

Fracture

- Longitudinal fractures: Vertical plane parallels long axis of petrous ridge (PR)
 - External auditory canal (EAC), middle ear (ME)/ossicular involvement common; otic capsule (OC) involvement rare
- Transverse fractures: Perpendicular to PR long axis
 - OC involvement, facial nerve (CNVII) injury very common; EAC/ME involvement rare
- Oblique fractures: Mixed features, typically horizontal and parallel to PR long axis
- OC-violating vs. OC-sparing classification better predicts complications, such as sensorineural hearing loss, CNVII injury, and CSF leak
- Ossicular injuries: Dislocations >> fractures, incus most commonly involved
- CNVII injuries: Most commonly at geniculate ganglion; symptoms often resolve spontaneously
- All varieties: Assess for tegmen fracture (CSF leak), carotid canal injury, extension to central skull base, intracranial, and cervical spine injury

Longitudinal Fracture

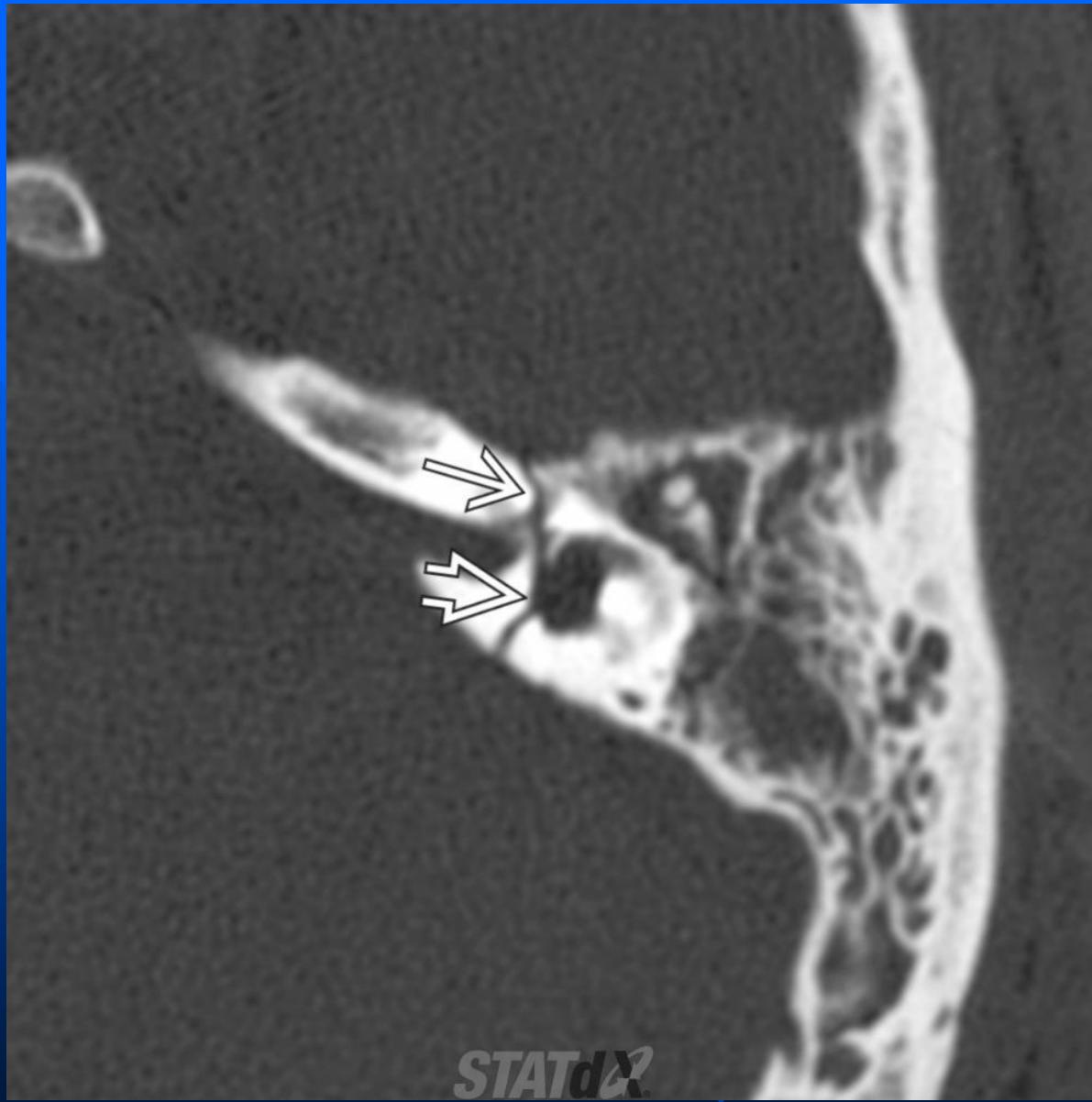


high incidence of ossicular derangement

Horizontal Fracture



Sensorineural hearing loss



Axial bone CT reveals a transverse otic capsule-violating fracture extending through the labyrinthine CNVII canal (white solid arrow) and the vestibule (white open arrow). This medial subtype of transverse fracture often results in complete and permanent sensorineural hearing loss and facial palsy.