

“The Shattering”: Grade V Splenic Injury

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BACKGROUND

A 64 year old male presented to the Emergency Department status-post mechanical fall from standing, with loss of consciousness. The patient endorsed moderate left-sided thoracic pain and upper extremity pain but was found to exhibit hypotension with a systolic blood pressure of 68 mmHg, necessitating crystalloid and blood transfusion. Subsequent computerized tomography (CT) scan demonstrated a comminuted fracture along the left distal radius, a type 2 left acromioclavicular injury, and a splenic injury with extravasation of contrast into the left pericolic gutter. The patient underwent an emergent exploratory laparotomy where approximately 500cc of coagulated blood was immediately identified in the abdominal cavity with visible ongoing hemorrhage from a ruptured splenic capsule. The hemorrhage was evacuated, a splenectomy was performed, and the patient had an uncomplicated post-operative course with discharge from the hospital on day 5.

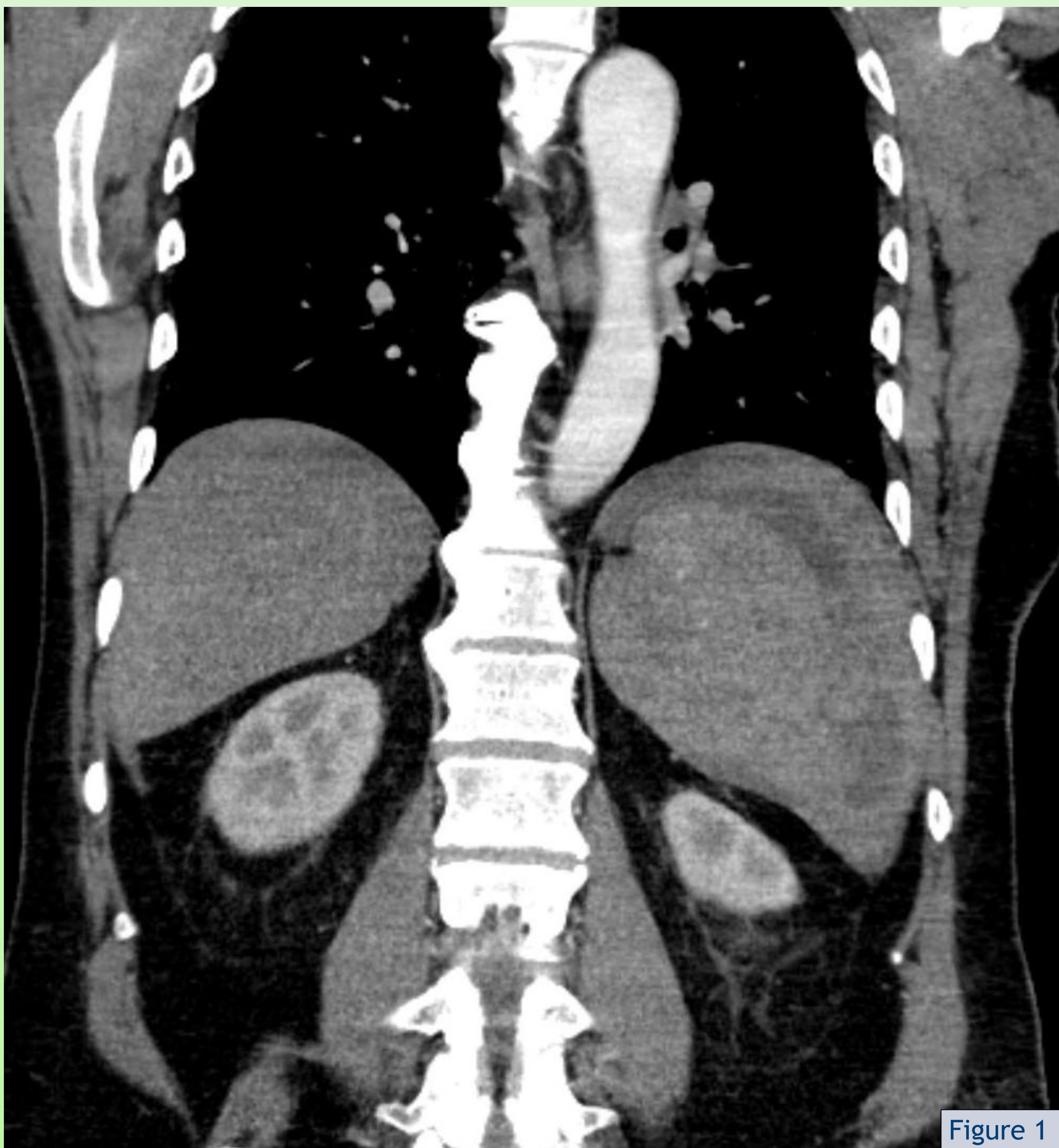


Figure 1

IMAGING

CT Trauma obtained shortly after presentation (coronal **Figure 1** and axial **Figure 2**) showed subcapsular splenic hematoma involving approximately 60% of the splenic surface area with intraparenchymal component measuring approximately 3.6 x 3.7 cm with perisplenic dependent fluid with Hounsfield units of 50, which likely represents extravasating blood product, extending along the left paracolic gutter into the pelvis. This is consistent with grade 5 on American Association for the Surgery of Trauma (AAST) splenic injury scale.

DISCUSSION

The spleen is the most common organ injured in trauma. For all cases of suspected splenic trauma, a portal venous phase (with 70 second delay) is required in addition to arterial phase imaging. This is in part due to the characteristic “tiger striping” that the spleen may exhibit during arterial phase imaging that can mimic or obscure underlying parenchymal injury.

Splenic injury can result in laceration, hypoperfusion, subcapsular or parenchymal hematoma, active bleeding, and pseudoaneurysms. A triangular shaped hypodensity that reaches to the splenic hilum is often indicative of a vascular insult. The American Association for the Surgery of Trauma (AAST) splenic injury scale was last revised in 2018 and used to grade splenic trauma. The ‘shattered spleen’ noted in this case represents the highest grade of splenic injury, which involves splenic vascular injury and hemorrhage extending beyond the splenic parenchyma and into the peritoneum. Typically, CT findings compatible with active splenic hemorrhage undergo emergent surgical treatment, with angiography and/or embolization considered in patients who may be too unstable or hypotensive to undergo open intervention.

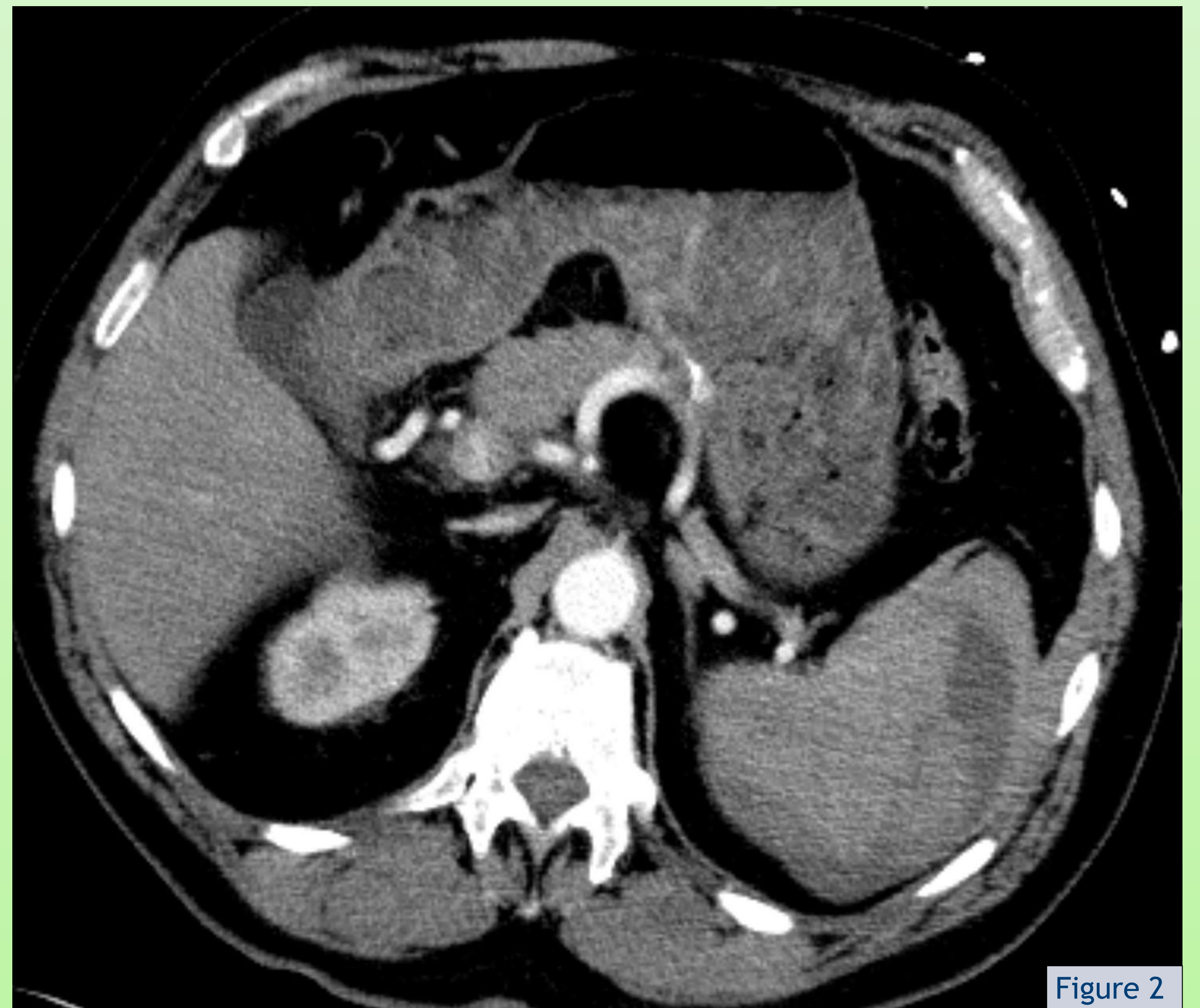


Figure 2

REFERENCES

1. Anderson SW, Varghese JC, Lucey BC, Burke PA, Hirsch EF, Soto JA. Blunt splenic trauma: delayed-phase CT for differentiation of active hemorrhage from contained vascular injury in patients. *Radiology*. 2007;243(1):88-95. doi:10.1148/radiol.2431060376
2. Hassan R, Abd Aziz A, Md Ralib AR, Saat A. Computed tomography of blunt spleen injury: a pictorial review. *Malays J Med Sci*. 2011;18(1):60-67.
3. Kozar RA, Crandall M, Shanmuganathan K, et al. Organ injury scaling 2018 update: Spleen, liver, and kidney [published correction appears in *J Trauma Acute Care Surg*. 2019 Aug;87(2):512]. *J Trauma Acute Care Surg*. 2018;85(6):1119-1122. doi:10.1097/TA.0000000000002058

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