Complete left-sided sensorineural hearing loss.

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Acute Labyrinthitis
Enhancement of the labyrinth on the left

T1-weighted MRI image, with contrast, axial (2D-FT)

T1-weighted MRI image, with contrast, axial (3D-FT)
T2-weighted MRI image, axial
Hypointensity of the labyrinth on affected side (yellow arrow)

Diffusion-weighted MRI image, axial
Restricted diffusion in the affected labyrinth (orange arrow)
Labyrinthitis

• Inflammation of the membranous labyrinth in the inner ear.
• Patients present with vertigo, hearing loss, fever, tinnitus, otorrhea, otalgia.
• Ddx: Vertebrobasilar insufficiency, cerebellar infarct, drug-induced vertigo or hearing loss, presyncope.
Labyrinthitis

- Etiologies:
  - Tympanogenic
    - Complication of acute mastoiditis with spread of infection from the middle ear to inner ear via the round or oval window.
    - Typically unilateral.
  - Traumatic
    - Post-temporal bone fracture with perilymphatic fistula formation.
  - Meningogenic
    - Most frequently bacterial, typically causing bilateral labyrinthitis, and seen most frequently in children. Most common cause of acquired deafness.
  - Hematogenic
    - Most frequently viral, after respiratory tract infections. Controversial if hematogenous spread is real or direct infection from the middle ear.
Labyrinthitis

- MRI Findings:
  - Enhancement of the labyrinth on post-contrast T1-weighted images.
  - T2 hypointensity of the affected side in comparison to the normal side.
  - Restricted diffusion.
References:

1. Radiopedia


