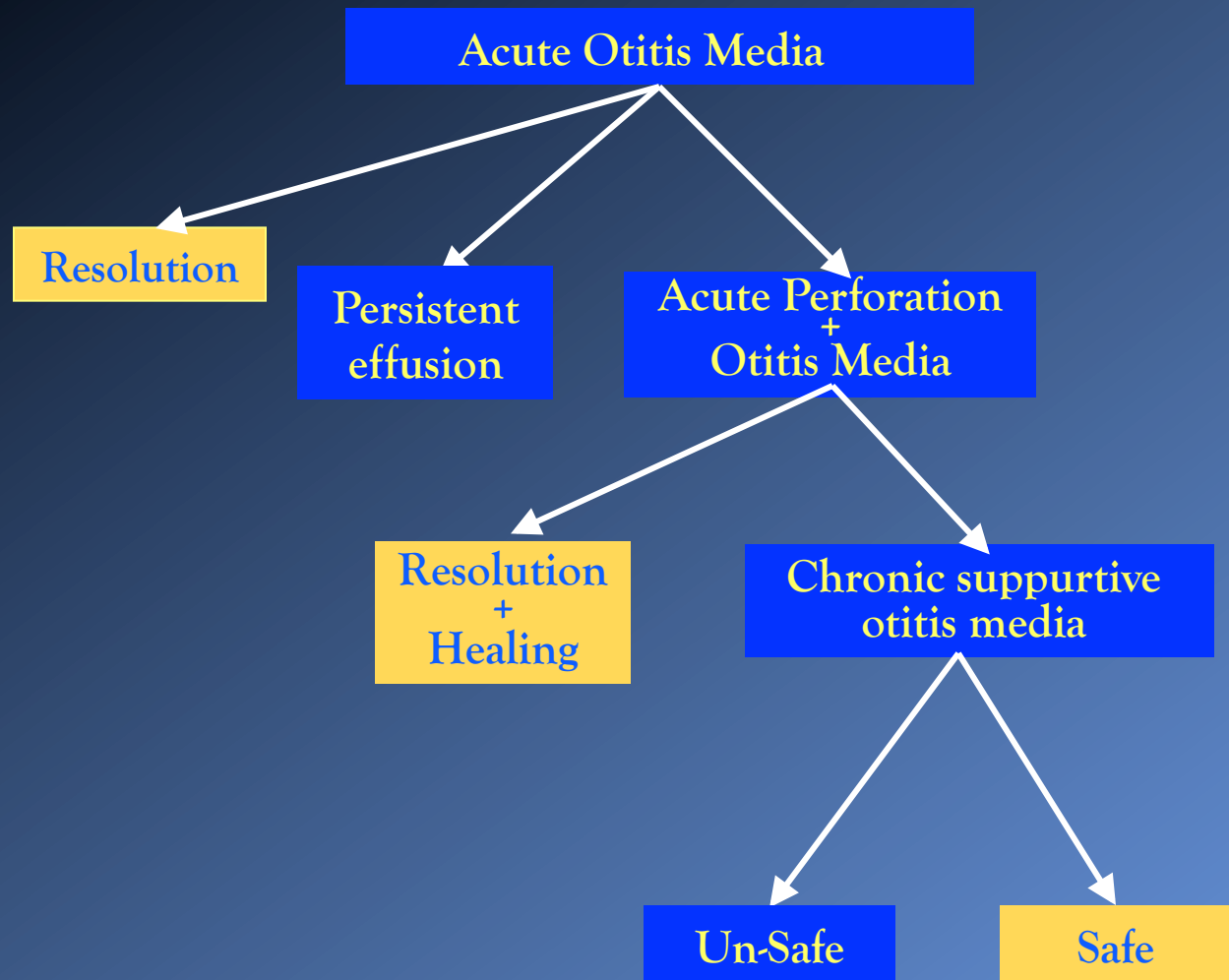
Chronic Otitis Media and Complications of Otitis Media

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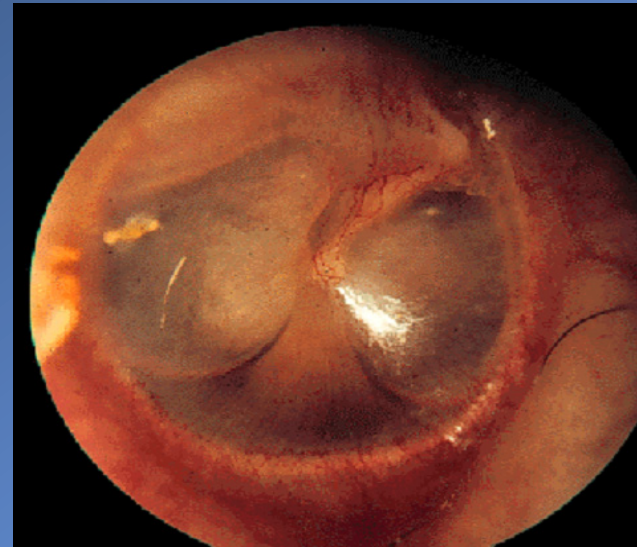


Classification of Chronic Otitis Media

- Chronic Non Suppurative Otitis Media
 - Otitis media with effusion “OME”
 - Adhesive otitis media
 - Chronic Suppurative Otitis Media “CSOM”
 - Tubo-tympanic (Safe)
 - Attico-antral (Unsafe)
-

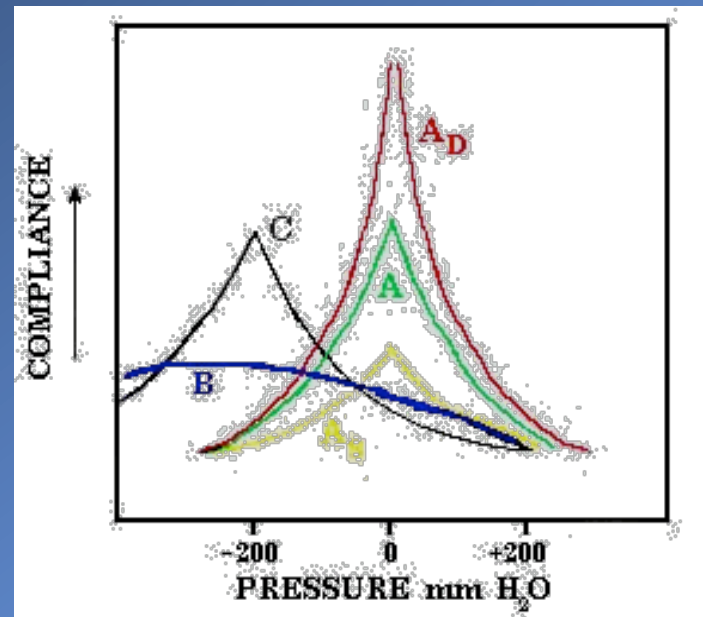
Chronic Middle Ear Effusion

- Middle ear effusion (MEE)
- Previously thought sterile
- 30-50% grow in culture



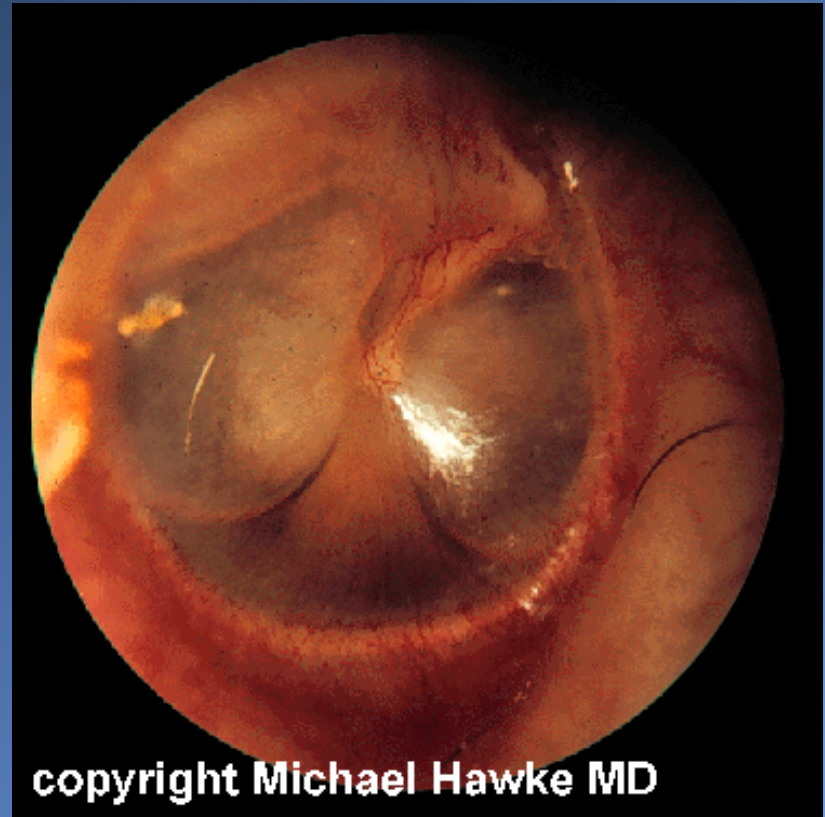
Diagnosis

- Otoscopy
- Microscope
- Audiogram
 - CHL
 - SNHL
- Tympanogram (type B)



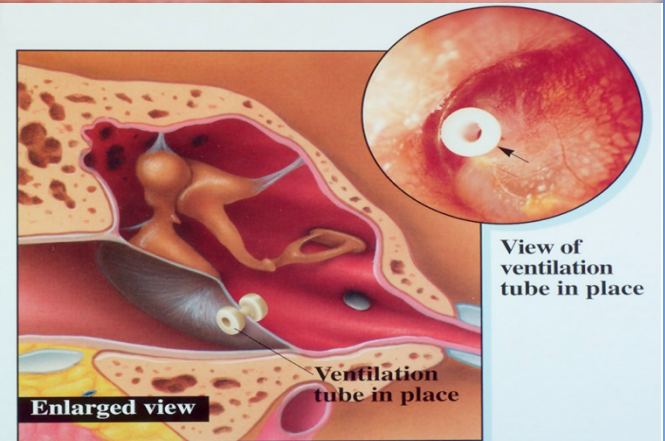
Chronic MEE

- Estimates of residual Effusion:
 - 70% @ 2 wks
 - 40% @ 4 wks
 - 20% @ 8 wks
 - 10% @ 12 wks



Otitis Media with Effusion (Chronic non-suppurative Otitis Media)

- ❖ Surgical treatment : Tympanostomy Tubes insertion :
 - ❑ Bypass Eustachian tube to ventilate middle ear.
 - ❑ Indication :
 - Chronic OME >3 months with hearing loss
 - Speech delay
 - SNHL
 - Retraction Pocket TM



Adhesive Otitis Media (Chronic non-suppurative Otitis Media)

- The result of long standing Eustachian tube dysfunction.
- The drum loses structural integrity and becomes flaccid.
- Contact between the drum and the incus or stapes can cause bone erosion at the IS joint.



Chronic Suppurative Otitis Media with and without Cholesteatoma

CSOM: Definition

- 3D Duration, Discharge and Deafness
 - Duration > 3 weeks despite treatment
 - Discharge Purulent Otorrhea
 - Deafness: Perforation
-

Chronic Suppurative Otitis Media

Etiology :

- *Pseudomonas aeruginosa*.
 - *Staphylococcus aureus*.
 - *Proteus species*.
-

Chronic Suppurative Otitis Media

Classification :

Chronic suppurative otitis media



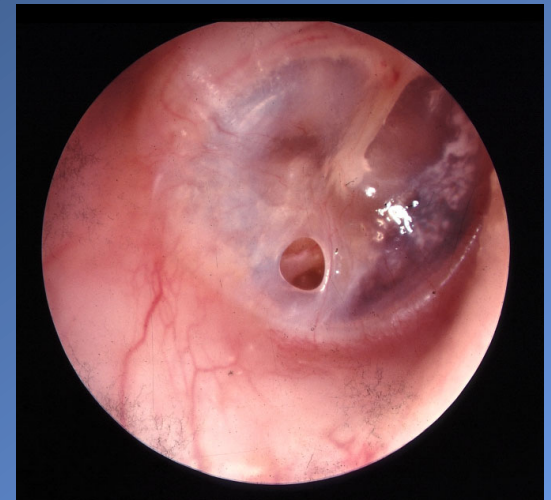
Tubo-tympanic type (safe)

Attico-antral (un-safe)

Chronic Suppurative Otitis Media

A- Tubotympanic type (Safe) :

- ❑ Simple perforation.
- ❑ Intermittent non offensive non bloody ear discharge.
- ❑ On examination (central perforation, peripheral/ non-marginal).



Chronic Suppurative Otitis Media

**Chronic Suppurative Otitis Media without
cholesteatoma (safe)**

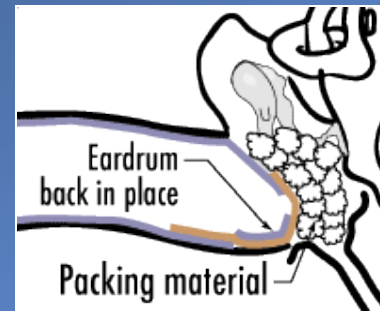
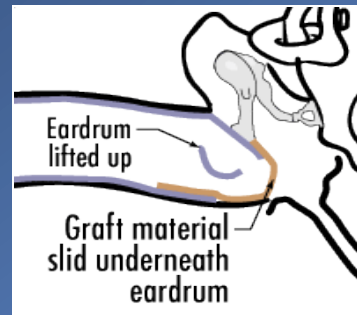
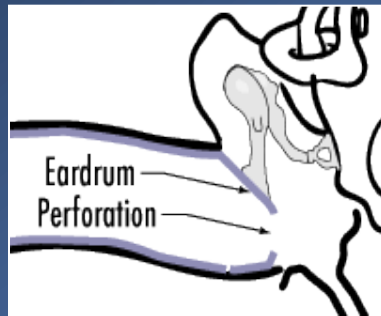
A-Otological antibiotics. (*ofloxacin*)

B-Surgical repair of the TM perforation.

Chronic Suppurative Otitis Media

B-Surgical repair of the TM perforation :

- Tympanoplasty



Chronic Suppurative Otitis Media

B- Attico-antral (unsafe-Cholesteatoma) :

- **Cholesteatomas**: are epidermal inclusion cysts of the middle ear and/or mastoid with a squamous epithelial lining.
- Skin growing in the wrong place
 - Middle ear cleft
 - Petrous apex
- Chronic ,Scanty, offensive and bloody ear discharge.
- On examination marginal perforation.

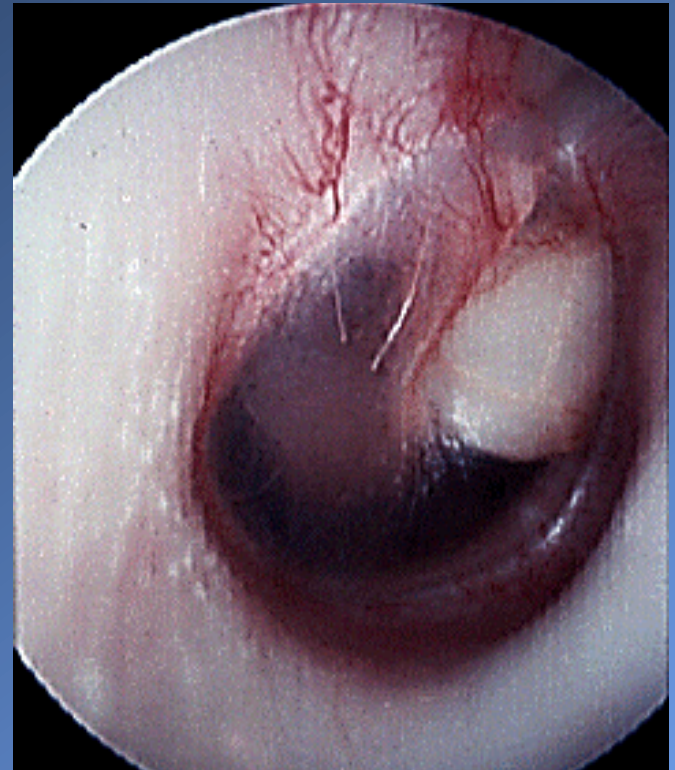


Cholesteatoma Classification

- Congenital
 - Acquired
 - Primary
 - Secondary
-

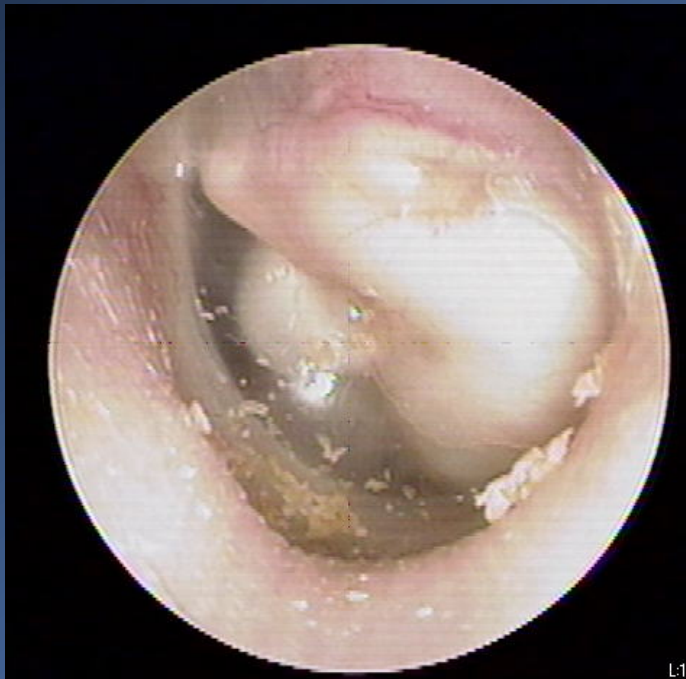
Congenital Cholesteatoma

- **Definition (Levenson, 1989):**
 - White mass medial to normal tympanic membrane
 - Normal pars flaccida and pars tensa
 - No prior history of otorrhea or perforations
 - No prior otologic procedures



Congenital Cholesteatoma

Large congenital cholesteatoma

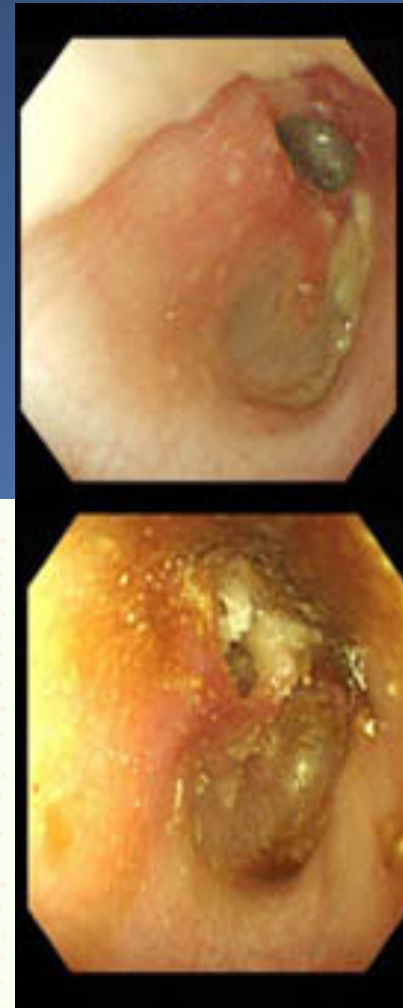
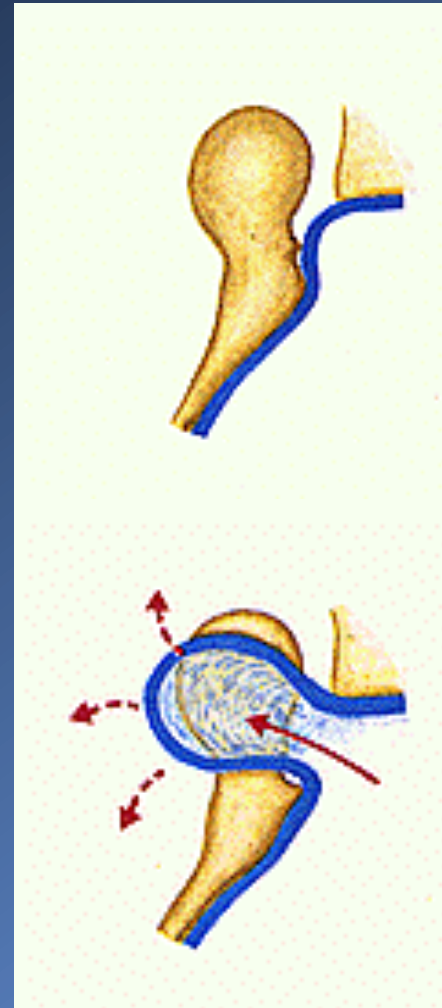
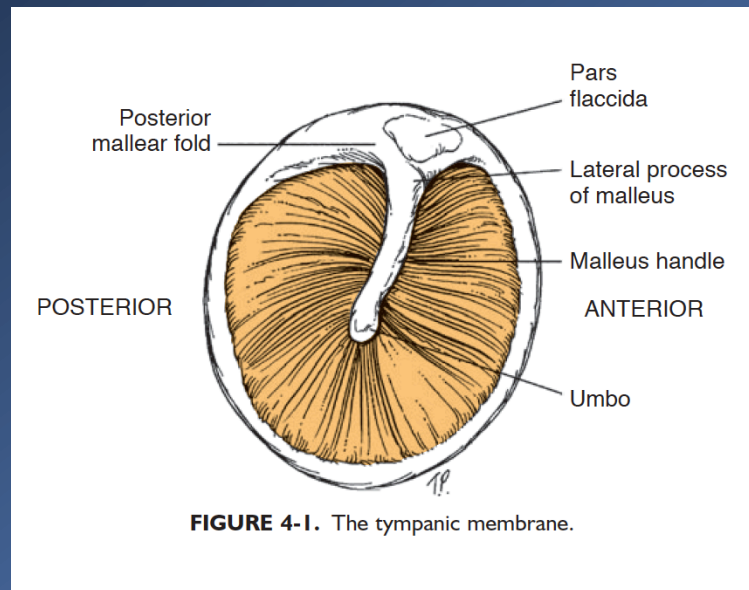


ossicular erosion

cholesteatoma

■ Primary Acquired Cholesteatoma :

- Pocket Invagination
- Otitis media with effusion



■ Secondary Acquired Cholesteatomas:

□ **Implantation theory**

Squamous epithelium implanted in the middle ear as a result of surgery, foreign body, blast injury, etc.

□ **Metaplasia theory**

Middle ear epithelium is transformed to keratinized stratified squamous epithelium secondary to chronic or recurrent otitis media

□ **Epithelial invasion theory**

Squamous epithelium migrates along perforation edge medially.

Cholesteatoma

◆ History

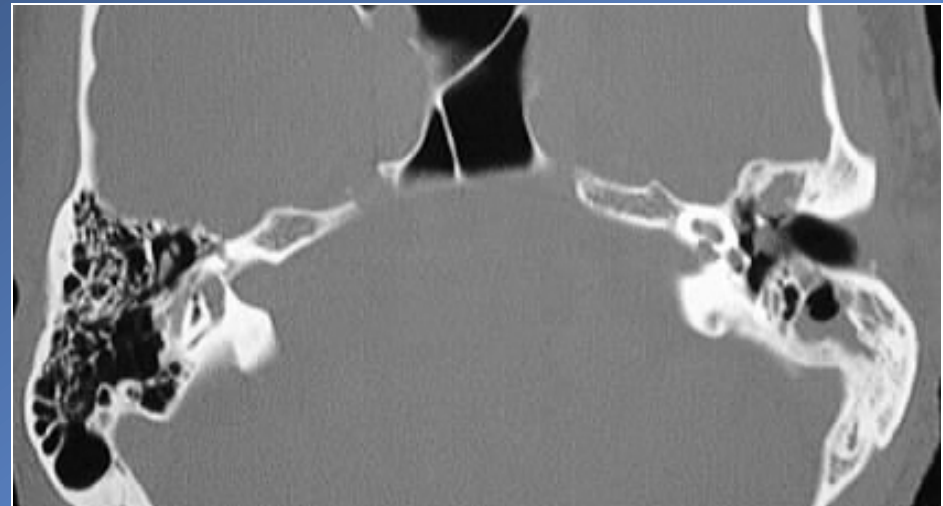
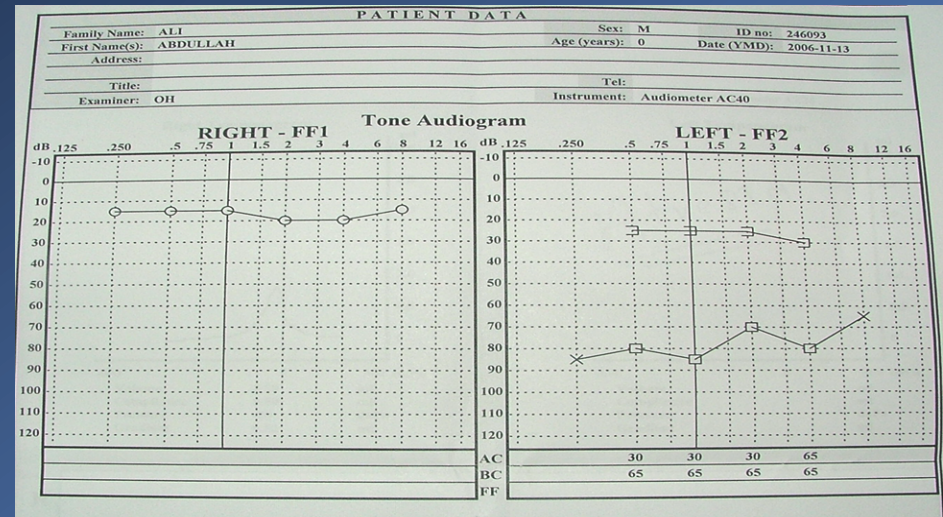
- Hearing loss
- Otorrhea
- Tinnitus
- Vertigo

◆ Examination

- Otoscopy
- Microscopy
- Tuning fork test

◆ Investigation

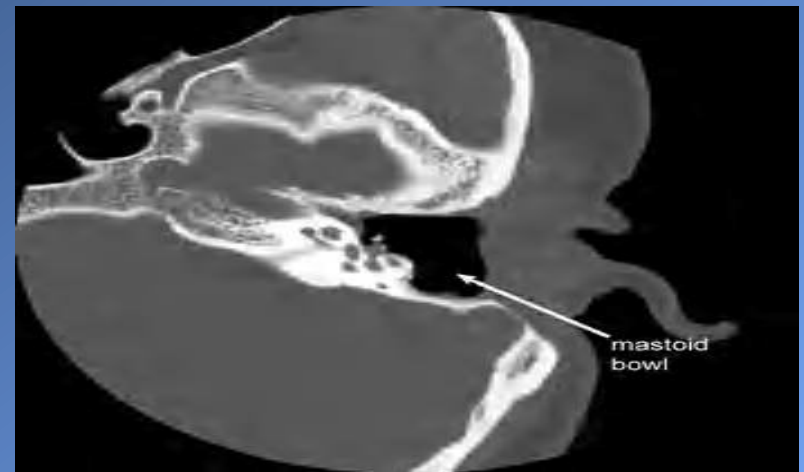
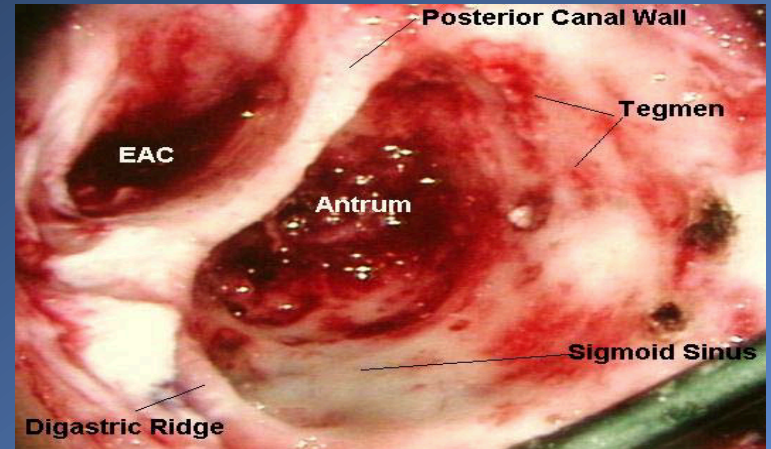
- Audiological assessment
- Radiological assessment



Treatment

Treatment Cholesteatoma (un safe)= Surgery

- Canal wall up (CWU)
 - Complete mastoidectomy
- Canal wall down (CWD)
 - Modified radical mastoidectomy
 - Radical mastoidectomy



Complications Of Chronic Otitis Media

The complications of Acute and Chronic Otitis Media

Predisposing factors :

- ❑ Diabetes,
- ❑ Leukemia,
- ❑ Immunodeficiencies,
- ❑ Malnutrition,
- ❑ Medications such as steroids that suppress the immune system
- ❑ Temporal bone fractures,
- ❑ Congenital dehiscence,
- ❑ Chronic infection may remove anatomic barriers to infection

COMPLICATIONS OF ACUTE AND CHRONIC OTITIS MEDIA

■ Extracranial

- Acute mastoiditis
- Chronic mastoiditis
- Postauricular abscess
- Bezold abscess
- Temporal abscess
- Petrous apicitis
- Labyrinthine fistula
- Facial nerve paralysis
- Acute suppurative labyrinthitis

■ Intracranial

- Meningitis
- Brain abscess
- Subdural empyema
- Epidural abscess
- Lateral sinus thrombosis
- Otitic hydrocephalus
- Encephalocele and cerebrospinal fluid leakage

Intra-Temporal Complications

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

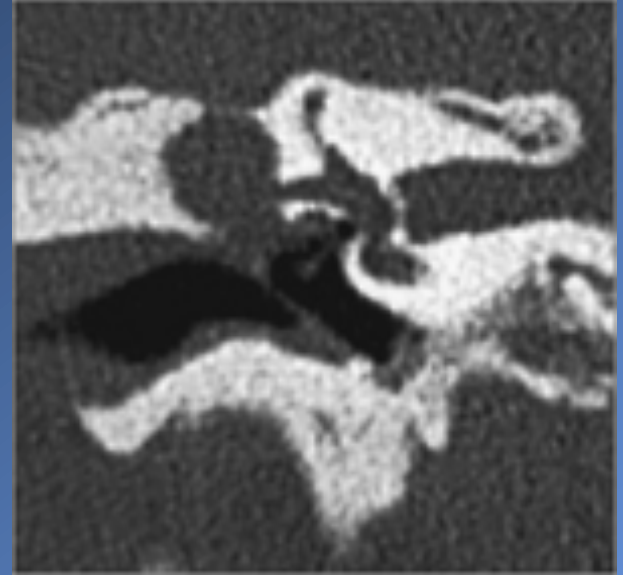
Labyrinthine Fistula

Definition :

- communication between middle and inner ear

Atiology :

- It is caused by erosion of bone by cholesteatoma.



Labyrinthine Fistula

Clinical picture :

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

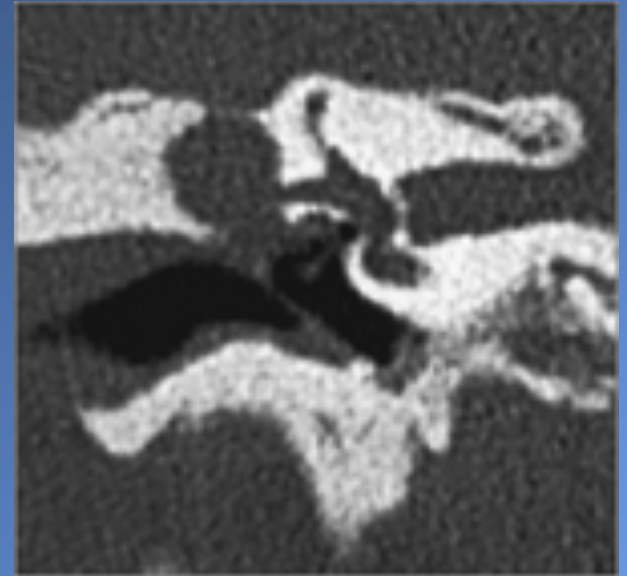
Labyrinthine Fistula

Diagnosis:

- CT scan of temporal bone

Treatment :

Mastoidectomy
+ Tympanoplasty



Facial Nerve Paralysis

- Result of the inflammation within the fallopian canal to acute or chronic Otitis media.
- **Tympanic segment** is the most common site to be involved.



Facial Nerve Paralysis

Diagnosis :

- ❑ Clinically
- ❑ CT scan Mastoid.



Facial Nerve Paralysis

Treatment :

- Antibiotics and steroids
- Acute otitis media and acute mastoiditis :
(cortical mastoidectomy + ventilation tube).
- Chronic otitis media with cholesteatoma:
(mastoidectomy ± facial nerve decompression)

Mastoiditis

Definition :

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



Mastoiditis

Symptoms:

- Earache
- High Fever
- Ear discharge

■ Signs:

- Auricular Protrusion
- Mastoid tenderness
- Swelling overmastoid
- Hearing loss



Mastoiditis

Investigation :

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



Mastoiditis

Medical treatment:

- Hospitalize
- Antibiotics
- Analgesics

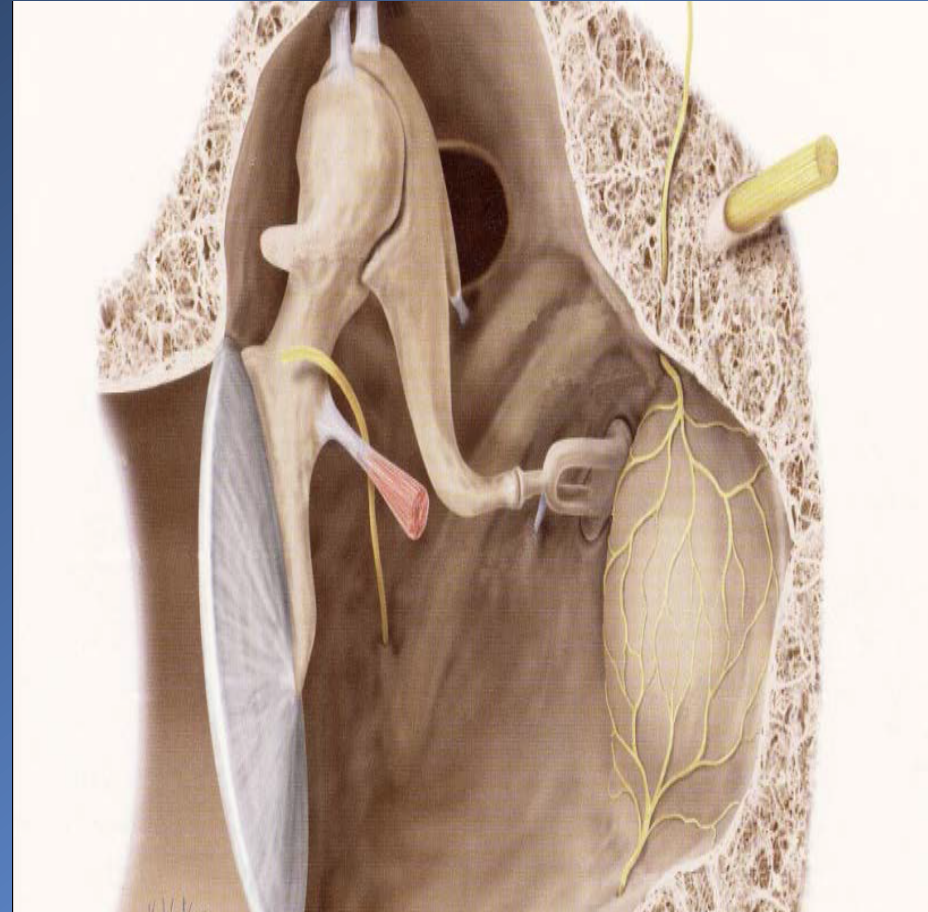
Surgical treatment:

- Myringotomy
 - Cortical mastoidectomy
-

Intra-Cranial Complications

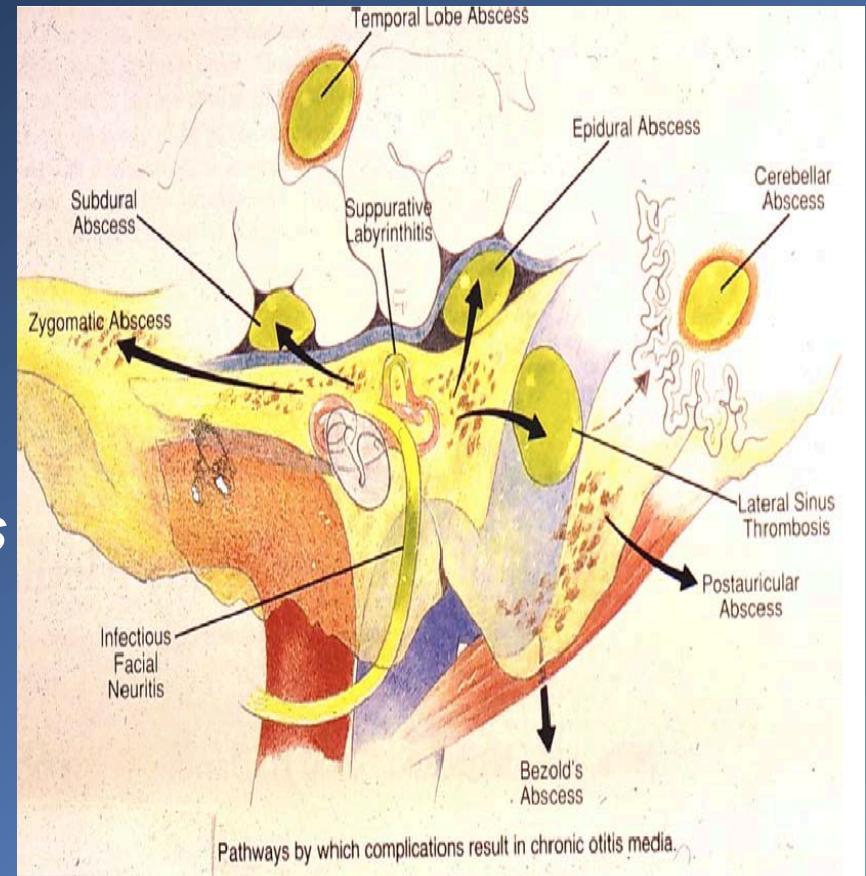
What are the natural barriers between brain and temporal bone ?

- Bone .
- Meninges .



Intra-Cranial Complications

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



Meningitis

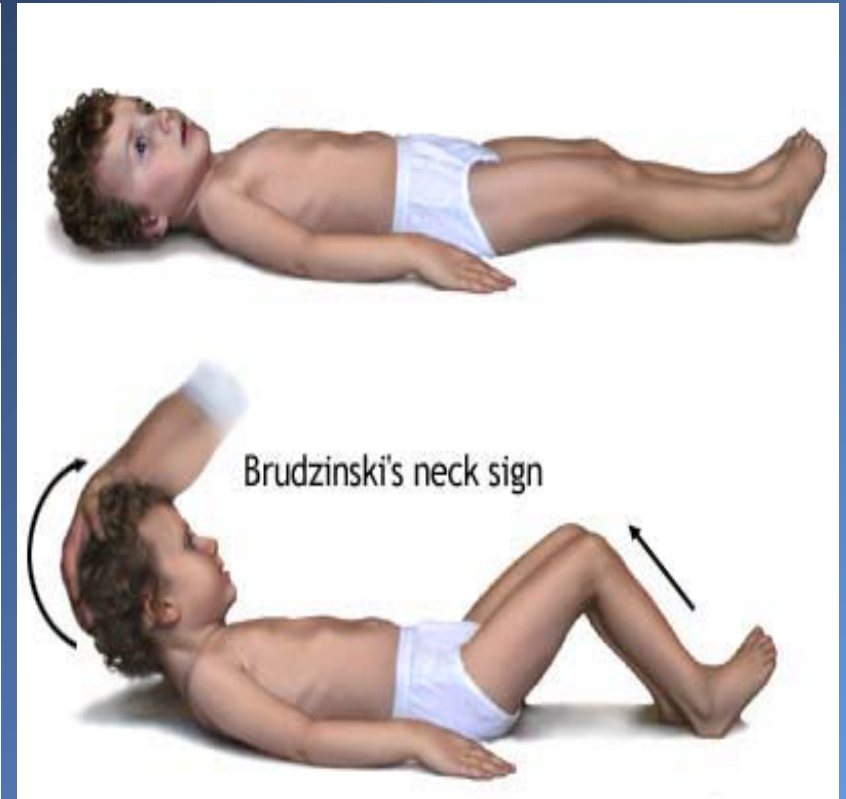
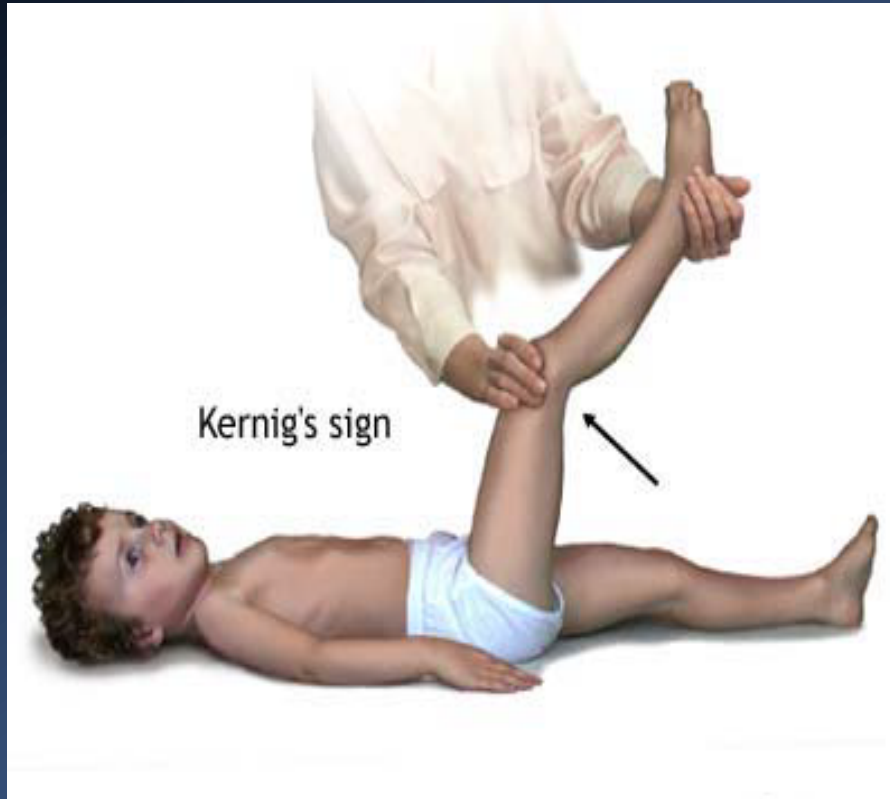
Definition :

- Inflammation of meninges surrounding the brain and spinal cord.

Clinical picture:

- **General symptoms and signs:**
 - high fever, irritability,
 - photophobia, and delirium.

Signs of Meningeal Irritation:



Kernig & Brudzinski signs have low sensitivity but high specificity

Meningitis

Diagnosis :

- Lumbar puncture is diagnostic.

Treatment:

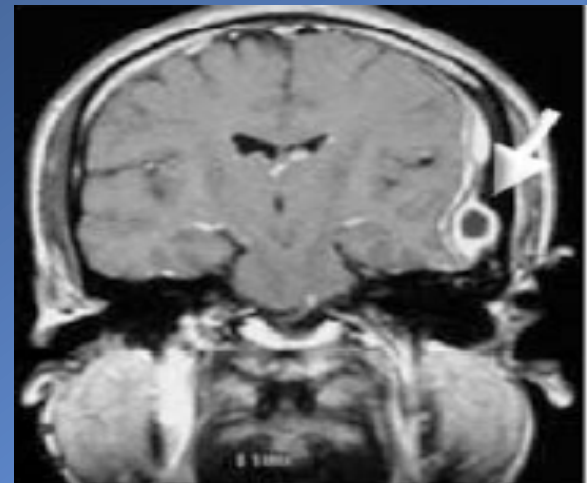
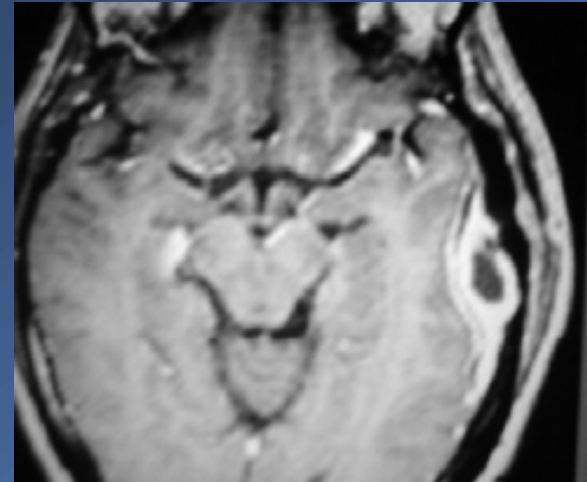
Treatment of the complication itself and control of ear infection:

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



Extradural Abscess

- Epidural abscesses are collections of pus external to the dura.
- Middle or posterior cranial fossa.



Extradural Abscess

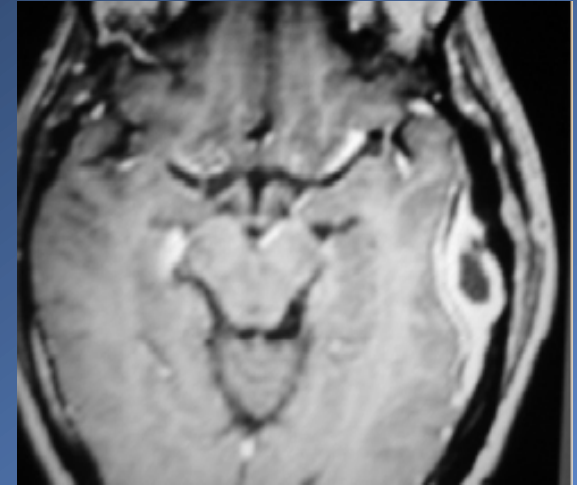
Clinical Picture :

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

Extradural Abscess

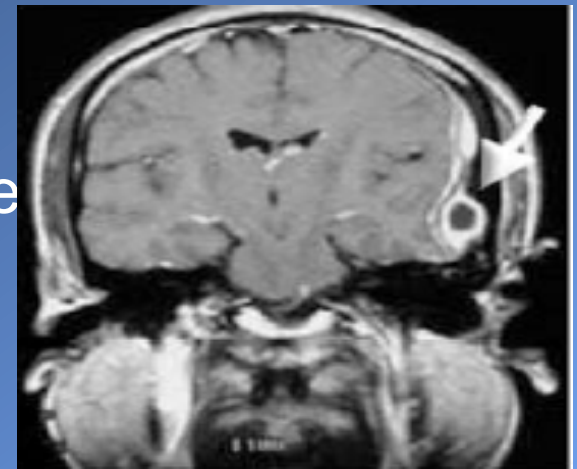
Diagnosis:

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



Treatment:

- Antibiotics
- 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)

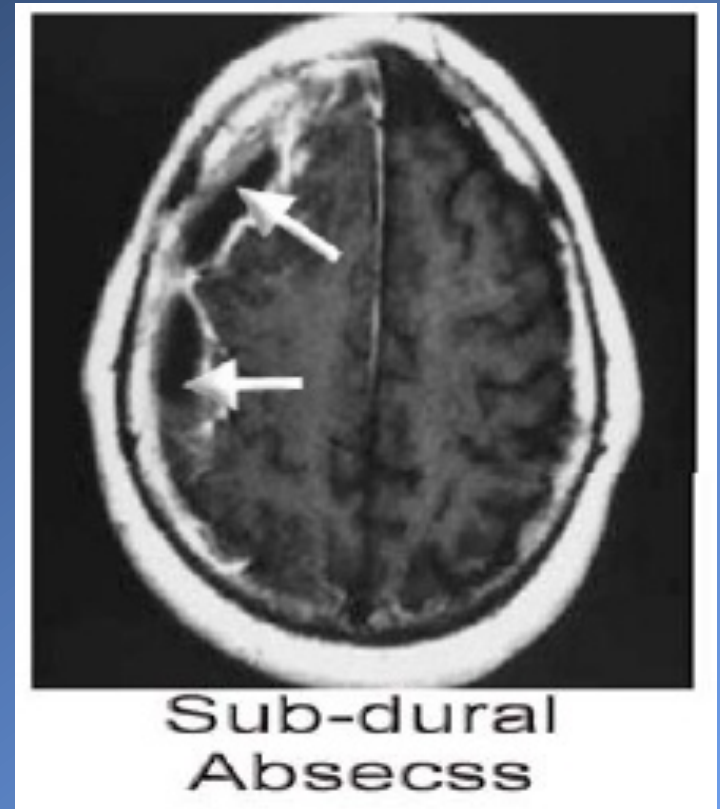
Subdural abscess

Investigations :

- CT scan, MRI

Treatment:

- Drainage (neurosurgeons)
- Systemic antibiotics
- Mastoidectomy



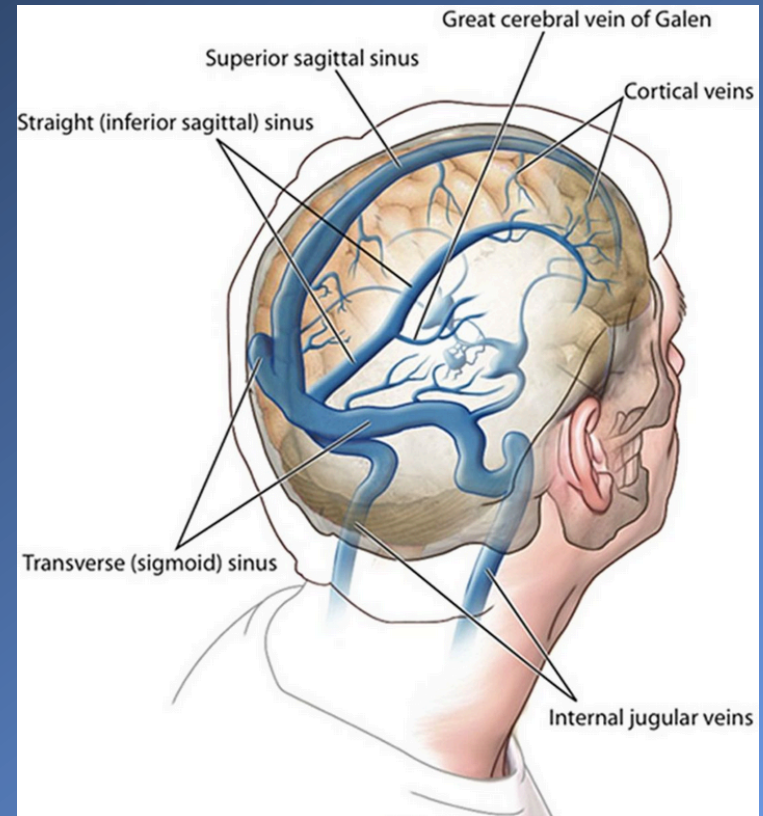
Venous Sinus Thrombosis

Definition :

- ❑ Thrombophlebitis of the venous sinus.

Etiology:

- ❑ It usually develops secondary to direct extension.



Venous Sinus Thrombosis

Clinical picture:

Headache, vomiting, and papilledema (increase intracranial pressure).

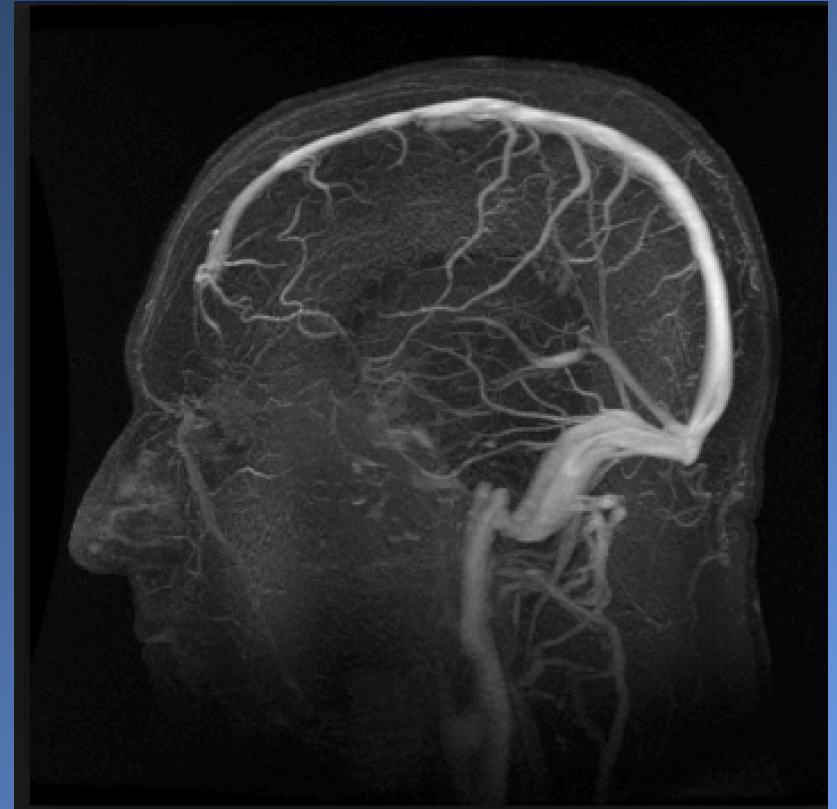
Signs of blood invasion:

- (spiking) fever with rigors and chills .
 - persistent fever (septicemia).
-

Venous Sinus Thrombosis

Diagnosis

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



MRV

Venous Sinus Thrombosis

Treatment :

Medical:

- Antibiotics and supportive treatment.
- Anticoagulation.

Surgical:

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

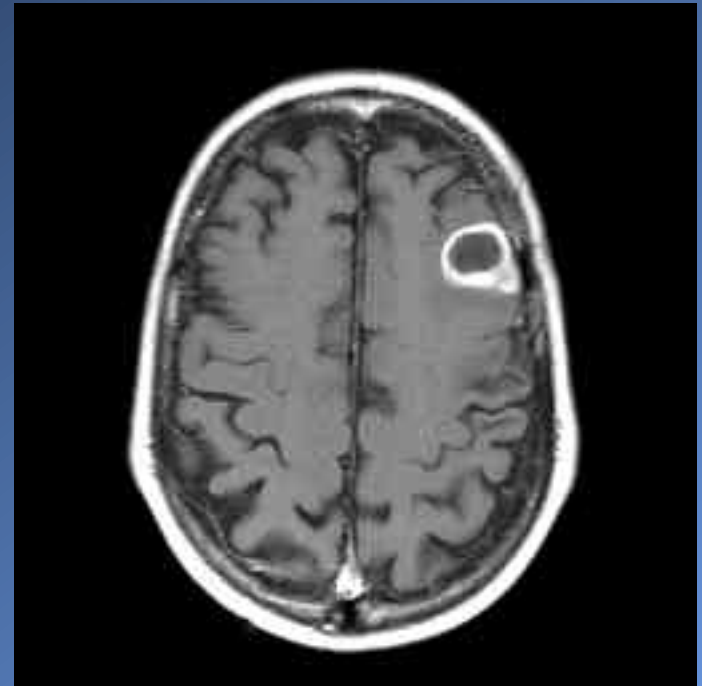
Brain Abscess

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.



Temporal Lobe

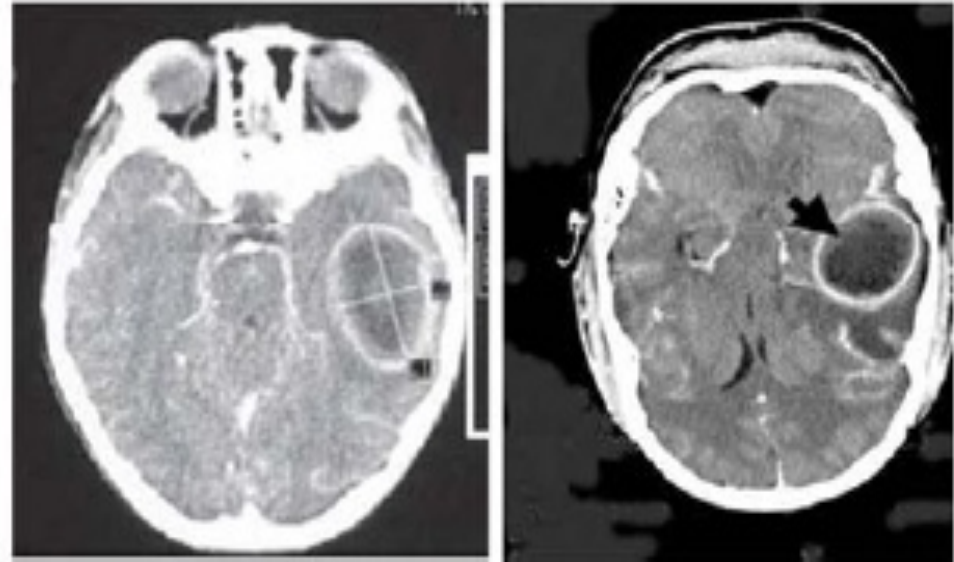


Cerebellum

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.

Thank you
