

Cardiac Tamponade due to a Ruptured Solitary Mediastinal Varix: A Case Report

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ABSTRACT

Mediastinal varix is rare. Some reports have noted that the mediastinal vein can become varicose in cases of portal hypertension or obstruction of the vena cava. However, solitary mediastinal varices without portal hypertension or obstruction of the vena cava are very rare. Mediastinal varicose veins have been problematic as pseudotumors, as no symptoms have been described in the literature. We encountered a case of cardiac tamponade due to a ruptured solitary mediastinal varicose vein. To the best of our knowledge, this is the first report of sustained symptomatic mediastinal varicose vein.

CASE REPORT

A 78-year-old woman was admitted to our hospital after experiencing syncope lasting 1 minute. Her level of consciousness was drowsy. Blood pressure was 60/45 mmHg. Heart rate was 110 beats/minute. Electrocardiography showed sinus tachycardia and no significant ST-T changes. Echocardiography showed a large amount of pericardial effusion, right and left ventricular wall compression, and no dissection of the aorta (Figure 1). Although the blood pressure was low, her condition was relatively stable. As Stanford A-type aortic dissection or aortic rupture was initially suspected. Computed tomography was performed and showed no bleeding or ischemic changes in the brain, no dissection of the aorta, and a large amount of pericardial effusion (Figure 2A). A round space-occupying lesion was identified in the anterior mediastinal space (Figure 2B). Finally, cardiogenic shock due to cardiac tamponade of unknown origin was diagnosed.

We decided to perform emergency surgery for open drainage of the pericardial effusion and exploratory

sternotomy. Gross findings showed a saccular tumor in contact with the pericardium anterior to the aorta. Accidental laceration of the tumor resulted in massive bleeding, but hemodynamics stabilized as the tamponade was removed. The pericardium was opened and 600 mL of bloody pericardial effusion was removed. Examination of the pericardial cavity revealed a hole (diameter, 1 cm) in the pericardium anterior to the aorta. This hole communicated with the saccular tumor (Figure 3A). The saccular tumor seemed to represent a varicose vein. An erosion in the aortic wall was in contact with a hole in the pericardium (Figure 3B). No other findings suggested a different origin of bleeding.

Intraoperative specimens comprised a sac and abnormal vessels (Figure 4A). Gross findings showed these vessels connected to the thymic vein. Abnormal vessels seemed to represent a varicose vein leading to the sac (Figure 4B). The sac contained no malignant cells and no vessel wall structure, resembling a pseudoaneurysm (Figure 4C). Final pathological diagnosis was cardiac tamponade due to a ruptured pseudoaneurysm from a solitary mediastinal varicose vein. The postoperative course was uneventful, and the patient was discharged on postoperative day 14.

DISCUSSION

Causes of varicose vein are thought to be intravenous hypertension, valve insufficiency, and congenital or acquired

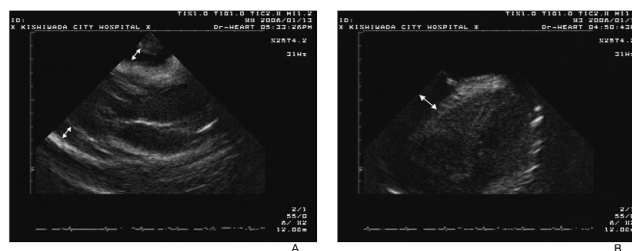


Figure 1. Findings on echocardiography. A large amount of pericardial effusion is apparent in the pericardial cavity and the left and right ventricular wall are compressed. A, Longitudinal view. B, Four-chamber view.

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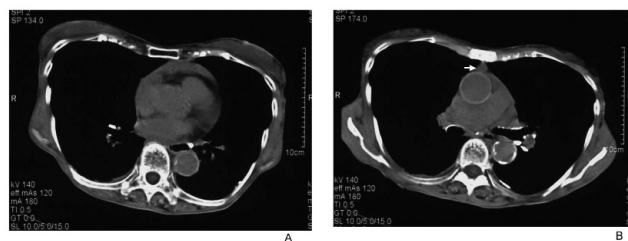


Figure 2. Computed tomography findings. A, Liquid accumulation in the pericardial cavity. B, A 1.0-cm round tumor-like lesion in the anterior mediastinum.

vein wall abnormalities [Ascher 2004]. Although varicose veins can theoretically exist in every part of the human body, a solitary varicose vein is rare. Some reports have described mediastinal varicose veins, with most resulting from portal vein hypertension or vena caval obstruction [Lee 2005]. Mediastinal varicose vein without portal hypertension or vena caval obstruction is also extremely rare, and we were only able to find 1 case report in the literature [Pop 2005]. The problem in all reported cases of mediastinal varicose vein is distinguishing between mediastinal tumor and pseudotumor, as a mediastinal varicose vein itself seldom leads to a life-threatening condition [Lee 2005; Pop 2005]. Some reports have described a solitary varicose vein in parts other than the mediastinum, leading to sustained conditions. Intracranial varicose vein rupture, external hemorrhage of leg varicose vein, and a varicose vein arising from the retroperitoneum have been reported as sustained solitary varices in the literature [Nakamura 1991; Roda 1998; Racette 2005]. To the best of our knowledge, this is the first report of a life-threatening solitary mediastinal varicose vein.

Diagnosis of mediastinal varicose vein is made by computed tomography or magnetic resonance imaging with clinical findings such as systemic venous hypertension [Lee 2005; Pop 2005]. However, diagnosis is not easy in cases involving a solitary mediastinal varicose vein without venous hypertension, as this condition is not usually anticipated. In the literature, a solitary mediastinal varicose vein in the absence of venous hypertension was diagnosed by

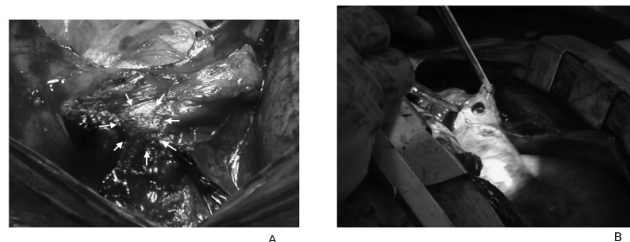
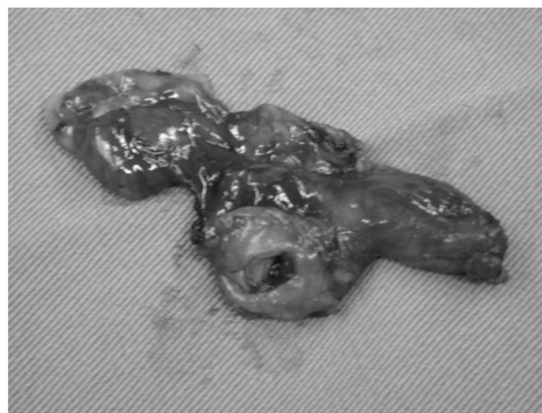
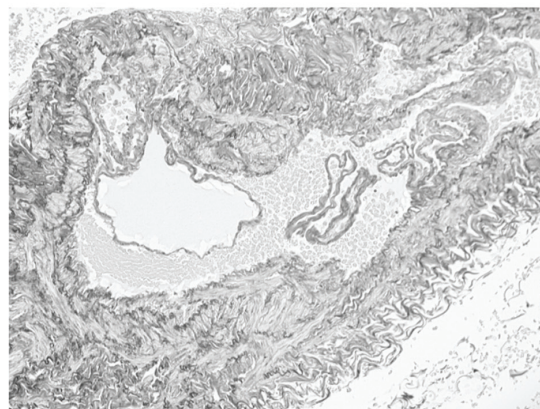


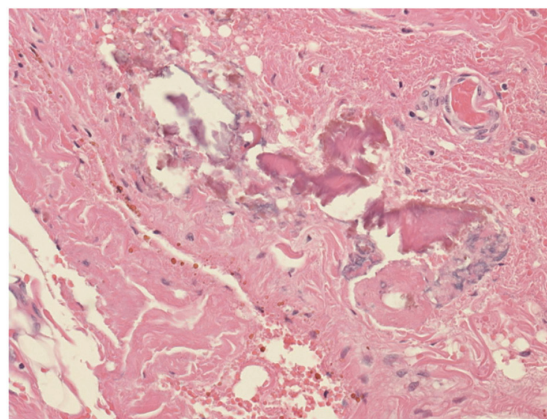
Figure 3. Intraoperative findings. A, Saccular tumor in the anterior mediastinum. B, Saccular tumor communicates with the pericardial cavity, and the anterior aortic wall is eroded.



A



B



C

Figure 4. Histopathological examination. A, The tumor comprises a saccular region and abnormal vessels. B, Abnormal vessels histologically indicate a varicose vein. Walls are of significantly varying caliber, thickened by muscular hyperplasia and collagen tissue. Calcified foci of medial elastic fibers are present. C, The saccular wall contains no vascular wall components, as in a pseudoaneurysm. Thrombi and hyaline plaques are present in the cavity.

mediastinal endoscopy [Pop 2005]. In the present case, diagnostic examinations were insufficient because of the poor condition of the patient. The final diagnosis resulted from histopathological examination of intraoperative specimens. Pseudoaneurysm due to solitary mediastinal varicose vein seems to have ruptured into the pericardial space.

The reasons underlying the rupture of a solitary varix in the present case are unclear. In varix of the leg, repeated inflammation due to thrombus formation within the varix may cause ulceration of the skin and lead to rupture. In this case, thrombus formation was histopathologically identified in the varix and sac, and no vessel wall structure was present in the sac. These findings led us to presume that repeated inflammation caused rupture of the varix and pseudoaneurysm, ending in rupture into the pericardialsac.

In terms of therapy, as seen with the present patient, varicotomy and pericardial drainage appear appropriate for the treatment of varicose veins resulting in cardiac tamponade. While conditions may transiently improve with drainage alone, a risk of recurrence exists. As was the case with the present patient, the rupture site itself can turn into a pseudoaneurysm, suggesting repeated rupture of the varicose vein in the past. Further studies are warranted, as many unknowns exist regarding the frequency of varicose veins and the rupture of unruptured varicose veins.

CONCLUSION

We encountered a case of cardiac tamponade due to a ruptured solitary mediastinal varicose vein. To the best of our knowledge, this is the first case report of a life-threatening symptomatic mediastinal varicose vein.

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