Grandma's Fallen and She Can't Get Up!

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Prehospital Presentation

EMS is called to a rural farm for a report of a "possible shooting". They arrive and find a 69 y.o. female lying in the kitchen on her R side. There is a large amount of blood around her head, and she has a large puncture wound on the top of her head. She states she was walking from the barn when she heard a loud bang and became unconscious. She awoke some time thereafter, and walked/crawled to the house to call police

Discussion

- What information would you like RIGHT NOW?

Initial Assessment

- The sheriff arrived just prior to EMS, and cannot find a shooter or weapon
- Patient is conscious, alert and oriented
- Strong, regular radial pulses
- Respirations clear and regular
- Obvious wound on top of head
- No other wounds visible

Focused Assessment

- Swollen puncture wound on top of head
- Visible bone fragments, possibly brain matter
- Pupils: R normal & reactive; L slow
- R rib cage tender, respirations clear
- Vital Signs:
  - P120
  - BP 160/90
  - R 20, regular

Discussion

- What treatment would you provide now?
- How will you deal with the wound?
- What else would you like to know?

Prehospital Treatment

- O2 15 lpm via NRB
- Spinal immobilization
- Local wound care
- Cardiac monitor
  - Sinus tachycardia w/o ectopy
- IV NS KVO
- 2nd VS
  - P 120
  - BP 180/P
  - R 20, regular
- PMH: Diabetes, HTN

Onscene Time 12 minutes
Transport time 10 minutes

Discussion

- Was the treatment appropriate?
- Given her history, what key diagnostic element is missing?

ED Assessment

- Alert, Oriented
- C/O severe headache
- Physical Exam
  - Head/Neck
    - Puncture wound to top of scalp
    - Significant swelling over posterior scalp
    - L pupil dilated/unresponsive; R pupil nl
    - Subconjunctival hemorrhage L eye; vision nl
  - Chest
    - Pain on palpation R ribs; no swelling, bruising
  - Abdomen & Extremities nl

ED Assessment (continued)

- 3rd VS
  - P 90
  - BP 150/90
  - R 20, nl
- X-ray
  - Skull: multiple depressed skull fractures
    - No evidence of subdural or epidural bleeds
    - No evidence of bullet fragments
  - Chest: nl, no rib fx

Additional Information

- The sheriff called the ED to report finding a bloody ball peen hammer at the scene
- The victim's son later confessed to striking his mother from behind with the hammer

Hospital Course

- Patient entered the OR approximately 1 hour after arrival at the ED. No evidence of brain injury or hematoma was found during surgery. The wound was debrided and bone fragments elevated
- Patient was admitted to the ICU for 2 days, then transferred to the general surgical unit
- She returned home two weeks later with no apparent deficits

Violence and Seniors

- Who are the victims of abuse?

Elder Abuse: Victim

- 75 y.o. Widow
- One or more physical impairments
- Physical or emotional dependence
- Financial dependence
- Hx of family violence
- Isolation

Elder Abuse: Abuser

- Relative (son OR daughter)
- Living with victim
- ETOH or substance abuse
- Psychiatric illness
- Negative attitude toward elderly
- Anger with caretaker role
- Job or family crisis
- Physical illness
- Former abuse by victim or someone else

Elder Abuse: Your responsibility

- Be alert for signs of abuse
- Mandated Reporter in most states
- Advise receiving nurse/physician of your suspicions
- Document your findings and actions

Penetrating Head Trauma Clinical Considerations

- Major prehospital concerns
  - Airway/breathing compromise
  - Herniation syndrome
- Assessment
  - Airway
  - Signs of increased ICP
    - Cushing's Triad
  - Unequal pupils
    - Anomalies in the Elder Patient
  - Shock

Penetrating Head Trauma Treatment

- Airway control
- Oxygen
- Hyperventilation ONLY if signs of herniation
- Bleeding control
- Spinal immobilization
- IV
- Monitor for signs of increased ICP
- Transport to Trauma Center

What if you have a head injury AND shock?

Case Presentation

- EMS is called to a rural farm for a 65 y.o. female who has fallen from a horse. Initial information indicates she is conscious, alert, and complains of pain in her left hip.
- Based on this information, the dispatcher determines that a “BLS” response is recommended by EMD. The nearest BLS unit is dispatched.

Discussion

- Is the “BLS” determination appropriate?
- What factors could have been considered that may have altered the response recommendation?

BLS Arrival

- The ambulance arrives and is met by the patient’s husband. While leading the crew to the patient, he advises that he became aware of the problem when his wife’s horse returned to the barn without her. He began searching, and found her lying in the woods. She stated that the horse had been spooked by a deer, and had reared and thrown her off.

BLS Arrival

- The patient is found lying supine on a dirt path. She is conscious and in obvious pain. Her left leg is bent at the knee, and slightly rotated externally. Skin color and temperature appear normal

Discussion

- Having determined that her airway is patent and secure, what are your initial priorities?
- What additional information would you like at this time?

Initial Assessment

- HEENT
  - Conscious, alert and oriented
  - Did not lose consciousness
  - Complains of intense pain @ L hip
  - No other complaints
- Chest
  - No deformities, pain, breath sounds nl
- Abdomen/Pelvis
  - Obvious deformity of L hip
  - Unable to fully assess pelvis due to pain
  - Abdomen soft, non-tender
- Extremities
  - PMS intact x4
  - L hip as noted

Initial Assessment (continued)

- Vital Signs
  - P 80
  - BP 128/80
  - R 24
  - Skin warm, dry, nl color

Discussion

- What does the initial assessment tell you?
- Does anything about the vitals concern you?
- What additional information would you like?

History

- Incident
  - Patient confirms information re deer
  - States that horse whirled in a circle, throwing her off to one side
  - Patient landed flat on her back, and has not attempted to move
- PMH
  - Hypertension
  - Taking unknown BP medication
  - No other illnesses or medical conditions
  - No drug allergies

Discussion

- What does the history tell you?
- Does it change your action plan?
- Would you like any additional resources?

Initial Treatment

- Manual spinal immobilization
- Request for ALS response & additional personnel
- O2 via cannula @ 6 lpm
- Covered to prevent hypothermia

ALS Response

- EMS Director & Medic Unit respond
- Helicopter unavailable
- ALS Assessment
  - Physical findings per earlier assessment
  - Touching any part of pelvis greatly increases pain
- Second VS
  - P 100
  - BP 124/76
  - R 26
  - Skin somewhat pale, cool

Discussion

- What do the mechanism of injury and her pain reactions tell you?
- How does pain usually affect vital signs?
- How will you move this patient?
- Where will you take her?

ALS Treatment & Transport

- BLS prepares to log-roll patient onto spineboard
- ALS changes strategy to “all hands lift”
  - Patient is “levitated” using 7 people
  - Board slid under patient from feet
  - Left leg is secured and supported in position found
- IV initiated (NS)
- Fentanyl 50 mcg administered for pain
- Transport initiated to Level III Trauma Center

Treatment Enroute

- The patient’s blood pressure dropped suddenly to 86/50
  - Patient LOC altered
- Fluid challenge increased to 90 systolic
- O2 switched to 15 lpm via NRB

Discussion

- Was the treatment appropriate?
- Is there anything else you would have done?
- How do you feel about the way the patient was moved to the spineboard? Would you have done anything differently?

Emergency Department

- Patient condition unchanged from transport
- IV fluids and O2 continued
- X-rays ordered of pelvis

Emergency Department

- Helicopter transport requested to Level I Trauma Center
  - Helicopter now available
- Patient transferred to Level I center 30 minutes after arrival

Hospital Course

- Patient was admitted with “open book” fx of pelvis, multiple fx of lower spine
- Initial surgery to control several points of hemorrhage
- Surgery 1 week later to repair pelvic fx

Hospital Course

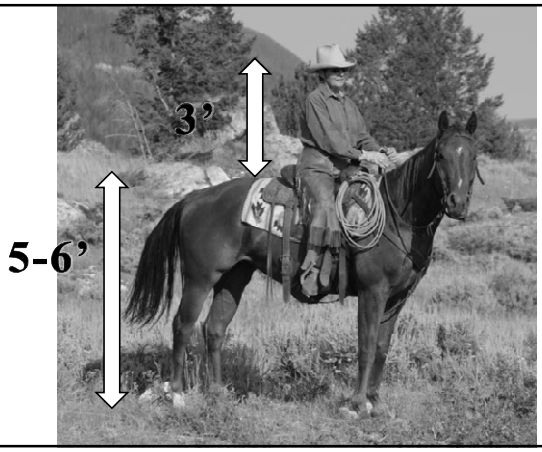
- Patient critical for 4 days
- Spinal fx non-displaced, left to heal on their own
- Patient released to rehab facility 3 weeks post-op
- Patient returned home 5 weeks post-up
- Intensive therapy
- Patient ambulatory 18 months later
- Does not recall incident

Falls in Seniors

- Trauma is 5th leading cause of death in seniors
  - Vehicular accidents
  - Falls
- Falls often result in hip fractures
  - Associated bleeding
  - May be lethal!

Falls in Seniors

- "Oops" fall vs. "High Energy" fall
- How high is a fall from a horse?



Ohio Geriatric Trauma Triage

- Geriatric Trauma Task Force
- Recognized factors specific to geriatric trauma
  - Higher mortality/morbidity from trauma vs younger patients
  - Greater number of co-morbidities
- Uses age 70 or greater as definition

Ohio Geriatric Trauma Triage

- Transport to Trauma Center for:
  - GCS <15 with suspected head injury
  - Systolic BP <100
  - Falls (including from standing position) with evidence of traumatic head injury
  - Pedestrian struck by motor vehicle
  - Known or suspected long bone fx in MVC
  - Multiple body regions injured

Ohio Geriatric Trauma Triage

- Consider Trauma Center for ANY Trauma and
  - Diabetes
  - Cardiac disease
  - Pulmonary disease
  - Clotting disorder (including anticoagulant use)
  - Immuno-suppressive disorder
  - Dialysis patients

Prehospital Presentation

EMS and Fire are called for report of an explosion. They arrive to find an 80 y.o. female with facial burns sitting up in bed. Family states the patient forgot she was on oxygen and lit a cigarette.

Field Assessment

INITIAL ASSESSMENT
- LOC: Conscious, alert and oriented
- Skin warm & dry, obvious burns to face
- Respirations clear, normal
- Radial pulse present, strong & regular

FOCUSED ASSESSMENT
- 2nd degree burns to mouth & nose
- Charring of both nares, with melted plastic from cannula visible in each
- Soot present in mouth from lips to 2" inside mouth

Field Assessment (continued)

VITAL SIGNS
- Pupils equal and reactive
- P 86, regular
- R 20, clear, unlabored
- BP 180/110
- SpO2 91 on room air

DETAILED ASSESSMENT
- Swelling of both ankles
  - Pt states this is normal for her
- No other relevant findings

Field Assessment (continued)

PMH
- Emphysema, COPD, Pneumonia, Neuropathy

MEDS
- O2 @ 2 lpm via nasal cannula
- Neurontin, furosemide, coumadin, warfarin sodium, guaifanesin, claritin, uniphyl, Klor-con, folic acid, singulair, augmentin, bactroban, oxycontin, oxycodone
- NKDA

Patient Interview

Patient states she saw a flash and "it felt like her face was on fire". She grabbed what was left of the oxygen tubing and pulled it off her face.

She states she had a tube of Bactroban and applied it to her face prior to EMS arrival.

She denies any breathing difficulty or other complaints, and says she does not wish to be transported

Discussion

- Is the scene safe?
- What is your most immediate concern with this patient?
- What will you do first?
- Do you want to pull the melted plastic out of the patient's nares?
- How about the Bactroban smeared on the patient's face?

Field Treatment

- Patient placed on 100% oxygen @ 15 lpm via NRB
- As much Bactroban ointment removed as possible without further irritating skin or patient
- Dry sterile dressings applied to burns
- IV established enroute, 50 ml NS infused
- EKG obtained enroute

Scene time: 9 minutes

Transport time to Level III Trauma Center: 6 minutes

Discussion

- Was the amount and delivery method of oxygen appropriate?
- What would you watch for during transport?
- Was scene time appropriate?
- The nearest Burn Center was 30 minutes away via helicopter. Should the patient have been taken there?

Field Treatment (continued)

Enroute to the hospital, the paramedic noted excessive mucous production, and observed the patient's lips were more swollen on arrival at the hospital than they had been on scene. He also noted increased wheezing, although the patient continued to deny any dyspnea, pain or discomfort

Emergency Department Assessment

INITIAL ASSESSMENT

- Patient now complains of increased difficulty breathing

PHYSICAL EXAM

- 2nd and 3rd degree burns of the face, lips and nares with marked swelling
- Wheezes in the upper airways with marked SOB
- Swelling of both ankles (unchanged from field, per paramedic)

Emergency Department Assessment (continued)

The patient's O2 saturation, which had risen to 97% after application of oxygen via NRB, began to drop dramatically.

Her level of consciousness began to drop as well.

Discussion

- What needs to be done now?
- Should this patient have been intubated in the field?
- COULD this patient have been intubated in the field?

Emergency Department Treatment

Patient was given Etomidate and Succinylcholine and intubated by the ED physician, who stated that the cords were swollen nearly shut when he got the tube through.

She was given Vecuronium and transferred via helicopter to a Burn Center

Discussion

- What was the purpose of giving the medications prior to intubation?
- Once the patient was intubated, was it necessary to transfer to the burn center?

Hospital Course

The patient remained intubated at the Burn Center until the swelling in her upper airway resolved. She was given antibiotics, as well as appropriate wound care for the burns.

Patient was extubated on the third hospital day, and released on the sixth.

She was next seen by the same crew at a local convenience store, carrying her oxygen generator, buying a pack of cigarettes.

Burns to the Airway

- Any burn to face or chest may involve the airway
- Effect on the airway is generally not immediate. Swelling increases over next several hours post burn
- Primary problem is NOT the burn… it is the potential for airway compromise

Burns to the Airway

LOOK FOR

- Signs of burn around face, chest
- Redness/soot around lips, nares
- Hoarse voice
- SOB
- Wheezing
- Burned material in airway

Burns to the Airway

TREATMENT

- High flow oxygen
- Dry, sterile dressings
- Consider Intubation via Rapid Sequence Induction
- IV
- Monitor for fluid in lungs, facial edema
- Rapid transport to Trauma Center

Case #5

Fire department EMS responds to a private home for a “woman who fell in the shower”. Find a 62 y.o. female conscious on the bathroom floor. She had fallen through a glass shower door, and there was evidence of large amounts of bleeding. Her husband had removed several pieces of glass from her chest prior to arrival

Field Assessment

Initial Assessment
- Alert, oriented
- Pale skin
- Obvious significant blood loss
- Palpable peripheral pulses

Focused Assessment
- 6 large wounds in the R chest
- Large sliver of glass impaled in the R chest, mid-axillary line
- Decreased breath sounds, R side

Vital Signs
- P 110; R 32, shallow; BP 130/90

Field Treatment

- High-flow O2 via NRB
- Stabilized impaled glass w/Kling
- Covered chest wounds w/Saran Wrap
- Immobilized on uninjured side
- Transport initiated (scene time 9 minutes)
- 2 16 g IV's NS, enroute

Field Treatment (continued)

During transport the patient became confused and her BP dropped.
- Chest dressings were briefly opened, without improvement
- IV's run wide open; 1100 ml delivered
  - BP improved
  - No change in LOC

Transport took 15 minutes

Discussion

- Was the method of closing the chest wounds appropriate?
- Was the response to the patient's deterioration correct?
- What other information would you like to have?

Emergency Department Assessment

Patient's condition was unchanged on arrival at a Level III Trauma Center

- Head/Neck: Traces of blood on lips
- Chest:
  - 6 lacerations, R chest
  - Impaled piece of glass, R chest
  - Diminished breath sounds, R
  - Bubbling of air and blood through wounds
  - Normal heart sounds
- Abdomen, Extremities: normal
- Vitals: P 132; R 32 labored; BP 90/68; T 37.7C (oral)

Emergency Department Assessment (continued)

- Chest Xray
  - Penetration of R chest just above diaphragm
  - Tip of glass resting on mediastinum, on or near pulmonary artery
- C-Spine Xray: Normal
- Lab
  - Hct 34 (low)
  - Electrolytes: nl

Emergency Department Treatment

- 2 chest tubes placed on R
  - Immediate drainage of 400 cc of blood
- Prepared for surgery

Patient entered surgery 45 minutes after arrival in ED

Hospital Course

SURGERY

- Chest opened prior to removal of glass
- Glass found resting against pulmonary artery, no damage to artery
- Glass removed
- R lung & smaller vessels repaired

ICU

- Continued to bleed through chest tubes
- Received 1 additional unit of blood
- Chest tubes removed on 4th post-op day
- Transferred to surgical unit on 5th post-op day

Hospital Course (continued)

Surgical Unit

- Patient developed pneumonia
- Treated successfully with IV antibiotics
- Discharged on 17th post-op day

Falls in the Elderly

Common Causes

- Poor lighting
- Absent/inadequate handrails
- Loose rugs
- Slippery floor surfaces
- Poorly designed stairs

Penetrating Chest Trauma Clinical Features

- May produce
  - Pneumothorax
  - Tension Pneumothorax
  - Hemothorax
  - Diaphragmatic injury
  - Damage to major vessels
  - Cardiac injury
- Signs & Symptoms include
  - Respiratory compromise
  - Signs of shock

Penetrating Chest Trauma: Treatment

- Airway control: Intubation prn
- High flow O2: Assist ventilations prn
- Stabilize penetrating object
- Occlusive dressing over injuries
- Spinal immobilization
- Rapid transport to Trauma Center
- 1-2 large-bore IV's enroute
  - Rate dependent on cardiovascular status
- Monitor for pneumothorax
  - Needle decompression prn
- Cardiac monitor

Questions?

Prehospital Presentation

EMS is called for an 85 y.o. female found on the floor of her apartment by her daughter. The patient had fallen the previous day and was “too weak to get up”. Daughter estimated her mother had been on the floor for ~12 hours. Mother states she thought she slipped on a rug, and does not believe she lost consciousness

Field Assessment

- Initial Assesment
  - Conscious, alert & oriented
  - Small, “frail-looking”
  - CSM intact
  - Pale, warm, dry, poor skin turgor
  - Sunken eyes
  - c/o pain in L hip, general weakness
- Focused Assessment
  - Abrasion to R wrist
  - Bruise to L flank
  - L leg appears externally rotated & shortened

Field Assessment (cont'd)

- Vital Signs
  - Pulse 88
  - BP 140/60
  - Respirations 20, regular
  - Skin temp feels normal
  - sPO2 92% on room air
- History
  - L hip prosthesis
  - Colostomy

Discussion

- What does the position of the L hip suggest?
- What about the pallor, skin turgor & sunken eyes?
- What are your initial actions?

Prehospital Treatment

- 100% O2 via NRB
- L leg flexed, supported w/pillows
- Immobilized w/collar & spineboard
- IV Normal Saline 200 cc/hr

- Patient was transported to a community hospital without incident

Emergency Department Assessment

- Initial exam
  - Conscious, alert & oriented
  - C/O L hip pain, weakness, mild SOB
- Physical exam
  - L leg deformity, bruising, abrasion as noted
  - +2 pitting edema L leg
  - Crackles @ bases bilaterally
- Vital signs
  - BP 140/70
  - P 88
  - R 26, regular
  - T 99.0

Emergency Department Assessment (cont'd)

- Lab
  - pO2 52 (low)
  - pCO2 28 (low)
  - Evidence of dehydration
- X-Ray
  - C spine negative
  - L hip/femur negative
  - L hip venogram negative
- EKG
  - wnl

Emergency Department Treatment

- Patient was admitted to ICU for treatment of mild CHF, which was felt to be the cause of her hypoxia, and for her dehydration, with appropriate pain management for her soft tissue injuries. She progressed well, and was transferred to the floor on the 3rd hospital day.

Hospital Course

- On transfer to the floor, RN noted that pt. had “difficulty lifting her head”, although she was able to feed herself and ambulate with a walker
- On day 4, physician ordered medication for neck pain. Daughter stated she thought her mother’s neck “looked swollen”

Hospital Course (cont’d)

- On day 5, physician noted a 2.5” lump on the back of the pt’s neck when straightening, and that she was unable to fully extend her neck
- On day 6, physician ordered soft collar and repeat c-spine x-ray

Hospital Course (cont’d)

- X-Ray revealed fx/subluxation C2-3
- No abnormal neurological findings
- Rigid collar applied

- The patient was transferred in full spinal immobilization to a hospital nearer the daughter’s home for open reduction, fixation and fusion of her c-spine. She recovered completely with no deficits.

Discussion

- The initial c-spine film was negative. How could this have happened?
- Why were there no neurological deficits?
- Is the patients' age a factor in this presentation?
- Why is this woman alive?!

Spinal Fractures in the Elderly

- Chronic degenerative disease often present
- Altered pain sense may mask symptoms
- Weakened ligaments further lessen structural integrity
- Bony structures more brittle, easily fractured
- Shrinking of spinal cord allows for some movement within spinal canal without direct damage

Spinal Fractures in the Elderly Prehospital Care

- Complete spinal immobilization
- High index of suspicion in any trauma
- Do not rely on pain response
- Immobilize patient in THEIR normal anatomic position
- Provide padding for board and all voids

Injury Prevention for Seniors

- Local “Safe Seniors” programs
- Presentations to local senior groups
- Home inspections
- Linkage with hospital social services
- Referral mechanisms to:
  - VNA
  - Elder Services
  - Church groups
  - Hospice

Conclusion

- Elder patients can present us with some of our greatest challenges
- Scene safety must be considered on even the most ordinary-sounding calls
- Mechanisms of injury aren’t always what they seem to be
- Not all airway problems present as critical

Conclusion

- Falls are the most common cause of injury in seniors
- Seniors are particularly at risk for hypothermia due to altered ability to compensate and changes in pain perception
- Some people are just incredibly lucky!


Thank You!
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