

Retrocardiac mass in a patient with cirrhosis: A case report

Mehdi Saeidpour, Karin Steinke

ABSTRACT

Introduction: The most common cause of a supradiaphragmatic posterior mediastinal mass is a hiatus hernia. However, an unexplained round or lobulated retrocardiac shadow without air or air-fluid level in patients with marked portal hypertension should raise the suspicion of dilated venous collaterals.

Case Report: This is a case of a 58-year-old Asian male with a history of chronic liver disease secondary to alcohol abuse and hepatitis B and banding of esophageal varices due to bleeding presenting to the hospital after a low-velocity motor vehicle accident. Plain X-ray of chest showed a double density structure through the left cardiac shadow. Further investigation revealed paraesophageal varices simulating a retrocardiac mass on a contrast enhanced helical computed tomography scan of the abdomen.

Conclusion: Differential diagnoses of mediastinal, retroperitoneal, and mesenteric masses in patients with cirrhosis most commonly include varices rather than a neoplasm or adenopathy. Portosystemic collateral veins most likely need many years to reach such a size that they can be visible on a chest X-ray. Giant esophageal varices may present as a posterior mediastinal mass on a chest X-ray in as many as 5% of cirrhotic patients. Diagnosis may be confirmed by Doppler ultrasonography, computed tomography scan, or magnetic resonance imaging scan. Correct interpretation of a pseudotumor caused by venous collaterals may avoid potentially hazardous invasive diagnostic procedures.



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CASE REPORT

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Introduction: The most common cause of a supradiaphragmatic posterior mediastinal mass is a hiatus hernia. However, an unexplained round or lobulated retrocardiac shadow without air or air-fluid level in patients with marked portal hypertension should raise the suspicion of dilated venous collaterals. **Case Report:** This is a case of a 58-year-old Asian male with a history of chronic liver disease secondary to alcohol abuse and hepatitis B and banding of esophageal varices due to bleeding presenting to the hospital after a low-velocity motor vehicle accident. Plain X-ray of chest showed a double density structure through the left cardiac shadow. Further investigation revealed paraesophageal varices simulating a retrocardiac mass on a contrast enhanced helical computed tomography scan of the abdomen. **Conclusion:** Differential diagnoses of mediastinal, retroperitoneal, and mesenteric masses in patients with cirrhosis most commonly include varices rather than a neoplasm or adenopathy. Portosystemic collateral veins most likely need many years to reach such a size that they can be visible on a chest X-ray. Giant esophageal varices may present as a posterior mediastinal mass on a chest X-ray in as many as 5% of cirrhotic patients. **Diagnosis**

may be confirmed by Doppler ultrasonography, computed tomography scan, or magnetic resonance imaging scan. Correct interpretation of a pseudotumor caused by venous collaterals may avoid potentially hazardous invasive diagnostic procedures.

Keywords: Retrocardiac mass, Portal hypertension, Chronic liver disease, Esophageal varices

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INTRODUCTION

The most common cause of a supradiaphragmatic posterior mediastinal mass is a hiatus hernia. However, a round or lobulated shadow without air or air-fluid level in patients with severe portal hypertension should raise the suspicion of dilated venous collaterals [1].

CASE REPORT

A 58-year-old Asian male presented to our emergency department after a low-velocity motor vehicle accident. He had a history of chronic liver disease secondary to alcohol abuse and hepatitis B, treated with entecavir. His past medical history further included non-insulin dependent diabetes mellitus on metformin and pioglitazone, anal fistula requiring surgical repair, depression not on any medication, and esophageal varices with bleeding one year prior, requiring banding. Relevant findings on

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physical examination included jaundice and an abdomen soft and tender to palpation with a firm and tender liver. Laboratory investigations did not show any gross abnormalities, apart from an elevated bilirubin (Total 40; N <20 $\mu\text{mol/L}$). Liver ultrasound revealed a small, diffusely coarse, and heterogeneous liver with a nodular outline (liver span 9.5 cm mid clavicular line), consistent with cirrhosis, but no focal hepatic mass, varices, or ascites was detected. Plain chest X-ray (CXR) showed a double density structure through the left cardiac shadow (Figure 1).

Contrast enhanced helical computed tomography (CT) scan of the abdomen showed signs of portal venous hypertension and cirrhosis which was long standing and unchanged since 2005, with particularly marked distal esophageal varices (Figure 2). In view of the above, upper gastrointestinal endoscopy was performed which revealed grade III esophageal varices with scarring from prior treatment in the middle and lower third of the esophagus and evidence of portal hypertensive gastropathy and gastric varices at the fundus. A diagnosis of Paraesophageal varices simulating a retrocardiac mass was made. Repeat esophageal bands were placed between 35–37 cm.

The patient was discharged home after two weeks. An outpatient appointment in the hepatology department for assessment of the patient's hepatic encephalopathy and fitness to return to work has been scheduled for three weeks post discharge, then for three monthly check ups. The patient was further booked for a repeat upper gastrointestinal endoscopy six weeks post discharge to reassess the esophageal varices.

DISCUSSION

The portal system receives tributaries from the splenic, superior mesenteric, and inferior mesenteric veins [2].



Figure 1: Plain chest X-ray posterior-anterior view showing a double density structure through the cardiac shadow.

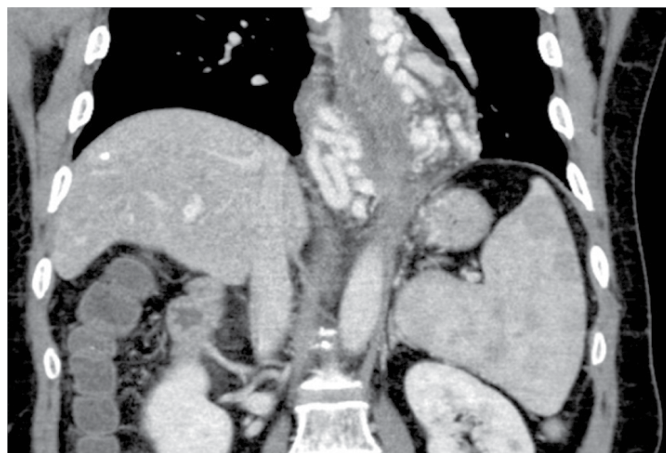


Figure 2: 3mm coronal reformats of a contrast enhanced helical computed tomography scan of the abdomen showing marked distal oesophageal varices.

A portocaval anastomosis (also known as portosystemic anastomosis) is a specific type of anastomosis between the portal and systemic venous circulation. The distal end of the esophagus is one of the important sites for the portosystemic anastomosis. Cirrhosis can cause portal hypertension due to an increase in intrahepatic resistance as well as an increase in portal and hepatic arterial blood flow [3]. In the presence of portal hypertension, transmission of elevated portal pressure into the left gastric vein and into the periesophageal and perigastric venous plexus results in esophageal and gastric fundal varices [2, 4, 5]. These venous collaterals usually connect with the vertebral plexus as well as with the coronary, azygos, and hemiazygos veins through multiple unnamed veins in the mediastinum and sometimes cause a posterior mediastinal mass shadow [1, 2]. The originating vein is most frequently the portal and less commonly the splenic vein [3]. Gastrointestinal bleeding is the most dangerous complication, which may be treated by transjugular intrahepatic portosystemic shunt (TIPS) creation [6]. Treatment modalities for esophageal varices include placement of a Sengstaken-Blakemore tube, pharmacologic therapy, surgery, interventional radiology, and endoscopic treatment, the details of which are beyond the scope of this case report [7]. In a meta-analysis Karsan et al. showed that there was no evidence that the addition of sclerotherapy to endoscopic band ligation in the secondary prophylaxis of esophageal variceal hemorrhage changed clinically relevant outcomes (variceal rebleeding, death, time to variceal obliteration) [8].

Gastrointestinal diseases rarely present as a posterior mediastinal pseudotumoral mass, except for pancreatic pseudocyst, certain cases of hiatus hernia and esophageal tumors, diverticula, and achalasia [2]. Other considerations include lymphadenopathy, neurogenic tumors, vascular conditions (aorta, azygos,

and hemiazygos vein aneurysms), neuroenteric cysts, and lymphoma [1]. Differential diagnoses of mediastinal, retroperitoneal, and mesenteric masses in patients with cirrhosis most commonly include varices rather than a neoplasm or adenopathy. In these circumstances, percutaneous fine-needle aspiration of such masses may be hazardous.

Portosystemic collateral veins most likely need many years to reach such a size that they can be visible on a CXR [1]. Giant esophageal varices may present as a posterior mediastinal mass on a CXR in as many as 5% of cirrhotic patients [1]. Diagnosis may be confirmed by Doppler ultrasonography, computed tomography (CT) scan, or magnetic resonance imaging (MRI) scan [9]. Varices can be diagnosed with a CT scan due to their characteristic serpentine appearance. However, contrast-enhanced CT scan may be necessary to confidently distinguish them from tumor masses, adenopathy, or bowel loops [9]. Vascular masses usually change in size with changes in intrathoracic pressure such as respiration (i.e., Valsalva maneuver) and on erect or supine view, which helps in avoiding potentially hazardous invasive diagnostic procedures, such as mediastinoscopy or percutaneous fine-needle aspiration if there is a venous varix [1, 10–12].

CONCLUSION

Correct identification of a pseudotumor caused by venous collaterals may avoid potentially hazardous invasive diagnostic procedures.

Author Contributions

Mehdi Saeidpour – Acquisition of data, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Karin Steinke – Conception and design, Analysis and interpretation of data, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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