

Identifying Radiographic Patterns of Injury in Physical Elder Abuse



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Background:

- Elder abuse is defined as “harm inflicted on an older person, in a relationship where there is an expectation of trust, and/or when the person is targeted based on age.”
- Elder abuse affects up to 1 in 10 older adults living in the community, although its prevalence is thought to be severely underreported
- When elder adults present to the ED following a trauma, radiologists are in a key position to identify suspicious imaging findings and raise appropriate concern for abuse

Key question: Are there specific imaging findings in elder abuse that distinguish it from accidental trauma?

Methods:

- Population: patients aged ≥60 who presented to 3 urban, academic medical center EDs following a reported assault.
- Demographics and details of the assault were abstracted from chart review, categorizing patients as victims of “elder abuse” or “stranger assault”
- Patients’ imaging studies were tabulated by body part and modality, as well as their rates of positivity (ie, demonstrating an acute, trauma-related finding)
- Most common imaging findings were described for elder assault overall; differences between cases of elder abuse vs. stranger assault were investigated

Results:

- 284 cases of elder assault were identified, with 38% meeting definitional criteria for elder abuse.
- Most common imaging studies ordered were head CTs, C-spine CTs, chest X-rays, and face CTs.
- The most common acute trauma-related findings were rib fractures (24%), subdural hematomas (12%) and nasal fractures (12%).
- Compared with victims of strangers assault, elder abuse victims were relatively more likely to sustain rib fractures ($p=.07$) and less likely to have nasal fractures ($p=0.05$).
- Facial fractures demonstrated a left-sided predominance, as would be expected from facing mostly right-handed assailants (Figs 1a & 1b).
- When patients could not communicate their symptoms due to disorientation, dementia, or other factors, traumatic findings could be identified on imaging of non-dedicated body parts (Fig 2).

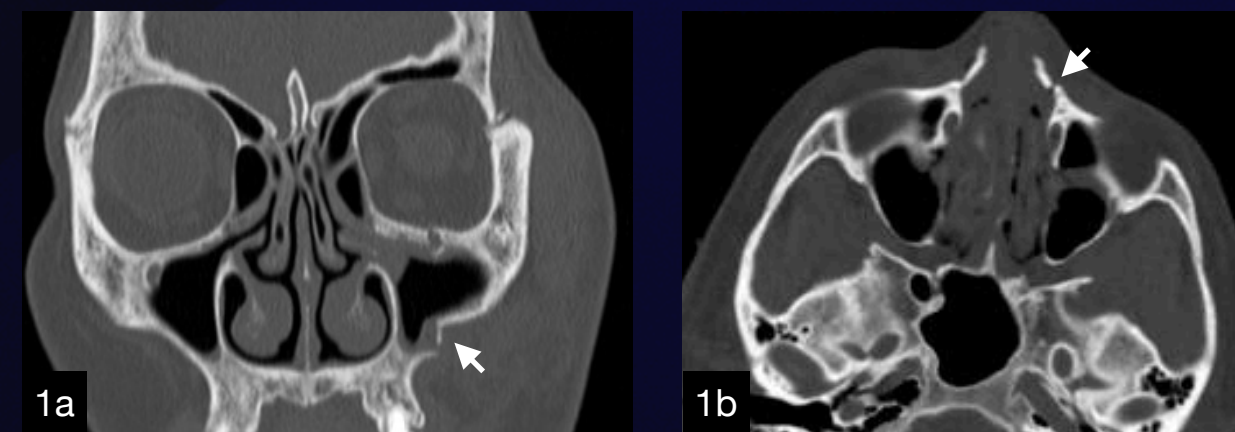
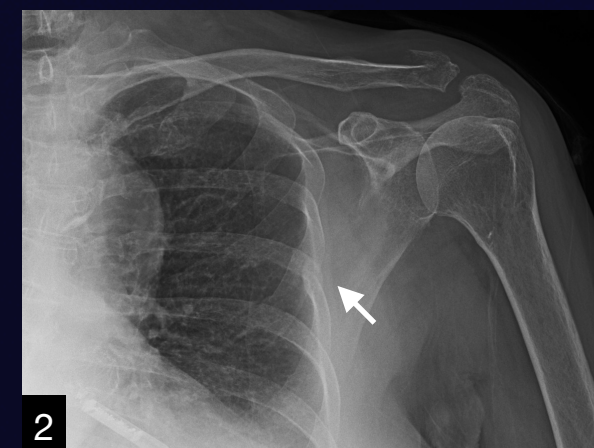
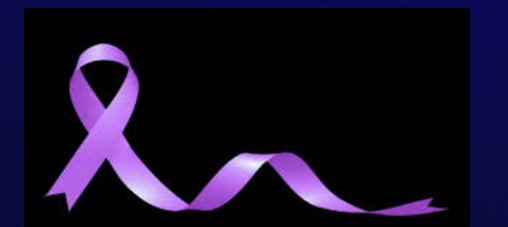


Fig 1a. Fracture of the lateral wall of the left maxillary sinus. Fig 1b. Fractures of the bilateral nasal bones, left more displaced than right. Fig 2. Acute rib fracture identified on a dedicated shoulder radiograph.



	Elder Abuse	Stranger assault	P
Female (%)	55	24	<.01
Age (years), median, IQR	70 (63-75)	65 (62-69)	<.01
Race (%)			0.67
White	62	57	
Black	16	14	
Asian	5	7	
Other	17	22	
Assailant (%)			N/A
Stranger		100	
Child	18		
Partner	13		
Other	69		



Conclusions:

- Imaging features of elder abuse are still being characterized, and broad overlap with the appearance of accidental injuries poses a diagnostic challenge.
- Directed attention to the head, face, and ribs, and maintaining a high index of suspicion for injury on imaging of non-dedicated body parts, can help radiologists assess for elder abuse in an undifferentiated trauma presentation.

Selected References:

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