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Acute chest pain in a patient with a non-strangulated hiatal hernia

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ABSTRACT

Acute chest pain resulting in spontaneous idiopathic hemomediastinum is a rare, potentially life-threatening occurrence. Acute chest pain is a common chief complaint of patients, accounting for 2.4%–6.0% of adult emergency room visits. The clinician's differential diagnoses for acute chest pain rarely include complications of hiatal hernias. An 83-year-old male presented with acute chest pain and was emergently diagnosed with hemomediastinum secondary to spontaneous gastric mesenteric vessel rupture due to a non-strangulated hiatal hernia after physical exertion.

1. Introduction

Idiopathic spontaneous hemomediastinum is infrequently encountered in the emergency department (ED). The three types of spontaneous hemomediastinum that have been described previously are as follows: first one is due to bleeding disorders such as hemophilia, anticoagulant use; secondary one is due to mediastinal tumors such as teratomas and thymomas, that may include other organs and blood vessels, and the third one (idiopathic) is due to sudden increase in intrathoracic pressure (*e.g.*, during coughing, sneezing, vomiting or sudden sustained hypertension)[1–3]. The most commonly encountered large vessel pathology resulting in hemomediastinum is due to aortic aneurysm dissection[1]. The case described herein is a rare case of idiopathic spontaneous hemomediastinum presenting as acute chest pain.

2. Case presentation

An 83-year-old Caucasian male presented to the ED via ambulance with a chief complaint of acute chest pain after performing sixty push-ups prior to arrival. He stated that he maintained an active life style and performed sixty push-ups in the morning and at night as part of his daily exercise regimen. The patient stated right-sided, sharp chest pain radiating to his back that occurred at rest and was not reproducible. The pain increased with deep inspiration and was associated with mild dyspnea and dizziness. The patient had a significant past medical history of hypertension, hiatal hernia, benign prostate hyperplasia and a significant past surgical history of prostate biopsy. The only reported prescribed medication was lisinopril and hydrochlorothiazide 20/12.5 mg tablet that was taken daily.

Upon ED arrival, the patient's vital signs were as follows: blood pressure of 87/60 mmHg, heart rate 67 beats per min, respiratory rate 18, afebrile, and SpO_2 100% on two liters nasal cannula. On physical examination, he was pale however well nourished. The patient was noted to have decreased bilateral breath sounds. He did not exhibit distended neck veins, muffled heart and/or murmurs/gallops, tracheal deviation, stridor, blood pressure or radial pulse discrepancy in his upper extremities, nor a palpable pulsatile abdominal mass.

An additional peripheral line was placed, cardiac monitoring, pulse oximetry and a normal saline 1 L bolus were provided. An electrocardiogram (EKG), complete metabolic profile, troponin-T, pro-brain natriuretic peptide, complete blood count, liver function tests (AST/AGT), coagulation profile, type and screen were performed. Additionally, the patient was kept "nothing by mouth status" for the possibility of surgical intervention. Emergent radiographic imaging included portable chest X-ray and CT scan of the chest with contrast (aortic dissection protocol).

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EKG and blood work were noncontributory. The portable chest X-ray (Figure 1) demonstrated a large hiatal hernia, a tortuous aorta and chronic changes. CT of the chest demonstrated a 4.5 cm dilated ascending thoracic aorta without evidence of dissection or distal thoracoabdominal aneurysm (4 cm descending aorta) (Figure 2). Interestingly, a large collection concerning hematoma was occupying most of the hiatal hernia (17 cm × 10 cm on the axial images × 15 cm coronal images) (Figures 3 and 4). Additionally, a small portion of stomach was

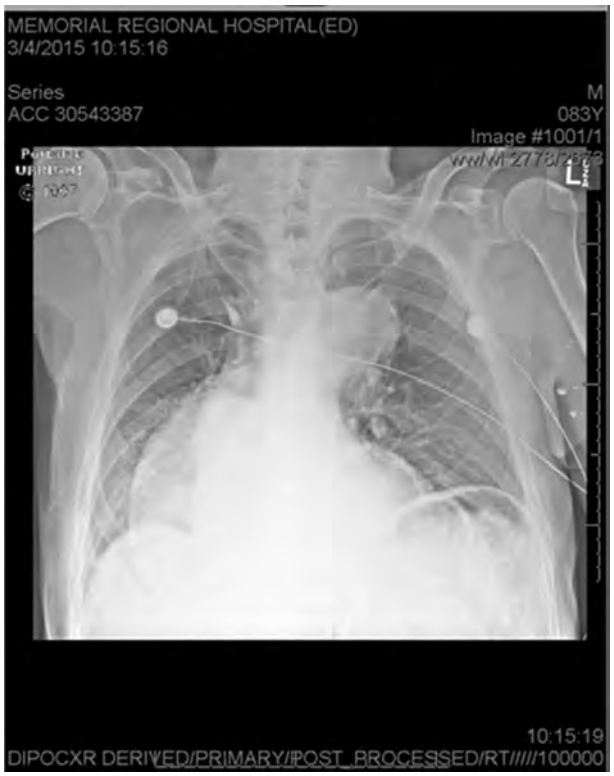

Figure 1. Portable chest X-ray demonstrating a large hiatal hernia and tortuous aorta.

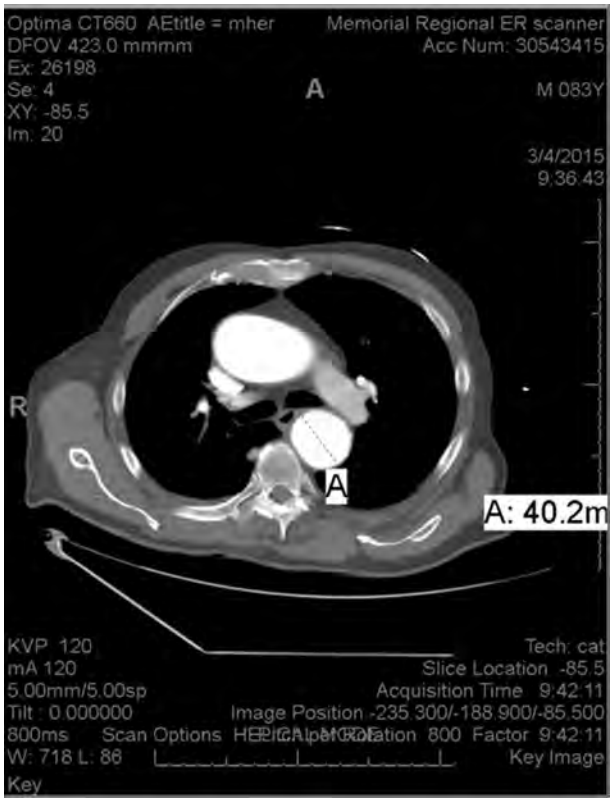

Figure 2. Axial view CT with contrast demonstrating 4 cm descending thoracic aorta.

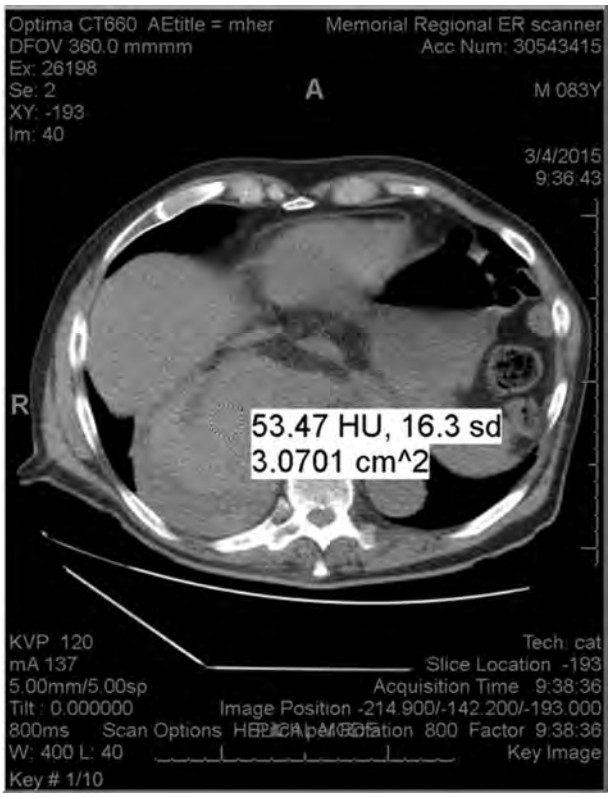

Figure 3. Axial view CT with contrast demonstrating large hiatal hernia with extravasation of contrast (circle).

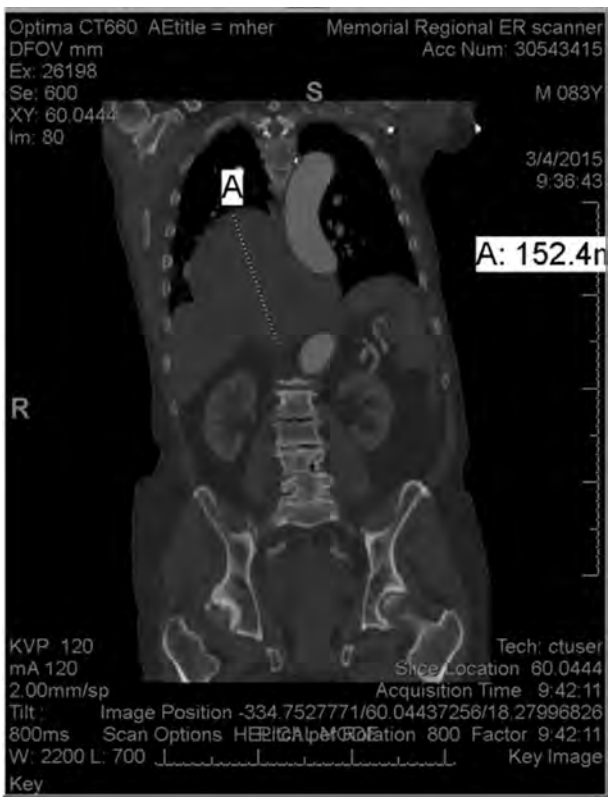

Figure 4. Coronal view CT with contrast demonstrating large hiatal hernia with 15 cm hemomediastinum (A).

found to protrude superiorly into the inferior aspect of the hiatal hernia with extravasation of amorphous hyperdense/hemorrhagic fluid, concerning gastric mesenteric vessel rupture. Immediate cardiothoracic and intensive care consults were obtained.

The patient was reassessed for clinical deterioration after return from CT scan. He was pain free, with repeat vitals: blood pressure of 137/72 mmHg, heart rate 66 beats per min, respiratory rate 23, afebrile and SpO_2 100%. Cardiothoracic surgery recommended nasogastric tube insertion and decompression as well as close monitoring in the hospital. A small amount of gastric aspirate was obtained from the nasogastric tube. The patient was admitted and subsequently declined any further testing (esophagram) or surgical intervention. He left the hospital two days later without incident.

3. Discussion

Acute chest pain is a common ED chief complaint[4,5]. Previous studies have reported that 54.5% of patients had neither clinical nor EKG evidence of an acute coronary syndrome, but 12.5% were categorized as having other life-threatening pathologies[4]. The differentiation of ischemic versus non-ischemic chest pain can be an especially daunting task when patients present with acute chest pain[6]. The differential diagnosis of acute chest pain is wide. Proper triage and physical examination including past medical/surgical history remain paramount. The patient's chief complaint in this case prompted our team to pursue an aortic (thoracic) dissection. The initial portable X-ray revealed a large hiatal hernia as well as a tortuous aorta. The CT chest provided the rare diagnosis of idiopathic spontaneous hemomediastinum secondary to a mesenteric vessel rupture in the patient who had a known hiatal hernia. Since the patient did not suffer recent trauma or falls, the vessel rupture most likely occurred during physical exertion. Push-ups increase intrathoracic pressure and may have contributed to this patient's diagnosis. Intestinal strangulation or viscous perforation was not observed in this case, although has been reported previously[6].

This case illustrates the importance of high suspicion of underlying pathology secondary to clinical gestalt, mechanism of injury, patient's medical history and need for early specialty consultation. It additionally demonstrates the vitality of appropriate emergent radiographic imaging, in this case CT, to reduce morbidity and mortality.

Conflict of interest statement

The authors report no conflict of interest.

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