



Visual Case Discussion

Cardiac chamber air detected by bedside ultrasound as a sign of abdominal catastrophe



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A 70 year-old female presented to the Emergency Department with sudden onset of altered mental status and lethargy 6 hours after discharge from an ORIF of a radius fracture. On presentation she was confused, hypothermic, and hypotensive with a SBP in the 60s. Physical exam was limited. A bedside echo demonstrated a normal EF and was negative for a pericardial effusion (Fig. 1). Labs were significant for a WBC of 13.2 K and a lactic acid of 16.1. Head CT and chest radiograph were unremarkable. Following resuscitation with IV fluids and vasopressors, a repeat cardiac ultrasound was performed and revealed air in the right atrium (Fig. 2 and Video 1). This finding prompted an abdominal CT that was significant for gastric pneumatosis and portal venous gas concerning for gastric ischemia/infarct. General surgery was consulted. However, given the patient's poor prognosis, the family elected palliative care. She expired 2 days later.



Fig. 1. Initial normal parasternal long axis view of heart.

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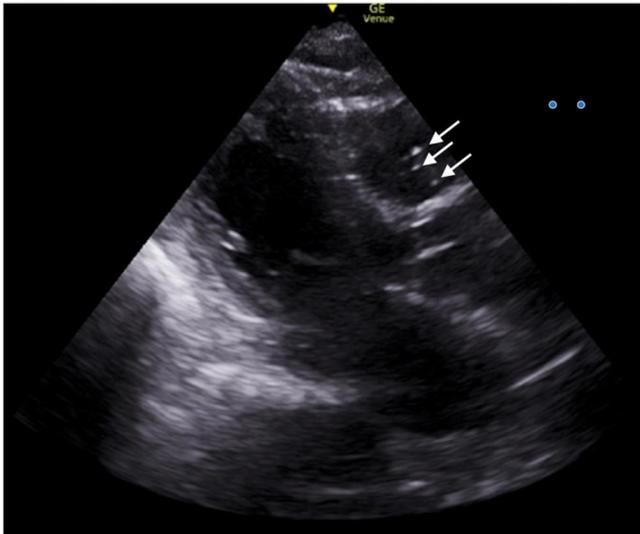


Fig. 2. Air in the right atria on parasternal long axis view of the heart.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.visj.2019.100587](https://doi.org/10.1016/j.visj.2019.100587).

References

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Questions

1. What is the next most appropriate step for the management of a patient with hepatic portal venous gas that is hemodynamically stable?
 - a. Intubation
 - b. Gastroenterology consult for endoscopy
 - c. General surgery consult
 - d. H2 blocker
 - e. Corticosteroids
2. Which of the following interventions may improve patient outcomes in cases of gastric ischemia?
 - a. Milk of Magnesia
 - b. Early re-feeding
 - c. NG suction
 - d. Early intubation
 - e. tPA

Answers

1. General surgery consult. Explanation: Hepatic portal venous gas is a concerning sign for intestinal and gastric ischemia. GI ischemia carries a mortality as high as 75% and may require emergent exploratory laparotomy. Newer evidence suggests that non operative management may be acceptable, but should not be done without consultation with a surgeon.¹
2. NG suction. Explanation: Gastric distention is not only a cause of gastric ischemia, but may worsen the ischemia due to other causes. Reduced gastric motility during ischemia may cause or worsen distention. NG tube placement set to low intermittent suction may improve gastric distention and improve outcomes along with initiating a PPI.²