48

Cupula

49

Vivid Head shaking

72 year old women, 4 months of dizziness and unsteadiness, especially with positional changes. Otherwise healthy

Mb

Menière

Symptom & Ailment

• Vertigo
  – Attack
  – Continuous
• Hearing loss
  – Fluctuating
  – Permanent
• Tinnitus
• Fullness
• Diplacusis
• Tumarkin attacks

Menière - Ailment

Attack
Vertigo
Tinnitus
Psyche
H-loss

Mb Menière

It is a riddle in a mystery inside an enigma.
W Churchill - on the Ribbentropp pact 1939

Definitions of Mb Menière


Possible Menière Disease
- Episodic spells of Menière-like vertigo but without documented hearing impairment, or
- Sensorineural H-loss, either fluctuating or permanent, with uncharacteristic dizziness
- Other causes excluded

Probable Menière Disease
- One episode of true vertigo
- Audiometric verified sensorineural H-loss at least at one occasion
- Tinnitus or fullness in affected ear
- Other causes excluded

Definitive Menière Disease
- Two or more verified occasions with spinning vertigo > 20 min duration
- Audiometric verified sensorineural H-loss at least at one occasion.
- Tinnitus or fullness in affected ear
- Other causes excluded

Verified Menière Disease
- Definitive Menière + histopathology (endolymphatic hydrops)

Hearing loss in Meniere

• Hearing loss fluctuate
• Initially there is a low-frequency hearing loss,
• Later the loss becomes permanent
• 60-70 dB, Patient never gets totally deaf
Hydrops can be found in temporal bone from patients without Mb Méniere
A number of theories have been proposed
... And more will come!

From Rauch et al 1989

One theory:

A theory suggests that a narrowed duct becomes obstructed by debris that is cleared by a combination of the secretion of hydropthica proteins within the sac and a hormone, saccin, that increases the volume of endolymph within the cochlea. It is proposed that the sudden restoration of longitudinal flow initiates the attacks of vertigo.

You must be dead in order to be properly diagnosed with “certain” Meniere’s disease!!

“Definite” Meniere’s disease
2 or more spontaneous vertigo episodes > 20 minutes
Documented sensorineural hearing loss on at least one occasion
Tinnitus and aural pressure in the same ear

“Certain” Meniere’s disease = “Definite” Meniere’s disease + histopathologic hydrops
A diagnosis, most often made on criteria

Mb Meniere a therapeutic AND diagnostic problem

The ‘2/3’ problem of Meniere’s disease
• About 2/3 of the patients stop having attacks in 3-4 months
• About 2/3 of patients respond with reduced vertigo on most treatments. (Torok -77, -91)
• Effect of threatening with Surgery [Kerr et al -98]
• Effect of threatening with Gentamicin (Magnusson Karlberg)
Treatment (Meniere's disease)?

- Diuretics (scandinavian) e.g. furosemid 40mg x 1
- Betahistidin (Serc®), High dose 24/48mg x 3
- Suppress attack (Dimenhydrinate, Promethazine)
- Diazepam 2 – 2.5 mg x 1-2, (Clonazepam)
- Salt reduction. 50ug U-Na/d (www.onh.lu.se)
- Antisecretory factor? (SPC-flake®)
- 'Psycho supportive therapy'.

If that's not enough..

- TMD-tube
- Local pressure Meniette?
- Intratym steroid – dexametason
- Saccus surgery??
- Gentamicin
- Vestibular nerve section
- Labyrinthectomy

TMD for Meniere’s disease

Positive results
- Tumarkin J Laryngol Otol 1966
- Lall J Laryngol Otol 1969

Negative results
- Hall & Brackmann Arch Otalaryngol 1977

Intra tym Steroids

- Dosage and regime vary
- 2 times a week for 2 weeks (JP Harris, G Hughes)
- We do 1/day for 4 days.
- Dexametison, with or without lidocain.
- Avoid infected eardrums or after radiation therapy
  Risk for persistent perforations

Gentamicin

- Ototoxic, delayed effect, low dose
- The only? (Yet) Treatment that has been shown to have effect in a double blind study. (Stokroos & Kingma Acta Otalaryngol 2004)

  1-2 injections and then wait
  or
  1 inj/week until there is symptoms of vestibular impairment
Surgical Procedures

• Saccotomy – sac ectomy
  – Vs Placebo, as good as TMD (Thomsen et al -98)
• Vestibular nerve section
  – Get all the nerve, preventing further decrement??
  – Risk for complications
• Labyrinth destruction /ectomy
  – The final blow...
• All procedure aim at vertigo/dizziness

Placebo?

• ’71% respond with reduced vertigo, to any treatment’ with in 3-4 months, As they do to no treatment at all. Torok et al 1977. ~800 studies scrutinized. (Re-done 1991.)
• Magnusson M, Karlberg M. Curr op Neurol 2002, ‘Threatening with Gentamicin’

Mb Meniere

• Ethiology – not clarified
• Pathophysiology – at least questioned
• Varying Corse - Spontaneous Remissions
• Placebo effects??

• A treatment affecting the causitive ethiology should have an effect on hearing as well as vertigo

To consider:

• MR: Large Vestibular Aqueduct or Retrojugular vein.
• If repeated Vertigo spells, with duration > 12h or without hearing loss – consider migraine?

Vestibular neuritis

Vestibularis Neurit
  
Symptom
• Acute (relative) spinning sensation – vertigo. Malaise and vomiting.
• Nystagmus. (quick phase to healthy side), falls (to lesioned side)
• No (new) cochlear symptom or tinnitus.
• No neurologic symptoms.

• Findings
  • Spontaneous nystagmus, accentuated by
    a) gaze to quick phase, b) headshake c) Frenzels glasses
  • Falls with slow phase of nystagmus

• Patol. Impulse test
  Normal ENT and Neurology
  • CT useless to rule out CNS – lesion. MRT- recommended

Inflammation – Virus?
**Who - Epidemiology:**
Quite common but varying with season, often spring and fall. Sex: M~F.
15-60 år. Described among children but uncommon

**Why - Ethiology:**
- Virus? Herpes simplex (‘nerve ganglion’).
- Ischemic lesion of nerve or labyrinth??
- Cerebellar infarction? (1/3 > 50 år)
- Borreliosis? (erythma migrans??).
- MS? – MRT - fundus?,
- Zoster Oticus?? – pain!

MRI (Siemens Magnetom Allegra) 3.0 Tesla T1-weighting, gadolinium 0.3mmol/kg (“tripple” dose)
Show: enhancement of the vestibular nerve in 2 consecutive cases

Karlberg, Annetz, Magnusson, Laryngoscope 2004

**Most common: superior nerve**

Partial periferal vestibular lesion that effect n vestibularis superior dvs
Anterior and lateral semicircular canal and utriculus

MRI (Siemens Magnetom Allegra) 3.0 Tesla T1-weighting, gadolinium 0.3mmol/kg (“tripple” dose)
Show: enhancement of the vestibular nerve in 2 consecutive cases

Karlberg, Annetz, Magnusson, Laryngoscope 2004

**Treatment - Vestibular neuritis:**

**Acute phase day1-2.** Care,. Ev. antivertigeneous drugs. i.v. rehydration.

**Subacute phase day 2-10.** Training. Habituation exercises.

Compensatory phase day 10< More extensive training - Ve

Sic the lor

**Cerebellar stroke vs vestibular neuritis**

All had a normal impulses

**Caveat:** However, Small Brainstem infarctions may have pathological impulse test as well (Toker et al 2008)

**Prognosis?**

central kompensation

habituering

Restitution of function

ca 1/3 normal caloric reaction

The higher the Canal paresis the worse are the problem!!! (Kammerlind et al -06)

Dizziness, anxiety, fatigue

Måns Magnusson ©
Cognitive ability??

- Bilateral vestibular loss – reduce results in cognitive tests  
  (Brandt et al 2004)
- And hippocampal volume  
  (Brandt et al 2006)
- Compensated unilateral vestibular loss have prolonged ‘reaction time’ in cognitive test!  
  (Redfern et al 2003)

Vestibularis Neuronitis

1. Impulse test
2. Activate patient – ‘rehab’ program
4. Steroid treatment (within 3 d)
   Initial dose betamisolon i.v.
   50mg prednisolon/d 1 5d.
   Taper 5 d. [40-30-20-10-5mg]

Labyrinthitis

Definition:

Infection of the inner ear

- Signs of otitis + dizzy, hearing loss, tinnitus.
- Bacterial infection
  - Purulent – Direct effect – Nyst to healthy side
  - Serous – Toxic effect – Nyst to lesioned side
- Virus
- Spirochete - fungus
- Congenital

Bacterial complications

- Petrosit
- Gradenigo’s syndrome ------
  - Otit
  - Pain behind the ear. ---- also in n.V.
  - Abducens pareses
- Epidural abscess
  - Parietal – big / posterior fossa small
- Intra cerebral abscess
  - Today uncommon but cultural dependent
  - Treatment Surgery, systemic and local antibiotics.

Viral Infection

- Parotitis
  - At the end of the disease, unilat i 80%
  - High freq loss
  - Sometimes vertigo and caloric loss
- Measles
  - Sudden hearing loss at the time of the rash
  - Bilateral
- Upper airway and gastro intestinal infections
Acute viral infection
• Varicella-Zoster
  – Zoster oticus about 25% get labyrinthe symptoms
  – Ramsay-Hunt (nVII & n VIII + blisters)
  – Treatment: Acyclovir i.v. (Valcyklovir 1 g x 3) + Steroid [e.g., prednisolon 50 mg x 1 i 5 d + taper]
• Herpes simplex??
  – Facialis pares?? Sudden deafness/vertibular neuritis
• CMV ganciclovir/foscarnet??

And now to something completely different..... The other part of the ear..