A case of mediastinitis after esophageal rupture or perforation

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Discussion:
Esophageal rupture or perforation (ERP) is a rare but potentially life-threatening medical condition that is caused by a full-thickness tear in the esophageal wall.
The most important causes of ERP include iatrogenic injuries during endoscopy or surgery (the most common cause), blunt or penetrating trauma, and foreign body or corrosive substance ingestion. (1) Other less common causes are Boerhaave syndrome, severe gastroesophageal reflux, and esophageal ulcers.
Most of the patients with ERP present with chest and neck pain. Other suggestive signs and symptoms include subcutaneous emphysema, odynophagia, vomiting, and hematemesis. However, many symptoms are nonspecific—such as shortness of breath, tachycardia, and hypotension—and none are pathognomonic. (2) Therefore, we must always put ERP in our differential diagnosis list of any unexplained chest discomfort and obtain an appropriate diagnostic imaging, such as a chest X-ray or CT scan with oral contrast, as soon as possible. We need to identify air or contrast leaks, and fluid accumulation or abscess formation in the mediastinum or pleural cavity to diagnose ERP.

The leak of contaminated foods and liquids from the esophagus into the mediastinum may cause serious complications (mediastinitis, empyema, abscess or stricture formation, or sepsis). Because of these serious complications, to treat ERP, we must urgently start volume resuscitation and appropriate broad-spectrum antibiotics, then drain the mediastinum to control the infection source. Surgical or endoscopic repair is the main definitive therapy and has to be done ideally within 24 hours to prevent the above-mentioned life-threatening complications.

Visual discussion:
An 83-year-old female was brought to our emergency department (ED) with exacerbation of a month-long abdominal pain that radiates to her back, for which she underwent an endoscopic ultrasound (EUS) ten days ago to investigate a 2×2 cm pancreatic cyst. Since the EUS, she had dysphagia to solid and liquid materials and dyspnea. Despite prior medical advice from her gastroenterologist to call her if there was any chest or abdominal discomfort, she had not called her or sought any other medical help until coming to the ED. Her vital signs were as follows: blood pressure 115/70 mmHg, heart rate 120 bpm irregular, respiratory rate 18 bpm, O_2 saturation 84% in room air, and temperature 38 °C. We could not find any subcutaneous emphysema. An ECG was obtained, which showed atrial fibrillation with rapid ventricular response. Laboratory tests showed a metabolic acidosis and increased blood urea nitrogen, creatinine, liver function tests, C-reactive protein, potassium, lactate dehydrogenase, blood sugar, and uric acid levels. Amylase and lipase levels were within normal ranges.

Due to her general condition and vital signs, we immediately administered intravenous fluid and broad-spectrum antibiotics. Considering the onset of the symptoms and signs after EUS and the possibility of ERP, we obtained a chest CT scan with oral contrast that showed contrast leak, pneumomediastinum, and bilateral pleural effusion (Figures 1 and 2), which confirmed the ERP and mediastinitis as its complication.

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After diagnosing ERP and mediastinitis, we emergently requested surgical and gastroenterology consultations. They recommended immediate drainage of the mediastinum. Unfortunately, while preparing the patient for the procedure, she lost consciousness and went into cardiac arrest. We initiated cardiopulmonary resuscitation immediately, but she did not respond, and we lost her.

Figure 1 – Lung window of the chest CT scan with oral contrast, showing air bubbles in the mediastinum (white arrows) and bilateral pleural effusion (asterisks)

Figure 2 – Mediastinal window of chest CT scan with oral contrast, showing contrast leak from esophagus (white arrow)

Keywords
Esophageal Rupture, Esophageal Perforation, Mediastinitis

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Question 1

Question Type: Multiple choice

Question Text

Which one is the most common cause of esophageal rup[illegible]r perforation?

a) Endoscopy
b) Boerhaave syndrome
c) Traumatic ERP
d) Foreign body ingestion

Correct Answer = a

The most common cause of ERP is iatrogenic ERP after surgery or endoscopy. (3)

Question 2

Question Type: Multiple choice

Question Text

After volume resuscitation, which one is the most important management to perform?

a) Antibiotics

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b) Drainage
c) Endoscopy
d) Surgery

Correct Answer = a

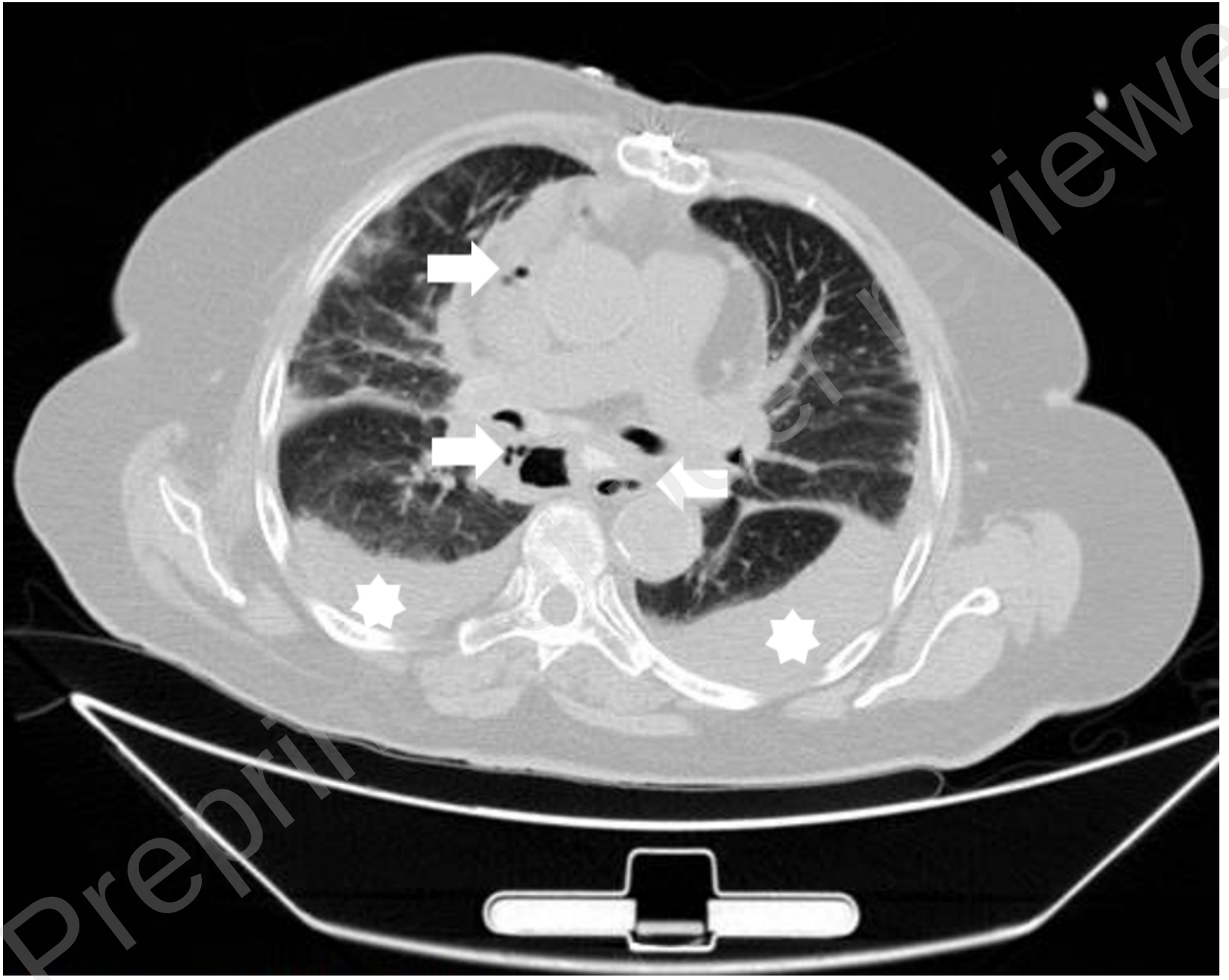
After diagnosing esophageal rupture or perforation, we have to initiate volume resuscitation and appropriate antibiotics to reduce the rate of severe infections like mediastinitis, empyema, sepsis, and septic shock. (2)

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