



Visual Case Discussion

Obstructed hiatal hernia causing extrapericardial tamponade

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A 59-year-old woman with history of laparoscopic band surgery presented to our emergency department (ED) as a transfer for an obstructed hiatal hernia. She initially presented with 5 days of vomiting, abdominal pain and obstipation. The patient arrived with stable vital signs. During her evaluation, she suddenly lost consciousness during

defecation and was found to be pulseless. Chest compressions were started with return of spontaneous circulation (ROSC) after 30 seconds. After ROSC, her blood pressure was 40/20 mmHg with heart rate of 120 beats per minute. Two Liters of intravenous crystalloid were infused along with one dose of phenylephrine followed by a norepinephrine infusion. Nasogastric tube placement was attempted but failed. The patient was taken to the surgical intensive care unit where she was intubated. Shortly after intubation, she had another episode of cardiac arrest with return of spontaneous circulation after chest compressions. Endoscopic nasogastric tube placement and gastric decompression were performed and the patient became hemodynamically stable and vasopressors were discontinued.

Computed tomography revealed stomach completely displacing the left posterior cardiac border (Fig. 1, see arrow). It is believed that valsalva with attempted bowel movement acutely worsened herniation and led to cardiac tamponade.

Extrapericardial tamponade from hiatal hernia is reported to immediately respond to gastric decompression in multiple case studies [1,2]. Considering this etiology in the right context is important as gastric decompression could be lifesaving but may not be an obvious critical intervention without such insight.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.visj.2018.10.005](https://doi.org/10.1016/j.visj.2018.10.005).

References

1. Moore JPR, Fraser JF. Outside the box: Extra-pericardial tamponade due to acute recurrence of hiatal hernia. *Ann Thorac Surg.* 2010;89(5):1654–1656.
2. Papoulidis P, Beatty JW, Dandekar U. Hiatal hernia causing extrapericardial tamponade after coronary bypass surgery. *Interact Cardiovasc Thorac Surg.* 2014;19(4):716–717.

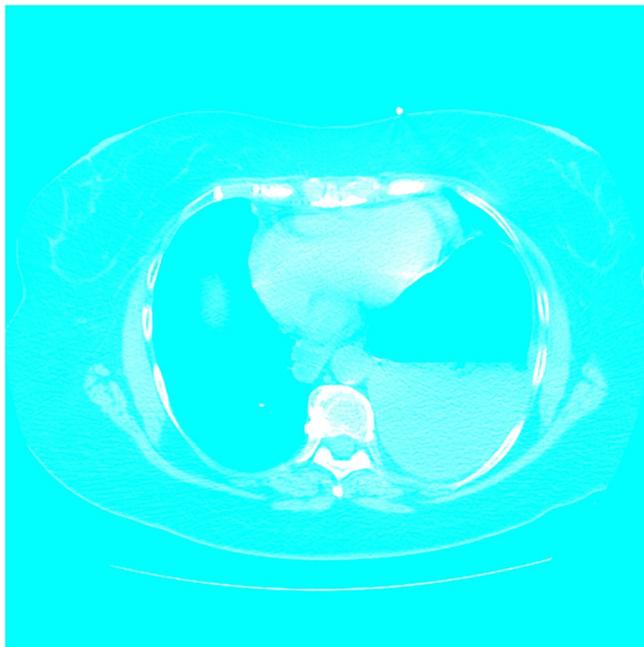


Fig. 1. Computed tomography reveals the stomach compressing the left posterior cardiac border, revealing the cause of extrapericardial tamponade. The arrow indicates the interface between the stomach and the heart.

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Questions

1. In tamponade related to pericardial effusion, what ultrasound finding is most specific (i.e. pathognomonic)?
 - a. In tamponade related to pericardial effusion, what ultrasound finding is most specific
 - b. Late diastolic dilation of the right atrium
 - c. Early diastolic collapse of the inferior vena cava
 - d. Early diastolic dilation of the right ventricle
 - e. Early diastolic collapse of the right ventricle
2. While performing echocardiography on a hypotensive patient a small pericardial effusion is discovered with early diastolic collapse of the right ventricle present. What is the most likely etiology?
 - a. Uremia
 - b. Fungal pericarditis
 - c. Malignancy
 - d. Aortic dissection
 - e. Lupus.

Answers

1. Early diastolic collapse of the right ventricle. Explanation: On echocardiogram with tamponade physiology, early diastolic collapse of the right ventricle is highly specific. Late diastolic collapse of the right atrium is a nearly 100% sensitive finding. Reference: Noyes AM, Kokkiralala AR. Cardiac tamponade. In: Ferri, FF ed. *Ferri's Clinical Advisor 2018* 1st ed. Elsevier; 2018.
2. Aortic dissection. Explanation: Conditions that cause a slow accumulation of pericardial fluid often become quite large (up to 5 liters) before tamponade occurs. In acutely developing etiologies of pericardial effusion (i.e. aortic dissection), only 100 mL of fluid can cause tamponade. Reference: Noyes AM, Kokkiralala AR. Cardiac tamponade. In: Ferri, FF ed. *Ferri's Clinical Advisor 2018* 1st ed. Elsevier; 2018.