Covert presentation of strangulated hiatus hernias after cardiac surgery: A note of caution

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Intra-abdominal catastrophes are an uncommon and unpredictable source of morbidity after cardiac surgery. We report the cases of two patients in whom strangulated hiatus hernias developed in the postoperative period and highlight their covert presentations.

CLINICAL SUMMARIES

Case 1
An 81-year-old woman with two-vessel coronary disease and preserved left ventricular function underwent elective off-pump coronary surgery to the posterior descending and left anterior descending coronary arteries. A preoperative chest radiograph was suggestive of hiatus hernia, and the patient took a proton pump inhibitor for dyspepsia. The initial postoperative course was uneventful and she was extubated within 12 hours. A chest x-ray film after chest drain removal showed a distended hiatus hernia, which was subsequently partially decompressed with a nasogastric tube. Over the next 24 hours, respiratory failure, lactic acidosis, and renal failure developed without abdominal symptoms or signs. Transesophageal echocardiography demonstrated good biventricular function and no pericardial collection. White cell count was within normal ranges and the amylase level was mildly raised (311 U/mL). A computed tomographic scan demonstrated a correctly positioned nasogastric tube and no radiologic evidence of mesenteric strangulation or ischemia (Figure 1). A general surgical opinion was obtained and laparotomy was deemed not indicated. Despite ventilation support, hemofiltration, and later vasoconstrictor support, the patient’s condition deteriorated with escalating lactic acidosis. She died of multiorgan failure. At autopsy, an incarcerated sliding hiatus hernia was found with a gangrenous intrathoracic component strangulated around a congenital band between the first part of the duodenum and the gastric fundus.

Case 2
A 75-year-old woman with three-vessel disease and poor left ventricular function underwent elective surgical revascularization with cardiopulmonary bypass. A preoperative chest film showed an elevated gas shadow in the left hemithorax. Despite initially good postoperative progress in the first few hours, hemodynamic instability, renal failure, and lactic acidosis developed. A chest radiograph showed a white-out in the left side of the chest (Figure 2). Transesophageal echocardiography demonstrated a fluid collection in the left hemithorax compressing the heart. An intercostal drain was inserted but drained only 100 mL of serosanguineous fluid, and a repeat radiograph demonstrated an air–fluid level adjacent to the left heart border consistent with a hiatus hernia. A nasogastric tube was introduced but could not be advanced beyond 30 cm, suggestive of a strangulated hernia or gastric volvulus. On re-exploration, a strangulated paraesophageal hernia was found to be causing cardiac tamponade. After reduction, she was returned to the intensive care unit with the sternum splinted open, but she later died of multiorgan failure.

DISCUSSION
Hiatus hernia and gastroesophageal reflux are common in the general population. Complications arising from these
after cardiac surgery are rare. Cardiac compression by a dis- 
tended intrathoracic stomach, manifesting as reduced 
cardiac output or arrhythmias, has been described.1,2 Both 
sliding and paraesophageal types of hiatus hernia may 
strangulate after off-pump and on-pump coronary surgery 
(patient 1 and patient 2, respectively). We report here two 
fatalities and comment on lessons learned.

In the first patient, the presentation was more insidious. Di- 
agnosis was made difficult by the paucity of intra-abdominal 
symptoms and signs. If present, symptoms are likely to be 
above the diaphragm and can be confused with postoperative 
stenal pain. The case clearly demonstrated that a normal white 
cell count and nondiagnostic computed tomographic scan can 
be erroneously reassuring. Thus, after exclusion of common 
causes of lactic acidosis, an unresolved etiology of high lactate 
level should prompt early laparotomy. In the stable patient, up- 
per gastrointestinal endoscopy may aid diagnosis.

The clinical course of the second patient was short and 
rapid. It too showed that correct diagnosis of a strangulated 
hiatus hernia can be challenging. Gastric contents in the tho- 
rax can resemble a large pleural effusion on chest radiograph 
and appear confusing on transesophageal echo.3 Despite 
minimal delay to surgical exploration in this case, the patient 
could not be saved.

Routine placement of nasogastric tubes in patients under- 
going cardiac surgery remains debatable. In a randomized 
trial, Russell and associates4 found that nasogastric tubes 
are not routinely necessary but suggested that certain sub- 
groups, including those with paraesophageal hernia, might 
benefit from routine placement. After the fatal outcome of 
our two patients, we believe that the presence of a hiatus hernia 
(sliding or paraesophageal) identifiable on a preoperative chest 
x-ray film should mandate prophylactic placement of a large- 
bore nasogastric tube at the time of the operation. The tube 
should remain in situ for at least 48 hours. This may prevent 
postoperative distention within the hiatus hernia, which may 
lead to strangulation. Correct placement once obstruction 
has occurred may be difficult and also too late.

References
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