

Cases from the Streets



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The Scene

- Car vs Light Pole, 35 mph, front right side damage 10" with no PCI
- + airbag deployment, starring on windshield

Given the snow, obviously not the real car in this case, but you get the idea.



The Patient



Not really, but a similar patient

- 81 y.o. F, restrained front seat passenger
- + airbag deployment, self-extricated, no LOC, ambulatory on scene
- PMH: CVA, “nerve issues,” insomnia
- Meds: multivitamins
- Allergies: codeine, morphine

The Patient

- Complains of mild bilateral neck pain, mild sternal pain



- **NO** chest pain, syncope, SOB, HA, weakness or paresthesias, visual changes, back pain, extremity pain

Pre-hospital Physical Exam

- Primary Survey
 - A = protecting airway
 - B = breath sounds equal
 - C = no bleeding



Pre-hospital Physical Exam (cont.)

- Secondary Survey

- VS: HR 95, BP 158/80, RR 18, 86% RA
- “Pt calm & collected, no acute distress observed”
- Neck: Tenderness to lateral neck bilaterally, no midline TTP
- Chest: symmetric movement, mild sternal TTP, no seatbelt sign, no crepitus
- Abdomen: soft, non-tender, no seatbelt sign
- Back/Pelvis: atraumatic
- Extremities: skin tear to right knee, full ROM, nontender

Pre-hospital Course

- Repeat VS: HR 75, BP 104/76, RR 18, **86% RA**
- Pt refused transport to hospital for evaluation... why??
- Once arrangements made to care for her dog, patient consented to transport
- **Transported to non-trauma facility in spine precautions (didn't meet TFTC).**





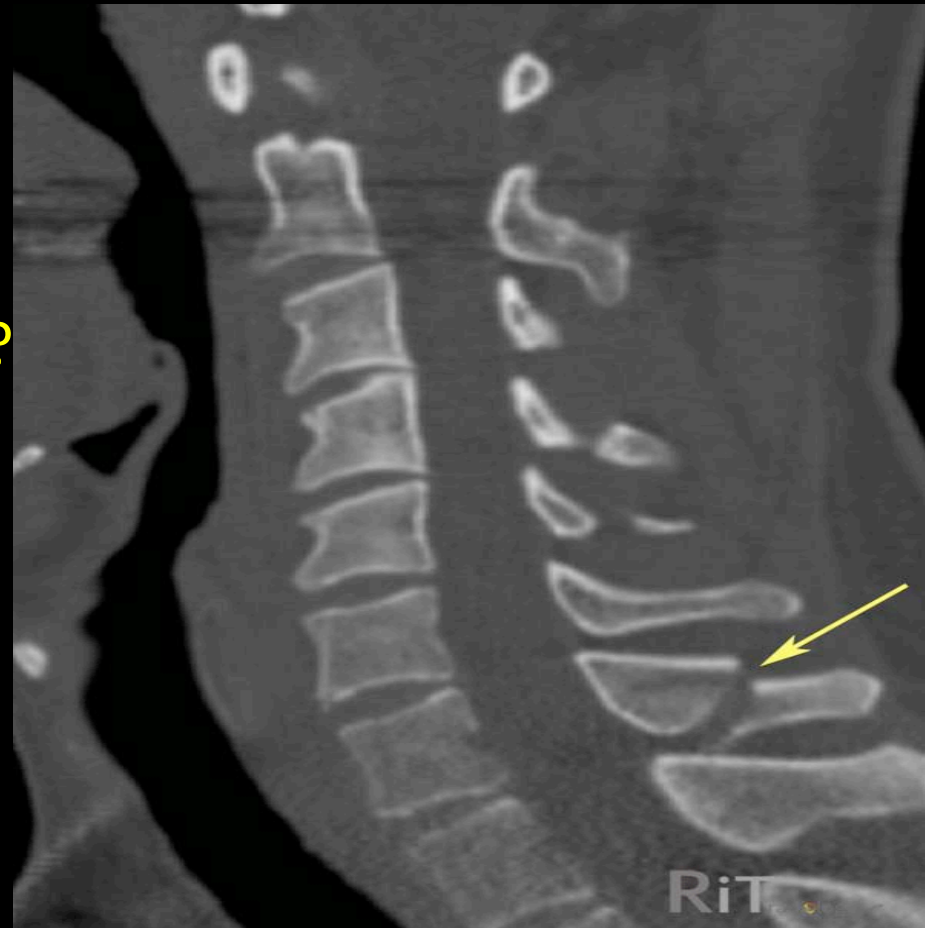
Take Home Point #1



- If your patient doesn't want to be transported, **find out WHY** (especially if you think they need further evaluation).
- Sometimes it's a simple fix (ask the neighbor to take care of the dog, turn off the stove, lock the door, etc)

Hospital Course

- Patient scanned at hospital and found to have several injuries:
 - Right sided rib fractures
 - 25% pneumothorax
 - Remember the sat of 86%?
 - Required a chest tube
 - C2 body fracture
 - C5-C7 spinous process fx
 - Thoracic body fractures





Take Home Point #2



- **DO NOT IGNORE ABNORMAL VITAL SIGNS!!**
(esp low oxygen sats, hypotension)
 - Remember meds may block tachycardic response
(beta-blockers)

ORIGINAL ARTICLE

Normal Presenting Vital Signs Are Unreliable in Geriatric Blunt Trauma Victims

Daithi S. Heffernan, MD, AFRCSE, Rajan K. Thakkar, MD, Sean F. Monaghan, MD, Rashika Ravindran, BS, Charles A. Adams, Jr., MD, FACS, Matthew S. Kozloff, MD, Shea C. Gregg, MD, Michael D. Connolly, MD, Jason T. Machan, PhD, and William G. Cioffi, MD, FACS

Hospital Course

- Patient was scanned and stabilized (chest tube) at non-trauma facility, then transferred to a trauma facility.
- Stayed in the hospital for 4 days, then transferred to rehab
- Current patient in a SNF (skilled nursing facility) recuperating



Geriatric Trauma

- Number of geriatric trauma patients is on the rise (currently approx 30% of trauma patients¹)
 - # on the rise with the aging of the Baby Boomers
- Many unique characteristics that predispose elderly patients to serious injury/worse outcomes
 - Physiologic changes
 - Pre-existing conditions
 - Medications (i.e . blood thinners)
 - Severity of initial injury under-recognized

¹<http://www.femf.org/education/SBTS2000/scalea.htm>

Physiologic Changes in the Elderly

- **Cerebral Atrophy**
 - Increased movement of brain in the skull → increased rate of subdural hematomas, with delayed presentation due to extra space in the skull
- **Decreased Cardiovascular Reserve**
 - Can't cope well with intravascular volume depletion, can also cause cardiac ischemia from increased demands on the heart
 - Decreased cardiac output can cause hypoxia due to ventilation/perfusion mismatch in the lungs
- **Decreased renal function**

Underlying Conditions / Meds

- **Cardiac Disease**

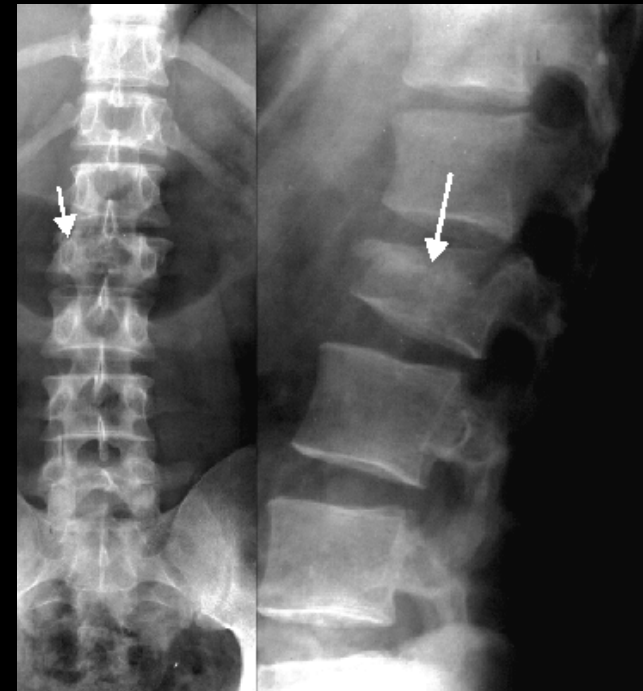
- Coronary Artery Disease
(aspirin/plavix)

- Coronary artery lesions can cause ischemia under increased demand of trauma

- A Fib (coumadin)

- **Osteoporosis**

- Increased risk of fractures (spine & long bone)



Current Trauma Field Triage Criteria

Physiologic Criteria

- GCS < 14
- SBP < 90 mmHg OR
- RR < 10 or > 29 (< 20 in infant < 1 y.o.)



Anatomic Criteria

- Penetrating injury to head, neck, torso, or extremities proximal to knee or elbow
- Flail chest
- ≥ 2 proximal long bone fxs
- Crushed, degloved or mangled fractures
- Amputation proximal to wrist/ankle
- Pelvic fx
- Open or depressed skull fx
- Paralysis

Current Trauma Field Triage Criteria

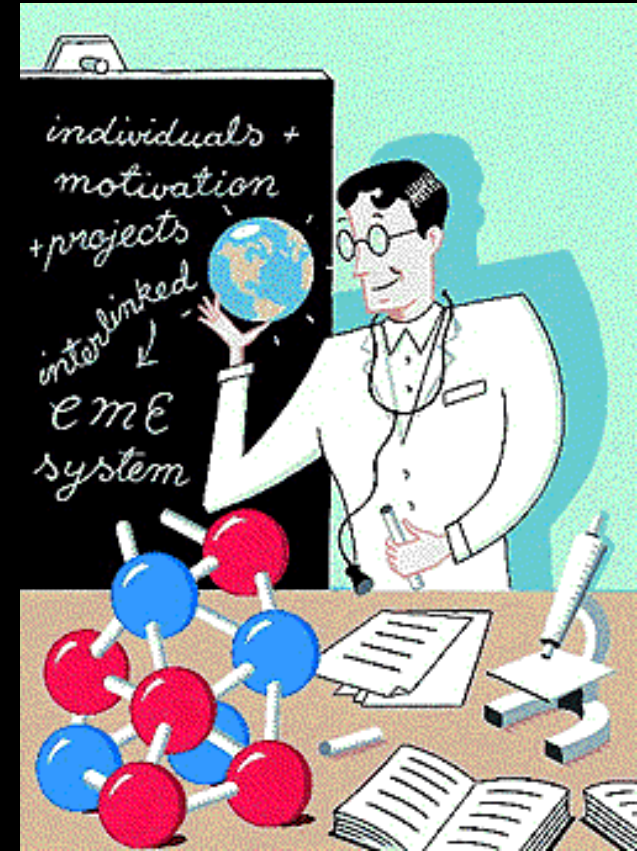
Mechanism of Injury (Step 3)

- Fall from ≥ 20 ft
- MVCs with:
 - 40 mph prior to accident
 - 20 in. of severe damage to vehicle
 - 12 in. Passenger compartment intrusion
 - 20+ min extrication time
 - MVC Rollover
 - Motorcycle going 20+ mph
- Auto v Ped at ≥ 6 mph
- Pedestrian run over or thrown, regardless of vehicle speed



Coming Up

- New Trauma Field Triage Criteria due to be released by the ACS (American College of Surgeons) in January 2012
- Entire CME on geriatric trauma, due out in 2012 after the new ACS TFTC released.

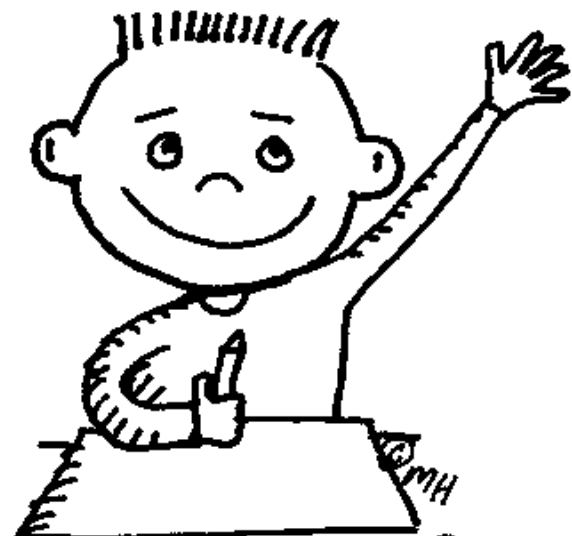




Take Home Points



- If a patient resists treatment/transport, **find out WHY**, and address their concerns if possible
- **Don't ignore abnormal vital signs**, but realize that they be normal in severely injured geriatric trauma patients
- Geriatric trauma patients tend to have **worse outcomes/more severe injuries** due to physiologic changes, medications, and **delayed presentation** of severe injury.



QUESTIONS