21M s/p trauma with right facial paralysis 5 weeks after injury

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CT Temporal Bone (axial)
Temporal bone fracture extending through the posterior semicircular canal and facial canal.
Opacified air cells (yellow arrow) & fracture lines (blue arrows)
Opacified air cells (yellow arrow) & fracture lines (blue arrows)
Opacified air cells (yellow arrows) & fracture lines through the posterior semicircular canal (blue arrows)
Temporal Bone fracture

• Traditional classification system indicates the relationship of the fracture line with the long axis of the petrous portion of the temporal bone
  – Longitudinal (70%–90%)
  – Transverse (10%–30%)
  • Facial paralysis is more common in patients with a transverse fracture and may be immediate and complete
  • More common sensorineural hearing loss
  – Mixed
Temporal Bone fracture

- Designating fractures as otic capsule–sparing vs otic capsule–violating most important
  - Violating: Otic capsule–violating fractures course through the labyrinth—the cochlea, vestibule, or semicircular canals
    - more commonly associated with complications such as sensorineural hearing loss, cerebrospinal fluid otorrhea, and facial nerve injury
  - Sparing: Otic capsule–sparing fractures are more commonly associated with intracranial injuries such as epidural hematomas and subarachnoid hemorrhages.
Facial nerve injury

• Facial nerve is injured in 7% of patients with a temporal bone fracture
• Most injuries occur in the labyrinthine segment, in the region of the geniculate ganglion
• Immediate posttraumatic paralysis frequently is indicative of transection of the nerve or compression by an osseous fragment
• Delayed onset of paralysis may be explained by development of edema, swelling, or an expanding hematoma causing neural compression with an intact nerve
Temporal bone fracture

- **Presentation:** usually a sequela of significant blunt head injury
- **Rx:**
  - Manage facial nerve injury, hearing loss, vestibular dysfunction, and CSF leakage
  - If immediate facial nerve paralysis occurs with loss of electrical response, surgical exploration should be considered.
  - Delayed-onset or incomplete facial paralysis almost always resolves with conservative management, including the use of tapered-dose corticosteroids.
References

