



Background

- Temporal bone fractures have the potential for significant otological and neurological complications, which can lead to functional, developmental, and social implications in the pediatric population¹.
- We aimed to summarize the clinical characteristics, treatment strategies, and outcomes of pediatric patients presenting with temporal bone fractures at our single center.

Methods

Study Design

Retrospective cohort study of pediatric patients presented to the London Health Sciences Centre (LHSC), a tertiary care hospital network, from January 2010 to December 2022.

Inclusion Criteria

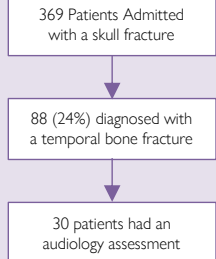
Patients <18 years old
Patient was diagnosed with a temporal bone fracture based on imaging

Exclusion Criteria

Lack of imaging confirmation of temporal bone fracture
Lack of relevant clinical data

Analysis

• Patient demographics, mechanism of injury, clinical investigations, treatment/management, and complications.



Results

Age	
Mean Age	8.56
Median Age	(5.44)

	Patients (n)	%
Male/female	52/36	59%/41%

	Patients (n)	%/Median
Otolaryngology Consultation	42	48%
Otolaryngology Follow-up	33	38%
Number of Additional Follow-Ups	1.47	1.80

Table 1. Patient Demographics

- Motor vehicle accident
- Fall from height
- Assault/trauma
- Sport/Recreation Related
- Bicycle
- Others
- Not specified

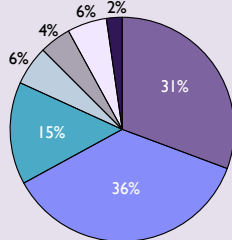


Figure 2. Mechanisms of Injury

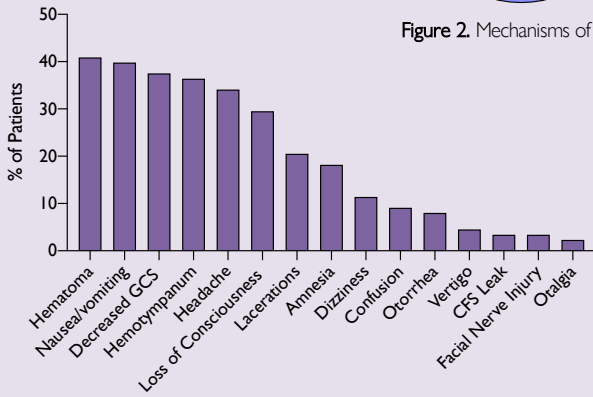


Figure 3. Clinical Presentations

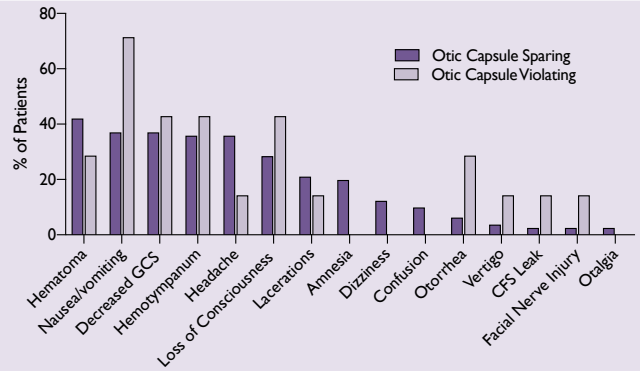


Figure 6. Clinical Presentations Based on Fracture Type

Discussion & Conclusion

- The most common mechanism of injury was fall from height (36.4%) and motor vehicle collision (30.7%), affirming the risk factors for pediatric skull fractures and the need for preventative measures.^{2,3}
- 7 (8%) patients had otic capsule violating (OCV) fractures based on CT scans. Similar rates were observed in published literature and in adult populations.^{4,5}
- OCV fractures were associated with a higher risk of hearing loss, particularly sensory-neural and mixed hearing loss, otorrhea, vertigo, and facial nerve injury, compared to OCS fractures, consistent with current literature.⁶
- Facial nerve injury is a rare but important complication, with our cohort's incidence of 3.4% consistent with published 3-7% data. Facial paralysis is more common in adult patients. Rates fall within 7%-38%.⁷
- Limited number of patients underwent audiology assessment (34%). This highlights the inherent challenges of a retrospective study and the need for robust protocols and dedicated support systems to enhance audiometric follow-up, especially for the vulnerable pediatric population in a tertiary care center.
- The study's findings highlight the importance of early detection and appropriate management of rare OCV fractures to mitigate associated complications.

Otic Capsule Sparing (n=24) Otic Capsule Violating (6)

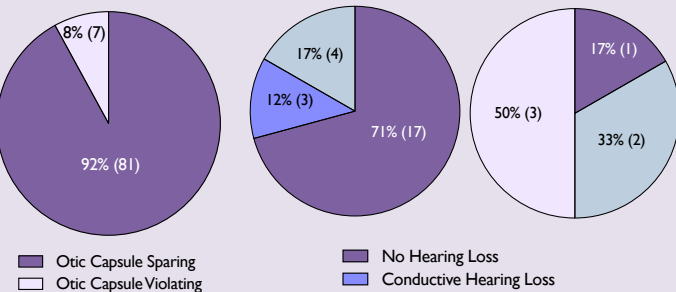


Figure 4. Fracture Type

Figure 5. Audiology Assessments Categorized by Fracture Type

References

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