Cases from the Streets

Kelly Buchanan MD, ATC/L

EMS Fellow

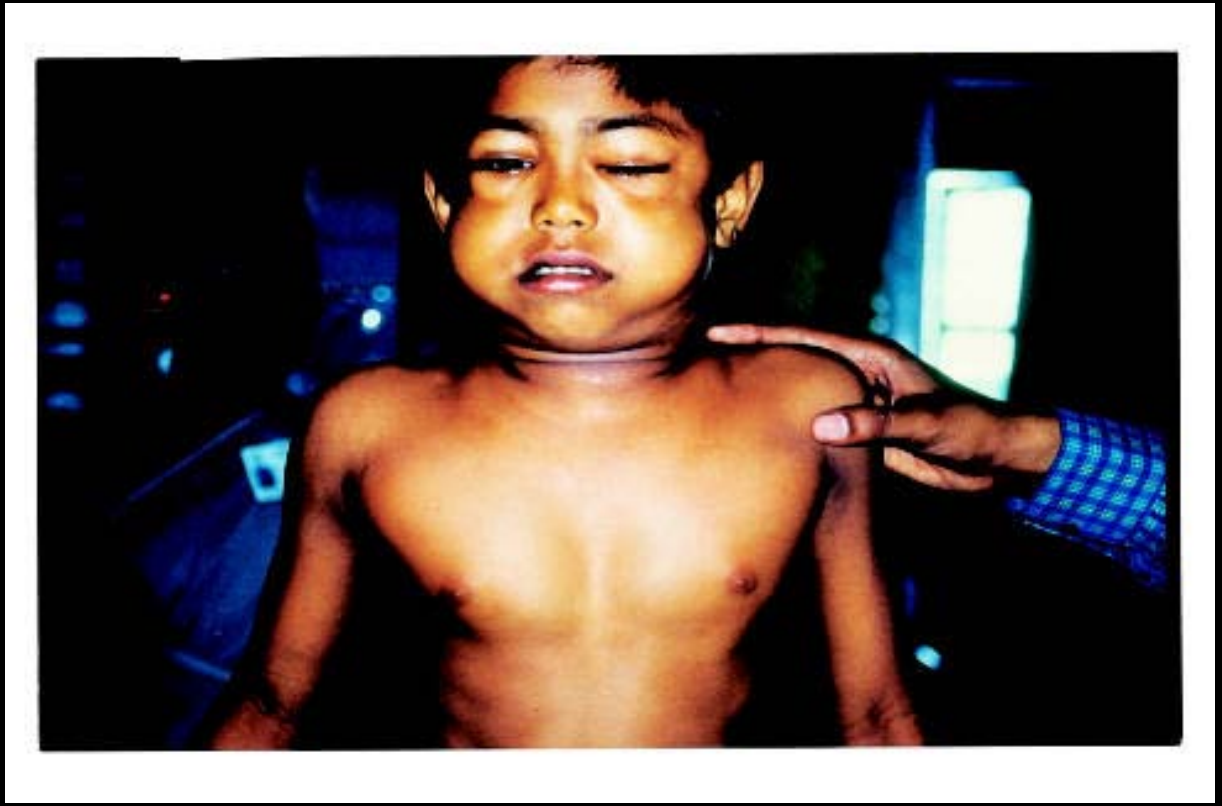
November, 2011

Dispatch

- Caregiver called 911:
  - 3 y.o. male
  - Child was playing outside after lunch, he came in to use the bathroom, when he came out he told the caregiver “my throat is sore and I can’t breathe.”
  - Per the caregiver, child is “swelling up before her eyes.”
  - No known allergies, no trauma

- Call dispatched at 14:19
- En route 14:20
- Arrived on scene 14:27
- Crew #2 arrived to find Crew #1 attending to patient

FYI: This is not the actual patient



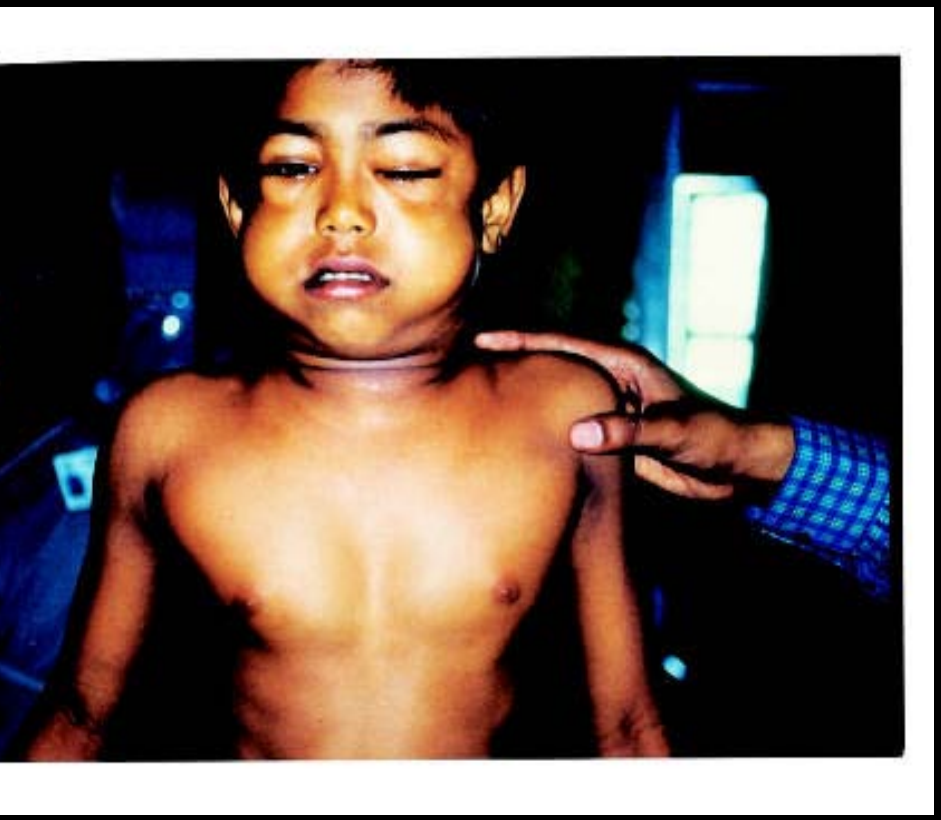
http://www.indianpediatrics.net/nov2003/nov-1092-1093.htm

History

- PTA – child ate lunch, played outside, and came in to use the bathroom.
- Upon exiting the bathroom the child started to swell up.
- Per the staff:
  - No food allergies
  - No other potential allergens
  - No bullying or other signs of trauma

Assessment

- Doorway assessment:
  - Child swollen (like a basketball)
  - Back swollen (between scapulas, from diaphragm up)
  - Eyes swollen shut
  - Attempted, but unable to speak



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Assessment

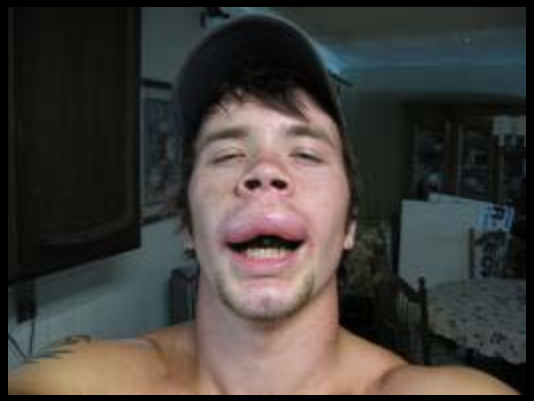
- Initial VS:
  - HR: 135 bpm, regular & weak
  - BP 98/80
  - Respirations: 40, shallow & labored
  - GCS 9 (E4,V1,M4)
- Exam:
  - Eye and facial swelling, no tongue swelling visible
  - Lungs: wheezing in all fields
  - Skin: swollen from diaphragm up with SQ air (+crepitus), no rash

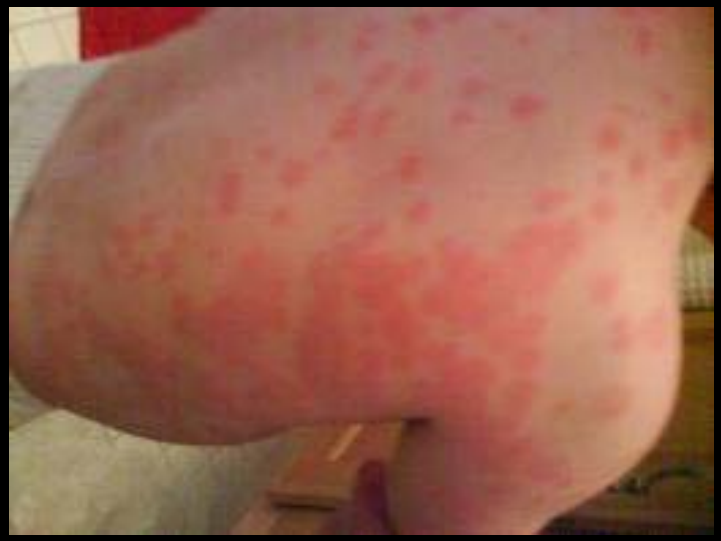
Treatment Given

- Treatment initiated for severe allergic reaction/anaphylaxis:
  - Albuterol SVN started (child didn't tolerate)
  - Benadryl given (Correct dose is 1mg/kg IV/IM up to max dose of 50mg)
  - Epinephrine 1:1000 given SQ (Only approved for IM route – peds dose 0.01mg/kg up to 0.3mg, may repeat x2, max dose of 0.9mg)
  - BVM with high flow O_2
  - 22 gauge IV established

Allergic Reaction

- Hypersensitivity reaction to a normally harmless substance, triggered by the immune system





- Signs & Symptoms
  - Rash (hives/wheal)
  - Puritis (itching)
  - Swelling
  - Shortness of breath, wheezing, airway edema

SQ Emphysema

- Occurs when gas or air gets trapped under the skin in the subcutaneous tissues
  - Usually comes from the chest cavity
  - Difficulty breathing/swallowing, chest pain, swelling of the face, neck, chest
  - + crepitus with palpation (feels crunchy like Rice Crispies)
- Differential Diagnosis:
  - Trauma – PTX, Tracheal/esophageal injury
  - Infection – necrotizing fascitis
  - Medical treatment – surgery, malfunctioning chest tube

Transport

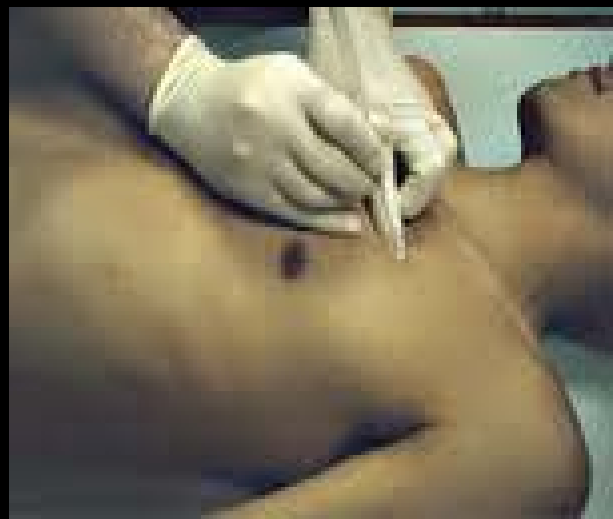
- Transported at 14:32 code 3 (5 min on scene), with telemetry.
- 2 paramedics in back providing treatment
- Child's condition worsened
  - Declining mental status
  - Increasing respiratory distress
  - Intubation not attempted due to facial swelling
  - HR dropped into the 60s → CPR initiated

Transport

- Second telemetry to the facility → have pediatric team meet them in trauma
  - Good job in recognizing a declining patient
  - Don't get in the elevator with a sick patient when there is a closer facility that can care for the patient!!

Trauma Course

- Arrived at 14:39 as a full activation due to difficulty with establishing an airway
- Intubated by anesthesia (no airway or tongue swelling noted)
- SQ emphysema noted of face, neck and chest
- HR dropped to 60s
- Bilateral needle decompression performed, rush of air on left



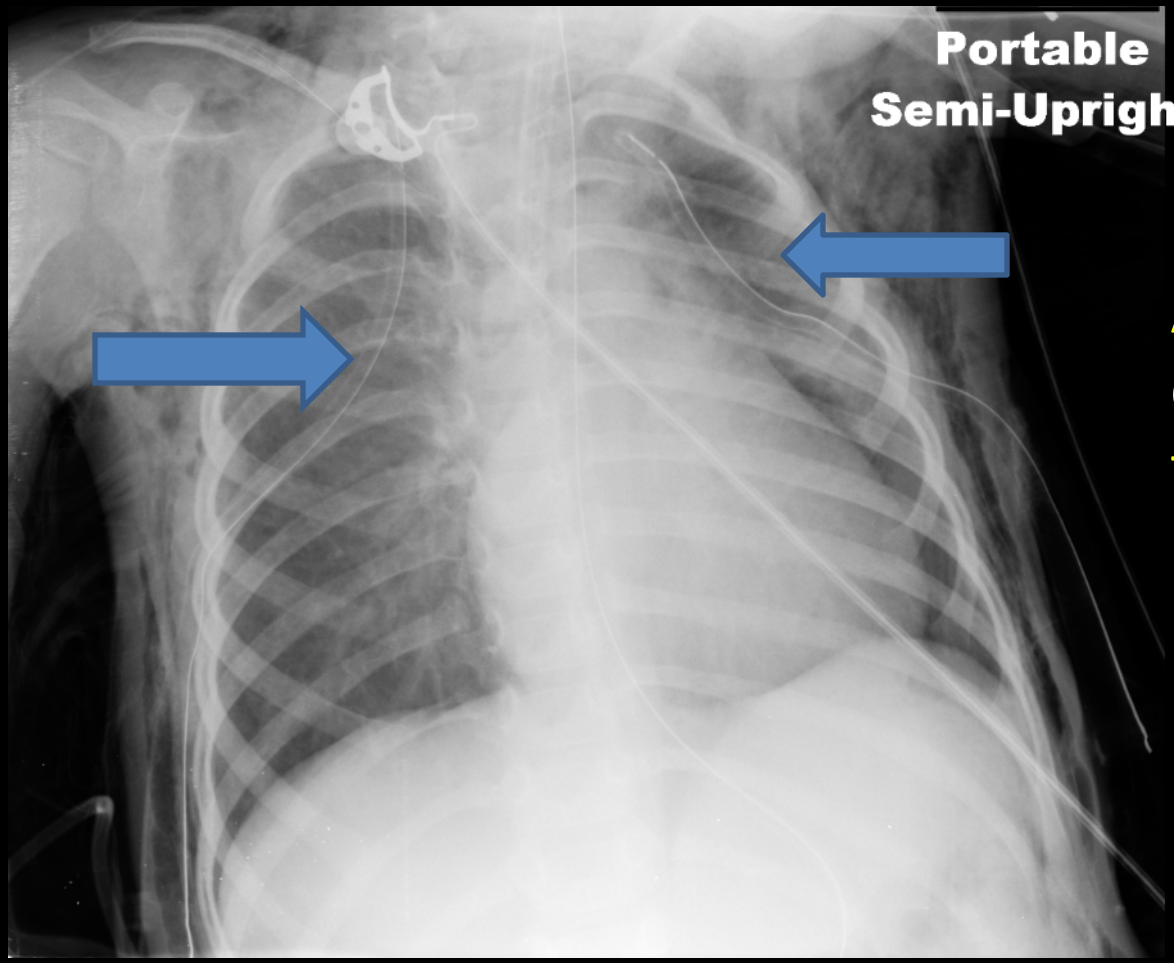
Needle Decompression

- Field Indications:
  - Tension Pneumothorax
    - Increasing respiratory distress w/ increased difficulty bagging AND diminished breath sounds with:
      - Tracheal deviation OR
      - JVD, or
      - Signs of shock
  - Location:
    - 2nd ICS, mid-clavicular line OR
    - 4th/5th ICS, mid-axillary line
  - Use 14 gauge angiocath → remove needle and leave angiocath

Trauma Course

- Bilateral chest tubes placed
- O_2 Sats up to 100% from 70s-80s% on FiO_2 100%
- Meds Given in ED:
  - Solumedrol
  - Benadryl
  - Epinephrine
  - Ancef (antibiotic)
- Impression: anaphylaxis vs spontaneous pneumothorax w/ airway compromise and shock

Chest X-Ray

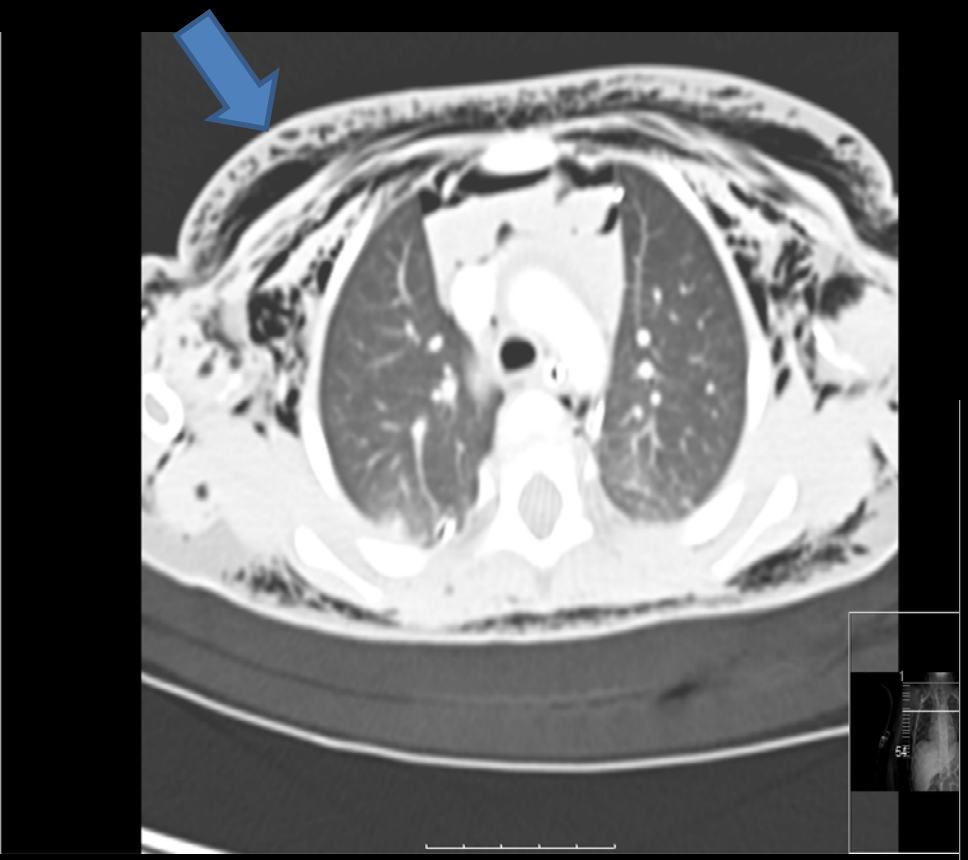


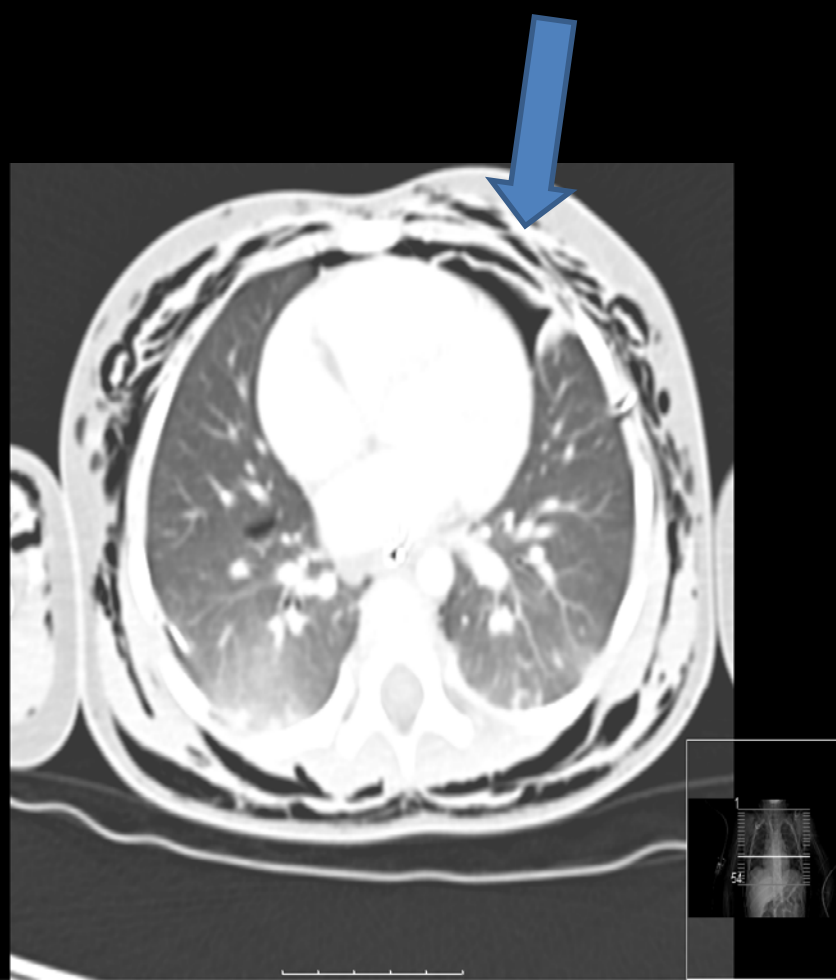
Arrows = chest tubes

Hospital Course

- Assessment: Gross subcutaneous emphysema, no rashes, no airway edema
- CXR showed SQ emphysema, chest tubes in good position
- Labs: normal
- Child admitted to the PICU
- On day 4 –CT scan of chest done

CT Scan Chest





Case Conclusion

- CT revealed a 3cm defect in the posterior tracheal wall crossing the cervical and thoracic margin
  - Air leaked from the hole in the trachea into the neck and thoracic cavity causing the SQ air/swelling
- Probably congenital defect
- Patient transferred to different facility for surgical procedure with ECMO team available
- Child discharged home in good condition

Take Home Points

1. Recognize a critical patient and divert as needed to the closest facility if you can't secure an airway!!!
2. Epi for anaphylaxis is 0.01mg/kg up to 0.3mg of 1:1000 IM
3. Benadryl is 1mg/kg up to 50 mg IM/IV
4. Use a Broselow or other device to estimate weight
5. All that wheezes isn't asthma (or anaphylaxis) → stop and re-think your differential if the patient's clinical picture doesn't fit!