

# Case Report

## Splenic Laceration

**Urgent message:** Visceral injury is possible in association with the seemingly minor trauma seen in urgent care, underscoring the importance of remaining alert for “red flag” signs and symptoms and judiciously using advanced diagnostics.

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### Introduction

Blunt abdominal trauma occurs in 10% to 15% of injured children.<sup>1</sup> History and specifically mechanism of injury, and physical exam are important when a patient presents to the clinic with a suspected blunt abdominal trauma. Usually, injuries to the intra-abdominal organs are caused by an isolated injury such as a direct blow to the upper abdomen or by high-energy mechanisms, such as a motor vehicle crash or a fall from a height.<sup>1</sup> The most commonly effected organs are the liver and spleen. A common pitfall of treating patients with blunt abdominal trauma is the failure to recognize potentially life-threatening complications. This case highlights a presumably benign injury that can lead to worrisome complications. The urgent care practitioner should remain alert to the possibility of visceral injury with the more routine and seemingly minor trauma typically seen in our setting, especially when contributory risk factors are present. Looking for red flag signs and symptoms followed by judicious use of advanced diagnostics can also help.

### Case Presentation

A 17-year-old male basketball player presented to the urgent care center with his mother. Earlier that day he had been practicing with his team when he was injured. He was positioned to take a charge when the shoulder of the opposing player hit his upper abdomen. The patient did not lose consciousness but he did have to



come out of the inter-squad game due to abdominal pain. He was sitting on the bench when he started to feel weak and clammy. A teammate led him to the bathroom, where he proceeded to vomit three times. He started to feel lightheaded and had to sit down. His mother was called and they proceeded to the urgent care center.

In the office he still felt nauseated and lightheaded. He complained of soreness in his epigastric region.

### Observations and Findings

- PMHx: Gastroesophageal reflux disease, constipation
- PSHx: Open reduction, internal fixation of right 5<sup>th</sup> metatarsal
- Meds: Ibuprofen
- Allergy: Penicillin, sulfa

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- Social Hx: Denies smoking, alcohol, or illicit substances.
- Family Hx: None
- ROS: Positive for fatigue for the past few weeks, chest pain

#### Physical Exam

- BP: 107/76
- Pulse: 63
- Temp: 98.2°F
- RR: 20
- SpO<sub>2</sub>: 95%
- Glucose: 120
- Constitutional: Oriented x 3, no distress, clammy, pale
- CV: S1, S2, no murmurs, rubs or gallops.
- Resp: Effort and breath sounds normal.
- Abdominal: Normal appearance. Bowel sounds decreased. Tenderness at the epigastric area and left upper quadrant. No rigidity, rebound, or guarding.
- Skin: Warm and clammy

#### Differential Diagnosis

- Rib fracture, peptic ulcer, splenic injury, diaphragmatic injury

#### Diagnostic Testing

An abdominal series and blood work were ordered. While the patient was standing for the x-ray he had a fainting episode lasting several seconds. Because of the syncopal episode, the abdominal series and blood work could not be completed and it was deemed that the patient would benefit from a higher level of care. The patient was sent directly to the hospital by ambulance.

#### Additional Tests

- CBC: WBC 15.1, hemoglobin 12.6, HCT 38.1, platelets 118
- CMP: Na 138, K 4.6, CO<sub>2</sub> 26, Tot Protein 7.1, Albumin 4.3, Calcium 8.9, Gluc 103, BUN 16, Creat 1.0, Tot Bili 0.5, Alk Phos 187, AST 149, ALT 131, Anion Gap 13.6
- Lipase: 24

Computed tomography of the abdomen and pelvis with contrast revealed a 4-cm laceration in the mildly enlarged spleen anterior to the hilar vessels with evidence of active bleeding in the laceration. A large amount of hemoperitoneum was visible, particularly in the pelvis.

#### Treatment

The patient was admitted to the hospital for further

evaluation. Because he remained hemodynamically stable, the plan was to observe him overnight in the pediatric intensive care unit and make a determination the next day about surgery. Serial hemoglobin and hematocrit measurements initially were ordered every 6 hours. Intravenous (IV) fluids and IV pain medications were started. Oral foods and fluids were withheld during this time period. The patient's lowest hemoglobin and hematocrit were 11.6 and 35.5, respectively, with noted platelets of 105. Over the next 24 hours, his pain continued to improve. His liver enzymes were again checked and continued to be elevated (AST 98, ALT 113). By Day 2, a general diet was initiated. The next morning the patient was transferred to a regular room and allowed to walk around the floor. He noted good pain control with hydrocodone. Prior to discharge on Day 4 of admission, a Monospot test was completed, and was positive.

#### Final Diagnosis

Grade 3 splenic laceration secondary to blunt abdominal trauma and underlying mononucleosis.

#### Outcome

At discharge the patient was instructed to refrain from contact sports or physical activity for 6 weeks. On follow-up with the trauma service 1 week after discharge, repeat hemoglobin was 13.7. He denied any pain or nausea. Full recovery was expected from the injury.

#### Significance

This case reaffirms that potential complications can and do occur secondary to the splenomegaly associated with mononucleosis. This rare, but potentially life-threatening complication should be discussed with patients and underscores the importance of the recommendation of return to sport when diagnosed with infectious mononucleosis.

#### Discussion

The management of a hemodynamically stable splenic injury patient typically requires admission to an acute care floor with monitoring of vital signs, hematocrit, urinary output and restricted activity.<sup>2</sup> Fewer than 5% of patients with spleen injuries require a blood transfusion.<sup>3</sup> A grading system for isolated splenic injuries has been developed by the American Pediatric Surgical Association. According to these guidelines, stable children with isolated spleen injuries, grades I–IV, should receive non-operative management.<sup>4</sup> (Grades I and II laceration involve <1 cm and 1-3 cm of parenchymal depth,

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respectively. Grade III injury is >3 cm of parenchymal depth, whereas a Grade IV injury tends to involve >25% of the spleen.) Most often, children who do require operative management tend to declare themselves within the first 12 hours after injury.<sup>2</sup>

Regarding splenic enlargement in association with mononucleosis, more than 50% of individuals with this diagnosis develop enlargement within the first 2 weeks after experiencing symptoms. Thus, the current consensus from literature is that light, noncontact activities may begin 3 weeks from symptom onset.<sup>5</sup> If the patient remains symptomatic with fever, fatigue, or pharyngitis, however, return-to-activity should not be initiated. That is equally true if, upon re-examination, the spleen appears enlarged. Controversy still exists regarding discussions about return to play when contact activity is involved. Usually splenic ruptures occur within the first 3 weeks after an individual contracts mononucleosis, but cases have been described in which rupture occurred as long as 7 weeks after the illness began.<sup>4</sup> Therefore, return-to-play decisions should be discussed with the patient and the risks and benefits should be reviewed.

### Conclusion

At some point in their careers, urgent care providers will be called upon to evaluate a patient with blunt abdominal trauma. A high degree of suspicion for intra-abdominal injury is necessary during such a clinical examination. History and physical examination are key components for accurate diagnosis in such cases, particularly when more specific diagnostic imaging, such as a CT scan, are not available in the urgent care setting. ■

### References

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