Overview

• Briefly review temporal bone anatomy
• Discuss mechanisms of injury
  – Longitudinal fractures
  – Transverse fractures
• Complications
  – Prognosis
• Word origin
Temporal Bone Fracture

- Found in 10% of all head injury patients
- Not an uncommon injury

Normal Anatomy

Normal Anatomy

Normal Anatomy
Normal Anatomy

Fracture Complications

- Hearing loss
- Facial nerve palsy
- Equilibrium
- CSF leak

Fracture Mechanism

- Historical background
- Experimental model
- Injury pattern

Fracture Mechanism
Longitudinal Fracture

Fracture Mechanism
Transverse Fracture

Complex Fractures
Longitudinal Fractures

- Tear of tympanic membrane
- Dislocation of ossicles
- Facial nerve contusion
- Fracture of tegmen tympani
- Injuries to otic capsule is rare

Tympanum: Drum
Charles Bell, 1744-1842
- 1821, described the course of CN VII
- 1829, described 3 cases of CN VII palsy due to trauma

Why is the Temporal Bone called the Temporal Bone?

Latin: Tempus (time)
**Transverse Fractures**

- Less common, more serious
- IAC
- Inner ear

**Transverse Fractures: Hearing Loss**

- Acute onset of symptoms
- Poor prognosis
- Mechanism of injury (11 cases)
  - Facial nerve transection (92%)
  - Compression (bone fragment) (8%)


**Transverse Fractures: Facial N Palsy**

- Acute onset of symptoms
- Poor prognosis
- Mechanism of injury (11 cases)
  - Facial nerve transection (92%)
  - Compression (bone fragment) (8%)

**“Sides of the skull where hair first become grey (white) showing the ravages of time…”**

*Italian: tempo
Andante grazioso*
Vertigo

- Vestibular nerve or labyrinthine injury
- Poor prognosis
- Treatment
  - Reduce symptoms
  - Benzodiazepines
  - Perilymph leakage
    - Surgery to seal leak
    - Reduce frequency and severity of symptoms

Traumatic Meningocoele

Courtesy of Bert De Foer
Summary
Transverse Fracture
• Relatively common injuries
  – Facial nerve palsy (40% to 50%)
  – Injury to labyrinth
• Relatively uncommon
  – TM injury
  – Ossicular dislocation
  – CSF leak

Table Mountain
Cape Town

Robben Island

Nelson Mandela
Why is the mastoid called the mastoid?

- *-oid implies resemble

What does it resemble?

Any idea?

Got it?
Mastoiditis mastitis
Mastoidectomy mastectomy

EAC Fracture


EAC Fracture

Hearing Loss Prognosis

• Conductive hearing loss (Good prognosis)
  – EAC fracture
  – Laceration of tympanic membrane
  – Dislocation of ossicles
Conclusion: Temporal Bone Fracture

• Not an uncommon injury
• Found in 10% of all head injury patients
• Injuries depend on the direction of deforming force

Main complications:
- Hearing loss
- Facial palsy
- Vertigo

Prognosis depends on:
- Mechanism of injury
- Site of injury

Role of imaging:
- Confirm presence of injury
- Demonstrate site of injury
- Prognostication

Why is the temporal bone called the temporal bone?

Tempo
Andante grazioso

“Sides of the skull where hair first become grey (white) showing the ravages of time…”

Why is the mastoid called the mastoid?

乳突
Mastoiditis mastitis
Mastoidectomy mastectomy

If you are not hearing..... I haven’t been drumming...