

Unusual presentation of early postoperative trans-hiatal colonic herniation after esophagectomy

Dear Editor,

Esophagectomy is a recognised surgical treatment for carcinoma esophagus. After esophagectomy, the gastric conduit is pulled up through the diaphragmatic hiatus for esophago-gastric anastomosis in the neck. Trans-Hiatal Herniation (THH) after esophagectomy is predominantly a late postoperative complication with the pooled incidence ranging from 1-4.5% and with a median presentation time of 6-31 months.^[1] Very few cases of early postoperative THH are reported in the literature and tachypnoea, tachycardia

is the usual presentation.^[2] We report a case with unusual presentation and compare it with three other cases of THH in the early postoperative period after esophagectomy in our institute amongst 672 cases over a period of six years.

A 57-year-old male diagnosed with carcinoma gastro-esophageal junction underwent uneventful trans-hiatal esophagectomy after a thorough preoperative evaluation. He did not have comorbidities and his pre-operative physical examination, biochemical tests, cardiac evaluation including 12-lead electrocardiogram (ECG), echocardiography and exercise stress test were normal. On postoperative day 4, he developed tachycardia, chest discomfort and ST segment elevation in inferolateral leads (Leads II, III, aVF, V5 and V6), suggestive of acute myocardial infarction [Figure 1a]. He was on 40 mg of Enoxaparin sodium as part of his postoperative thromboprophylaxis, and was administered Atorvastatin 40 mg, along with nasal oxygen supplementation.

Table 1: Comparison of Patient Characteristics with Trans-Hiatal Colonic Herniation

	Demographics, Co-Morbidities	Presentation Day	Presenting, Symptoms	ICU LOS And Hospital LOS
Case 1	56-year male, No co-morbidities	POD 4	Tachypnoea, tachycardia, nasal oxygen requirement	11 days and 25 days
Case 2	65-year male, No co-morbidities except occasional ventricular ectopics on ECG	POD 4	Tachypnoea, tachycardia, oxygen requirement by face mask	12 days and 15 days
Case 3	49-year male, No co-morbidities	POD 3	Mild tachypnoea, no tachycardia, nasal oxygen requirement	5 days and 9 days
Case 4	57-year male, No co-morbidities	POD 4	Tachycardia, nasal oxygen requirement, chest discomfort and ECG changes of AMI	7 days and 10 days

POD - Postoperative day, ICU - Intensive care unit, LOS - Length of stay

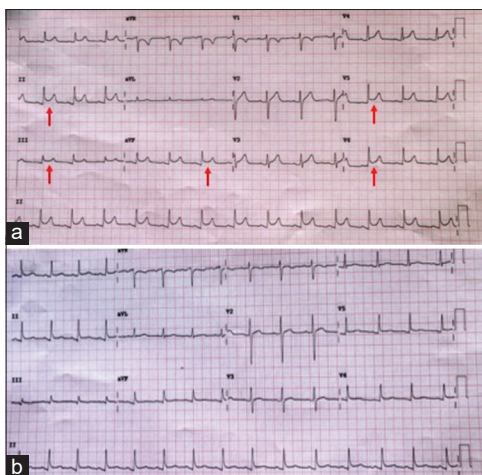


Figure 1: Preoperative (a) and Immediate Post-Operative (b) 12-Lead ECG

Screening echocardiography showed good contractility with no regional wall motion abnormality and a normal troponin I (0.012 ng/ml). Simultaneously done CXR revealed mediastinal widening with retrocardiac bowel shadows [Figure 2a] followed by computed tomography (CT) chest, which confirmed the diagnosis of trans-hiatal colonic herniation [Figure 2b]. Reduction of hernia and surgical repair of hiatus was performed urgently. It was interesting to note that his ECG changes completely reverted in the postoperative period, starting from the time that the hernia was reduced intraoperatively [Figure 1b]. Rest of his postoperative course was uneventful with length of intensive care unit stay of 7 days and hospital stay of 10 days.

The other three cases of early postoperative THH presented with tachypnoea and need for oxygen supplementation on either postoperative day 3 or 4. Unexplained tachycardia was present in two out of the three cases. CXR was done to rule out the cause of tachypnoea revealed bowel shadows in the thoracic cavity and trans-hiatal colonic herniation was further confirmed on CT chest for each of them. All patients underwent reduction of trans-hiatal hernia and hiatal repair. Table 1 compares the case details of all four patients with respect to their demographics, presentation and outcomes.

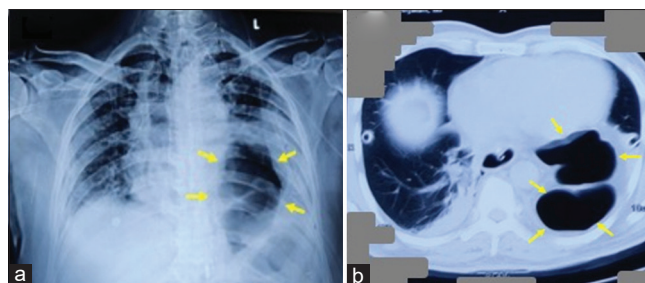


Figure 2: CXR (a) and CT Chest Images (b) of Trans-Hiatal Colonic Herniation

THH is a documented complication after esophagectomy. Excessive hiatal dilation during surgery, inadequate peritoneal adhesions to seal the hiatus, or aggressive postoperative respiratory physiotherapy are the speculated causes of THH.^[1] It needs prompt diagnosis and early surgical intervention to avoid progressing to a life-threatening complication like bowel necrosis and perforation. The patients may present with respiratory distress, pain, dysphagia, symptoms of intestinal obstruction or can rarely be asymptomatic and diagnosed on routine follow-up CXR or CT chest.^[1,3] THH has been reported as left atrial mass on echocardiography,^[4] if in close proximity to left atrium, but was not noted in our patient.

Acute ST-segment elevation on ECG with chest discomfort and raised cardiac enzymes may indicate acute myocardial infarction, which demands early cardiac reperfusion protocols. In our patient, troponin I was negative. Other causes of acute ST segment elevation in literature are pericarditis, Takotsubo's disease, pulmonary embolism, pulmonary atelectasis, acute pancreatitis and subarachnoid haemorrhage.^[5] To the best of our knowledge, ECG changes due to cardiac displacement by hiatal hernia in the early postoperative period after esophagectomy has not been described before. Esophagectomy being a major surgery, is associated with high incidence of cardiopulmonary complications in the early postoperative period.^[6] The ECG changes may mislead the clinician and shift focus on cardiac management instead of appropriate surgical intervention. This may lead to loss of valuable time posing a risk for ischemic complications.

We conclude here by saying, that early postoperative THH is a rare but life-threatening complication. It can present as

acute ST-segment elevation in inferolateral leads on ECG. Any cardiac or respiratory symptom, including ECG changes, must initiate an effort by the clinician to rule it out.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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References

- Oor JE, Wiezer MJ, Hazebroek EJ. Hiatal hernia after open versus minimally invasive esophagectomy: A systematic review and meta-analysis. *Ann Surg Oncol* 2016;23:2690-8.
- Messenger DE, Higgs SM, Dwerryhouse SJ, Hewin DF, Vipond MN, Barr H, *et al.* Symptomatic diaphragmatic herniation following open and minimally invasive oesophagectomy: Experience from a UK specialist unit. *Surg Endosc* 2015;29:417-24.
- Price TN, Allen MS, Nichols FC, Cassivi SD, Wigle DA, Shen KR, *et al.* Hiatal hernia after esophagectomy: Analysis of 2,182 esophagectomies from a single institution. *Ann Thorac Surg* 2011;92:2041-5.
- Koskinas KC, Oikonomou K, Karapatsoudi E, Makridis P. Echocardiographic manifestation of hiatus hernia simulating a left atrial mass: Case report. *Cardiovasc Ultrasound* 2008;6:46.
- Coppola G, Carità P, Corrado E, Borrelli A, Rotolo A, Guglielmo M, *et al.* ST segment elevations: Always a marker of acute myocardial infarction? *Indian Heart J* 2013;65:412-23.
- Klevebro F, Elliott JA, Slaman A, Vermeulen BD, Kamiya S, Rosman C, *et al.* Cardiorespiratory comorbidity and postoperative complications following esophagectomy: A European multicenter cohort study. *Ann Surg Oncol* 2019;26:2864-73.

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