CT Imaging of Blunt Abdominal Trauma

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JG vs. Train

- 55yo male crushed & pinned between 2 train cars
- in the field: SBP 80, unconscious, intubated
- in ER: HR 109  BP 131/70
  suprapubic ecchymoses, soft abdomen
  unstable pelvis
  right LE shortened & internally rotated
- Hematocrit 31.0
Imaging work-up

• Head CT: Negative: No bleed, no fracture

• C-spine CT: Negative: No fracture

• CXR: Negative: No pneumothorax, normal mediastinum
PELVIC PLAIN FILM

Pelvic film:
- bilateral SI joint disruptions
- R hip dislocation
- pubic symphysis diastasis

Image courtesy of BIDMC Radiology Department
Abdominal Ultrasound

- Ultrasound:
  - small peri-splenic fluid collection in LUQ
  - No other solid organ lacerations noted
Abdominal CT

Image courtesy of BIDMC Radiology Department
Splenic Laceration

Image courtesy of BIDMC Radiology Department
Pelvic CT

Image courtesy of BIDMC Radiology Department
Fluid Extravasation

Image courtesy of BIDMC Radiology Department
Our patient’s Radiologic Diagnosis

- Bowel and mesenteric vessel injury
  - (Indicated by extravasated contrast in low-mid abdomen)
- Spleen laceration
Our patient’s OR findings

• IMA avulsion

• Sigmoid colon ischemia
  – Serosa damage, hematoma
  – No perforation

• Large septated spleen
The patient underwent a Sigmoid Resection and ORIF of R Hip
Hospital Course

- Extubated & sent to floor on POD #1
- Transfused 2 units pRBC on POD #3
- Post-op ileus on POD #6
- Discharged to rehab on POD #14
Discussion: Mechanism of injury

• **Compression**
  – Solid organ impact on spine or body wall
    • Spleen, liver, pancreas, duodenum
  – Hollow organ rupture due to increased pressure
    • Bowel

• **Deceleration**
  – Shearing of vessels
    • Major arteries, mesenteric vessels
  – Bowel damage
    • Fixation points
Menu of tests

• Plain films

• Ultrasound
  – Focused Abdominal Sonogram for Trauma (*FAST*)

• CT
  – IV + oral contrast
Let’s look at some CT scans of different patients S/P trauma
Liver laceration
Gallbladder Avulsion

Axial View

Coronal reconstruction

Fluid in empty fossa

Pneumoretroperitoneum due to Duodenum rupture
References

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