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Case Report

Hemiazygos vein aneurysm mimicking an enlarged lymph node ☆

Yeon Soo Kim, MD, PhD

Department of Thoracic and Cardiovascular Surgery, Inje University Ilsan Paik Hospital, 170 Juwha-ro, Ilsansu-gu, Goyang-si, Gyeonsgi-Do, South Korea

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ABSTRACT

Idiopathic hemiazygos vein aneurysm is a rare lesion that can be difficult to diagnose. Here we report a case of asymptomatic idiopathic hemiazygos vein aneurysm (HAVA) that was incidentally discovered on chest computed tomography (CT) and mistaken for enlarged lymph nodes. The patient underwent thoracoscopic surgery for a biopsy, which confirmed that he had an idiopathic hemiazygos aneurysm. Delayed contrast-enhanced CT was performed after surgery, and it was confirmed that the hemiazygos vein aneurysm was connected to the adjacent vessel.

Introduction

Idiopathic HAVA is a rare disease, and there is no standard treatment. Here, we report a case of asymptomatic idiopathic hemiazygos aneurysm. In this case, surgery was performed using a thoracoscope because the occurrence was mistaken for lymph node enlargement, and the diagnosis was confirmed using delayed contrast-enhanced chest CT.

Case

A 47-year-old male patient underwent follow-up chest CT 5 months after kidney transplantation due to renal failure. A 1.8 cm nodule was found incidentally around the spine at the level of the left eighth thoracic vertebra. Enlarged spinal lymph nodes were suspected (21 × 20 × 14 mm) (Fig. 1). Therefore, it was necessary to distinguish whether it was reactive lymph node hyperplasia caused by the use of an immunosuppressant for post-transplant lymphoproliferative disorder (PTLD) or other malignancy, such as lymphoma.

Video-assisted thoracic surgery was performed using 2 ports. The mediastinal pleura was dissected at the eighth rib, and the space between the esophagus and the aorta was dissected. The cystic structure was confirmed, and the surrounding area was dissected to confirm that it was an aneurysm of the hemiazygos vein (Fig. 2). No other enlarged lymph nodes were found.

After surgery, the patients underwent chest CT with delayed enhancement. The structure found preoperatively was identified as fusiform and enlarged, enhancing on delayed contrast imaging, and was shown to be connected to the

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E-mail address: kimyns@paik.ac.kr

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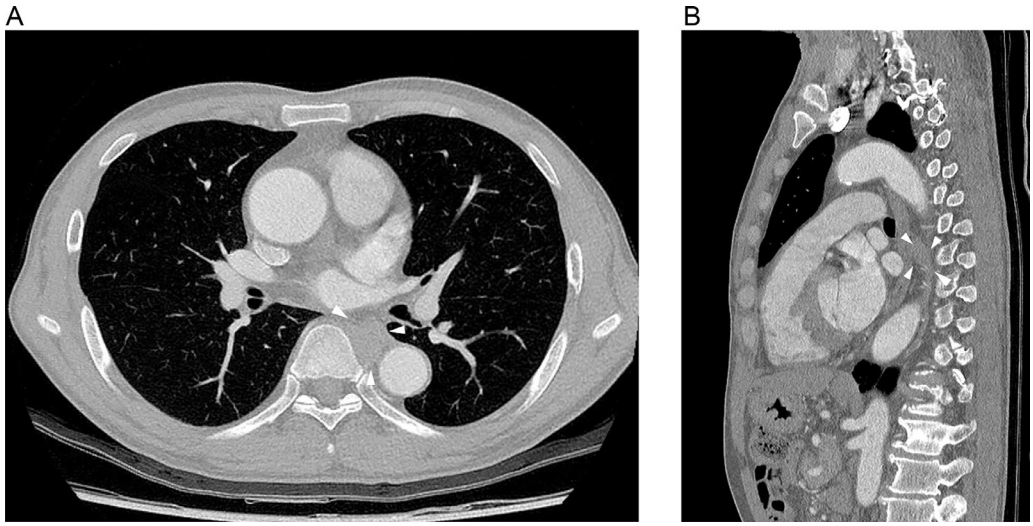

Fig. 1 – A contrast-enhanced chest CT scan. A soft tissue lesion (arrow heads) in the Lt. paraspinal area (T8 level).

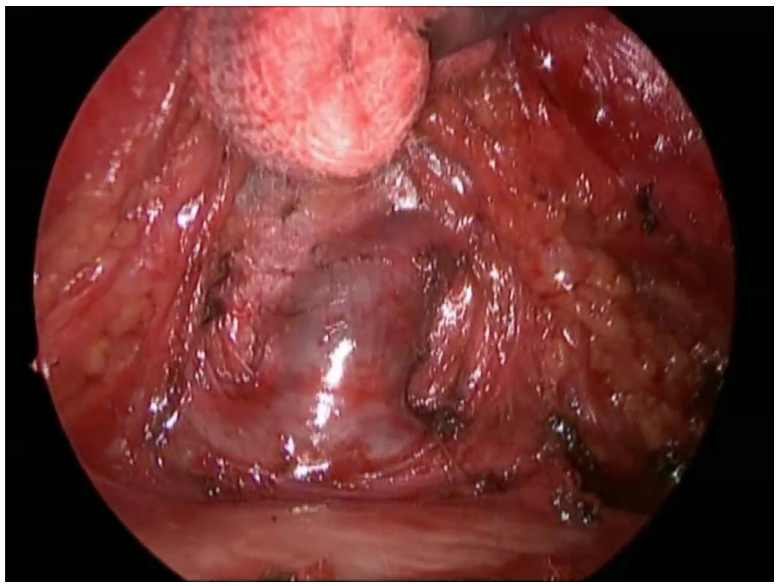

Fig. 2 – Operative view showing a hemiazygos vein aneurysm.

surrounding veins. Aneurysm of the hemiazygos vein was confirmed by imaging (Fig. 3). The patient was discharged on the second day after surgery without problems.

Discussion

An idiopathic HAVA is a rare condition. The azygos-hemiazygos system is an extension of the ascending blood vessels of the lumbar veins. The blood vessels in the left paraspinal area cross the hemiazygos vein in front of the spine and merge with the azygos vein. The inferior vena cava and lumbar vein have several communicating veins [1]. Aneurysmal dilation of the azygos-hemiazygos system usually occurs in patients with portal hypertension, heart failure, any partial malformation or total agenesis, or obstruction of the inferior vena cava or superior vena cava by tumor or other causes [2]. Other causes of azygos and hemizygous venous dilatation include direct compression by enlarged lymph nodes and idiopathic causes of unknown origin [1].

An azygos system aneurysm often has no symptoms and tends to be discovered through chest imaging [3]. Symptoms may include coughing, wheezing, occasional mild chest pain or dyspnea, which may be caused by the azygos vein aneurysm (AVA) compressing the trachea, main bronchus or

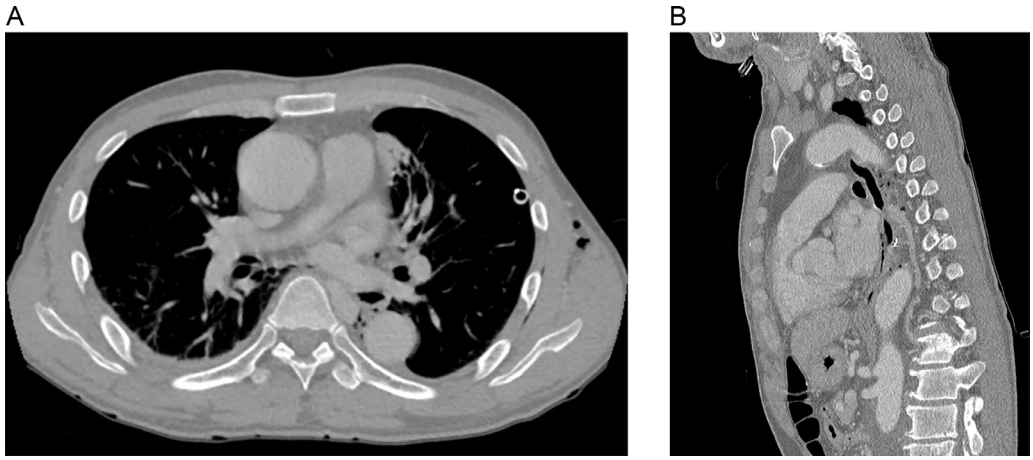

Fig. 3 – (A) Postoperative delayed contrast-enhanced axial CT scan showing a soft tissue lesion in the posterior mediastinum. (B) Postoperative delayed contrast-enhanced sagittal CT scan. A focal aneurysm of the hemiazygos vein was confirmed through enhancement by contrast agent and was connected to the adjacent hemiazygos vein.

SVC. Sudden shortness of breath may be a dangerous sign of pulmonary thromboembolism [4]. Chest pain and progressive dyspnea can occur if a very large AVA ruptures [5].

On chest CT, such an aneurysm can present as an enlarged azygos system or as suspicion for a mediastinal tumor. To enhance visualization of the venous system, delayed enhanced CT imaging is necessary. A relationship between the lesion and blood vessels can be confirmed, distinguishing dilatation of vascular structures from other mediastinal tumors. The lesion can be confirmed as an azygos system aneurysm with connection to the azygos venous system on contrast-enhanced imaging. However, delayed contrast images are not routine. In the presented case, the HAVA was not diagnosed because the azygos system was not enhanced on preoperative chest CT. Considering the patient's history of organ transplantation, there was a possibility of PTLD. To confirm whether the lesion on the first CT was an expansion of the hemiazygos vein radiologically, CT contrast imaging was repeated after surgery. At this time, delayed enhancement imaging was performed to confirm the venous system evaluation. The lesion suspected to be a lymph node was confirmed to have increased contrast via delayed enhanced scan and was connected to the adjacent hemizygous vein. Based on this, an aneurysm of the hemiazygos vein was diagnosed.

Endoscopic ultrasound can be used as a diagnostic tool by confirming blood flow in the aneurysm. Imori et al. [3] diagnosed HAVA by finding an anechoic mass adjacent to an accessory hemiazygos vein with a blood flow using endoscopic ultrasonography (EUS). Cullivan et al. [6] performed endobronchial ultrasound (EBUS) using an ultrasound bronchoscope. The tumor was located on the back of the right main bronchus, and internal flow was confirmed. In addition, the lesion was observed along the posterior and lateral walls of the right main bronchus to confirm that it was connected to the azygos vein, and thus AVA was diagnosed.

AVAs were classified by their macroscopic shape and size into saccular type or fusiform type based on CT or MIR findings. A saccular AVA was localized dilatations within a portion of the azygos vein wall. A fusiform AVA was a circumferential dilatation of the azygos vein with variable diameter and length [4]. Ko et al. [7] reported on 10 patients with AVA. Four had saccular AVA and 6 had fusiform AVA. Four saccular AVAs had thrombosis, 2 of which were presented as poorly enhancing mediastinal masses measuring 5 and 6 cm. The other 2 cases had short axis length increases of 25% and 40% during 3 and 5 years of follow-up. Six fusiform AVAs had an increase in short-axis length of less than 8% during a mean follow-up of 6.7 years. In addition, no symptoms were associated with fusiform AVAs. Therefore, it was suggested that fusiform AVAs may be stable and asymptomatic even after years.

A standard therapeutic strategy for an azygos system aneurysm has not been established [4]. Situations in which surgical resection was performed were reported in cases where the tumor was mistaken for a mediastinal tumor [8,9], symptoms were present [10], thrombosis was present in aneurysm [11], pulmonary embolism was present [7], complications were prevented [2,12], and rupture occurred [5]. There is no clear indication for the treatment of asymptomatic AVA [3]. Treatment may be considered if the AVA is large or saccular. This case was confirmed surgically and radiologically, and conservative management was selected as it was an asymptomatic fusiform HAVA.

A HAVA is rare disease that should be considered in the differential diagnosis of lymphadenopathy or posterior mediastinal tumors. The diagnosis can be made on delayed contrast-enhanced CT to visualize continuity with the hemiazygos vein.

Patient consent

For the case report written informed consent for publication of the case was obtained by the last author of the case report.

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