MENIERE'S DISEASE

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Definition

- A disease of membranous inner ear characterised by
  - **Episodic vertigo**
  - **Fluctuant SNHL**
  - **Tinnitus**
  - **Aural fullness**

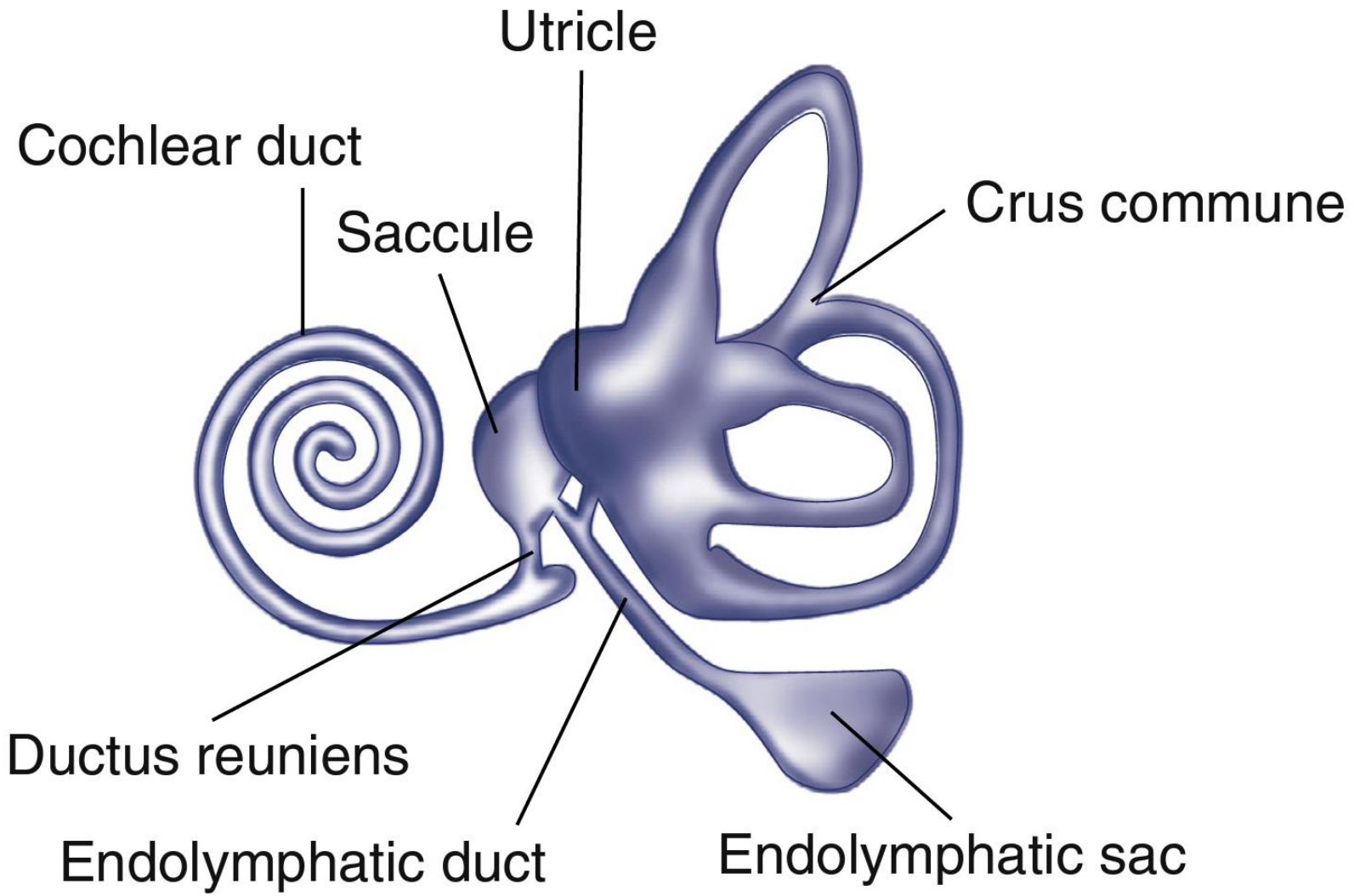
  Which has its pathological correlate;

  Hydropic distention of Endolymphatic system.

Aetiology - Meniere's

- Anatomical (small vestibular aqueduct)
- Traumatic (obstruction by debri released, biochemical dysfunction of cells)
- Viral infection (HSV 1)
- Allergy (both food & inhalant allergens)- inner ear act as 'shock organs'.
- Autoimmunity

Pathophysiology

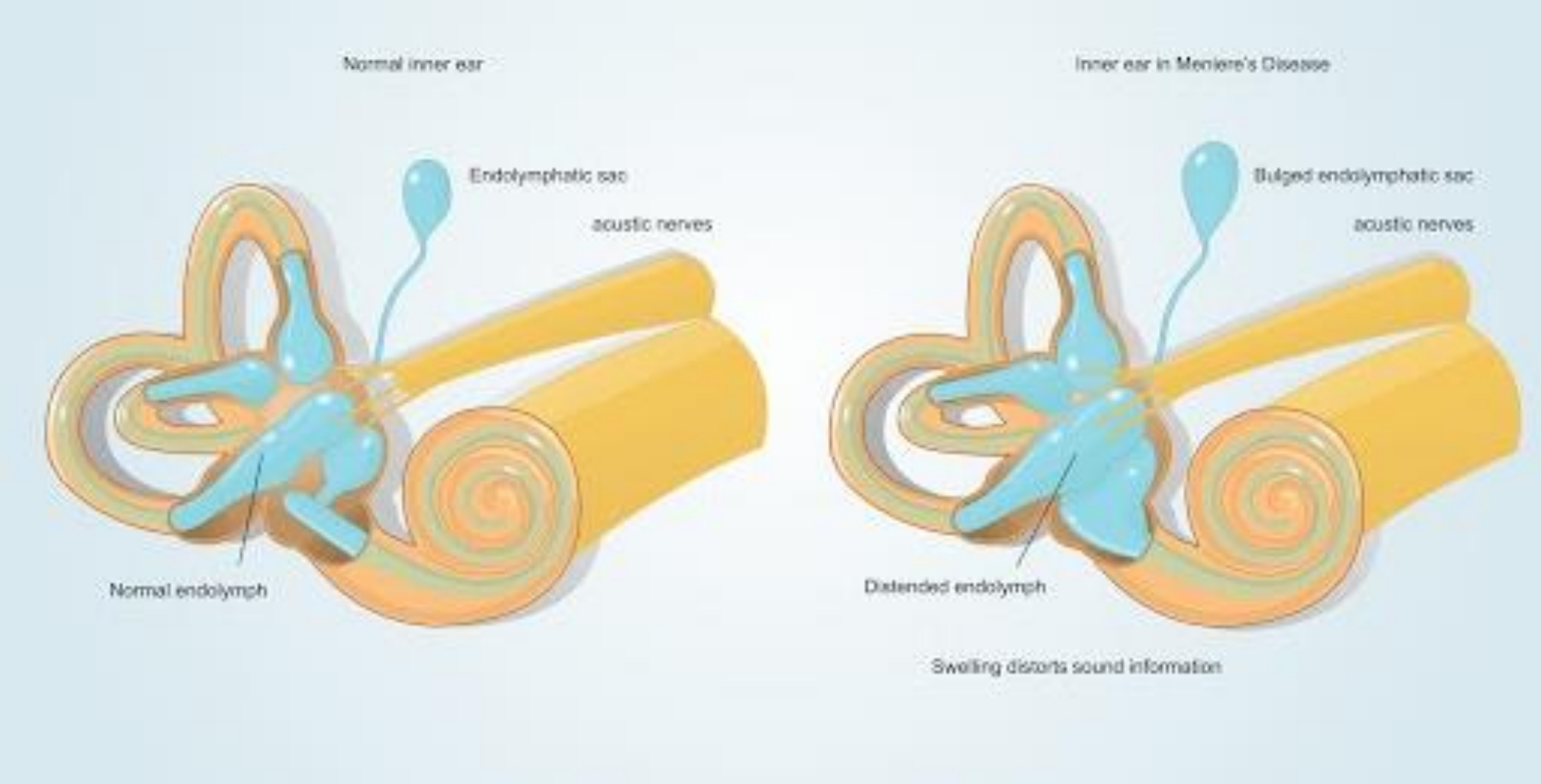


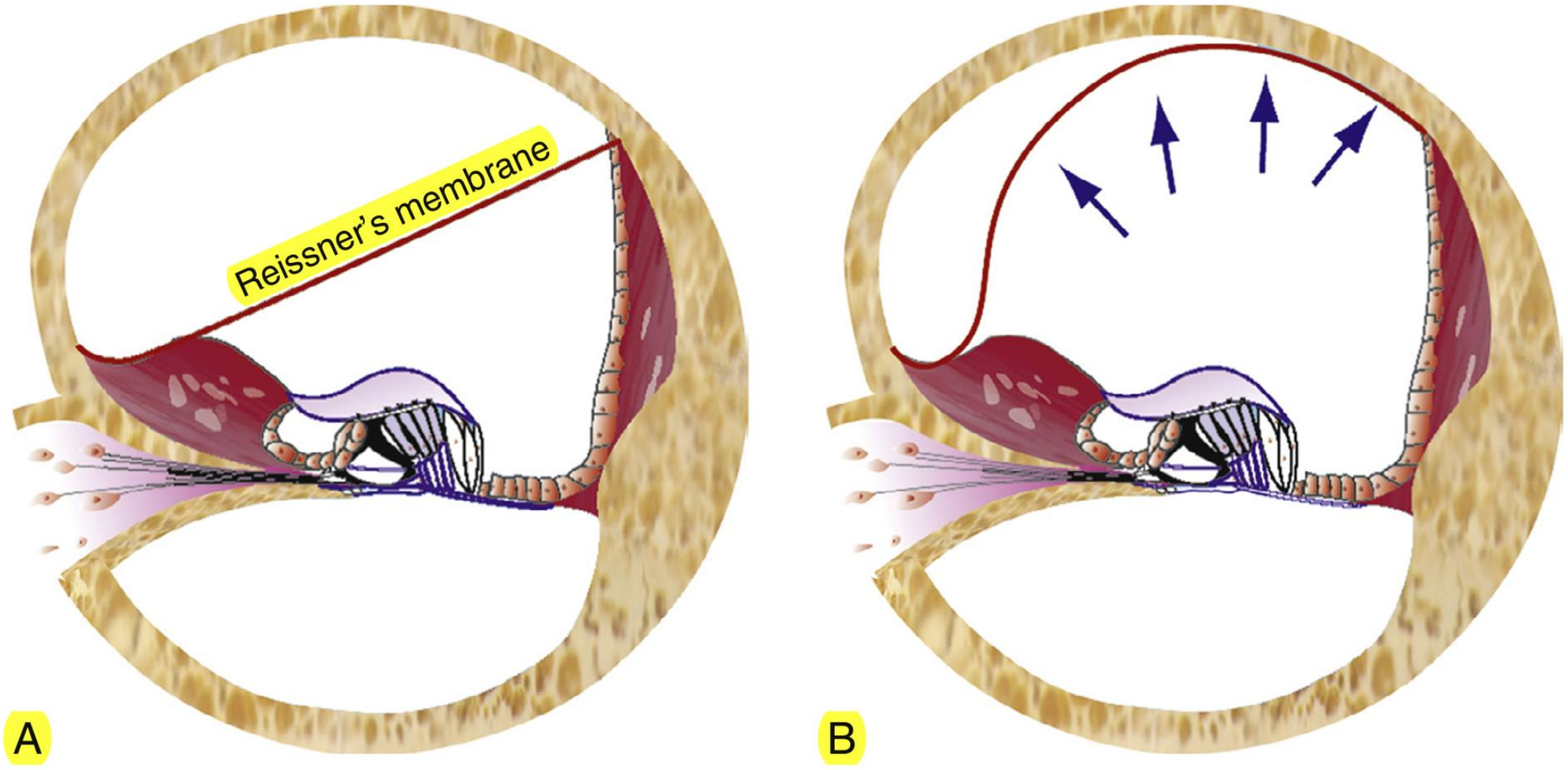
Pathophysiology

ENDOLYMPHATIC HYDROPS

- Physical distortion in membranous labyrinth.
- Excess fluid and pressure develop in membranous labyrinth – distention.
- Bowing and bulging of Reissner's membrane.
- Rupture of hydropic membranous labyrinth & mixing of fluids – disruption of normal electrochemical activity.

Pathophysiology




Reissner's membrane
A
B

Clinical Features

- EPISODIC VERTIGO
- TINNITUS
- SENSORINEURAL HEARING LOSS
- AURAL FULLNESS

SOMATOPSYCHIC EFFECTS

Clinical Features

EPISODIC VERTIGO

- **TULLIO PHENOMENON**;
  - Loud sound produce vertigo, imbalance or nystagmus.

Clinical Features

SENSORINEURAL HEARING LOSS

Fluctuating

- Distortion of sound: DIPLACUSIS
- Intolerance to loud sounds: due to RECRUITMENT PHENOMENON

Variants

- **Classical Meniere's disease**
- **Secondary endolymphatic hydrops:** caused by other diseases like syphilis
- **Atypical Meniere's disease:** with some but not all of the classical symptoms
  - Cochlear Meniere's: auditory symptoms only (hearing)
  - Vestibular Meniere's: vestibular symptoms only (vertigo)
- **Lermoyez syndrome:** symtoms in reverse order. First progressive deterioration of hearing followed by attack of vertigo. .
- **Tumarkin's otolithic catastrophe/ Drop attack Meniere's:** Abrupt falling attacks of brief duration with out LOC.

Investigations

Assessment of cochlear function

- **Pure tone audiogram**
  - sequential pattern of hearing loss.
  - Initially low frequencies are affected, rising type of curve.
  - Later, higher frequency also, curve flattens or falls.
- **Special audiometry tests**
- Recruitment test is positive
- **Electrocochleography**
  - Electrocochleography- evoked potential activity of cochlea and VIIIth nerve

Investigations

Assessment of vestibular function

- Not mandatory for diagnosis of Meniere's disease.
- **Dehydration tests:**
  - Glycerol - 1.5ml/kg with equal amount of water and flavouring agent
  - Audiogram and speech discrimination scores are recorded 1-2 hr before and after ingestion.

Investigations

Metabolic and other screening tests

- CBC, ESR
- VDRL, Treponema Pallidum Hemagglutinin Antibody
- RBS, GTT
- TFT
- Immunological assays, antibody screening

Management

- No precise cure.
- Medical and Surgical management options are there.

Medical management - acute attack

- Reassurance
- Bed rest
- Vestibular sedatives-promethazine, prochlorperazine

Chronic phase

- Vestibular sedatives
- Vasodilaters-nicotinic acid,betahistine
- Diuretics-furosemide
- Elimination of allergen
- Hormone replacement

Medical Management

INTERMITTENT LOW PRESSURE PULSE THERAPY

- Relatively recent approach.
- **MENIETT DEVICE** (USFDA approved)
- Ventilation tube placed in TM before starting therapy.
- Pulse pressure delivered- 20 cm of water, for 5 mins.
- Decrease hydrops by pulsing pressure to middle ear.
- Facilitate endolymph absorption.

Surgical Management

Reserved for those who fail conservative medical management

- **Endolymphatic decompression**
- **Endolymphatic sac surgery**
- **Vestibular nerve section**

Surgical Management

INTRA TYMPANIC INJECTION/ CHEMICAL LABYRINTHECTOMY

- Dexamethasone
  - Exact action is unknown
  - In c/o intractable vertigo
  - Concentration of 10mg/ml
  - Repeated every 3 months
- Gentamicin
  - Vestibulotoxicity higher than cochleotoxicity- spare hearing
  - Titration therapy
  - Superior to dexamethasone in vertigo controll

Surgical Management

LABYRINTHECTOMY

- Most destructive procedure.
- Both hearing and vestibular functions are lost.
- Patients with no functional hearing & failed conservative therapy.
- Higher rate of vertigo control than vestibular neurectomy.
- Improves quality of life in 98% patients.


THANK YOU.!!