Background

The patient is an 18 year-old male high school football athlete (185.4 cm, 95.8 kg) who was struck with a helmet on the left anterolateral region during an away football game.

The patient experienced solar plexus spasm, shortness of breath, nausea, left shoulder pain, and emesis immediately reported to emergency room. The patient had no prior history of abdominal injury.

Differential Diagnosis

- Rib fracture
- Left kidney trauma
- Intestinal pathology
- Left shoulder contusion
- Left chest wall contusion
- Concussion
- Liver laceration
- Pancreatitis

Uniqueness

- Disregard for MOI and referred pain patterns led to two clinical misdiagnoses.
- Due to the misdiagnosis and delay of hospitalization, the patient may have received the typical emergency surgery that has a mortality rate of 4.6%.
- Grade IV splenic laceration operative management (OM) varies from 10-54%.
- Due to clinical misdiagnosis of the definition of hemodynamic stability, the decision for emergency surgery varies.
- 74.7% NOM failures occur in the first 48 hours, 90% in the first 72 hours.
- Research has shown that in patients that have Tinkoff in first 72 hours.
- The patient may have had two clinical misdiagnosis.
- On arrival to ER, radiograph performed on patient’s left shoulder and abdominal region was negative for fractures. The patient was released with diagnosis of confirmed left shoulder and chest wall and instructed to return if pain persisted.
- Several hours later patient returned to ER upon arriving home with same signs and symptoms present.
- The physician ordered left rib series and flat radiographs along with an upright of the patient’s abdomen, diagnosis was consistent with previous ER visit.
- Two days later, the patient returned to ER due to increasing pain in abdominal region.
- Blood work revealed: • RBC of 3.75 (4.7-6.1 M/CMM)
  • HGB of 8.7 (14.0-18.0 GM/DL)
  • HCT of 29.7 (40.0-54.0%)

Treatment

The attending physician ordered an abdominal/pelvic spiral CT scan with IV and oral contrast along with noncontrast images revealing a grade IV splenic laceration.

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- The attending physician ordered an abdominal/pelvic spiral CT scan with IV and oral contrast along with noncontrast images revealing a grade IV splenic laceration.
- The patient was airlifted to a level II trauma center and admitted into the ICU for observation and received two units of blood the next day.
- Seventy-two hours after arrival the patient was released.
- Follow-up examination one month post injury revealed a fluid collection inferior and anterior to the spleen and a linear defect seen along the posterior medial aspect of the spleen.
- The patient was cleared to participate in activities as tolerated for varsity basketball six weeks after injury without complications.
- Returned to play at ten weeks post injury with no complications. The patient continued to play five years of division I college football with protection to the area.

Using additional diagnostic imaging along with a better understanding of the patient’s complaints may help better rule out abdominal trauma. Kehr’s Sign is a “classic” sign of splenic trauma. While evaluating patients, clinicians may pay attention to particular signs and symptoms such as referred pain with the accompanying MOI. In this case, it is difficult to speculate the type of care the patient would have received if he were diagnosed initially with a grade IV splenic laceration. In presenting with borderline hemodynamic stability there is a possibility that he would have received an emergency splenectomy.

Although hemodynamic stability was defined thoroughly in the research, no criterion between practitioners has appeared consistent with one another. Literature has shown a vast variation in the scientific definition of hemodynamic stability.

To improve upon clinical outcomes for splenic trauma, patient’s should not be selected solely upon their understanding of the patient’s symptoms present.

If a CT scan at the first visit he would have more likely been considered first and foremost for initial treatment, no matter the grade of splenic trauma.

Improving Clinical Outcomes

- Using additional diagnostic imaging along with a better understanding of the patient’s complaints may help better rule out abdominal trauma.
- Kehr’s Sign is a “classic” sign of splenic trauma. While evaluating patients, clinicians may pay attention to particular signs and symptoms such as referred pain with the accompanying MOI.

- In hemodynamically stable patients, NOM should be considered first and foremost for initial treatment, no matter the grade of splenic trauma.

- Hemodynamic stability needs a concrete definition for practitioners to make good clinical decisions.

Conclusions

- As a healthcare practitioner it is paramount to note the MOI and pain patterns of your patients.
- The best method to R/O abdominal injuries is a CT scan over other diagnostic methods. If this patient had received a CT scan at the first visit he would have more likely been correctly diagnosed.
- NOM is considered to be the standard treatment of blunt splenic injuries, but controversy still exists about the selection of these patients especially patients with grades III and above.

References