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CASE REPORT

SURGICAL MANAGEMENT OF AN INCIDENTAL AZYGOS VEIN ANEURYSM: A CASE REPORT

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Abstract

Introduction: Azygos vein aneurysms (AVAs) are exceptionally rare vascular anomalies, often discovered incidentally during imaging for unrelated conditions. Due to their rarity, there is no consensus on standardized management. The decision between conservative and surgical treatment remains a matter of debate.

Methods: We report the case of a 52-year-old female who presented with a chronic cough and underwent imaging as part of the diagnostic workup. Incidentally, a large azygos vein aneurysm was identified. Following multidisciplinary team discussions and risk-benefit assessment, a minimally invasive thoracoscopic resection was planned.

Results: The patient underwent successful thoracoscopic excision of the aneurysm without complications. Postoperative recovery was uneventful, and she remained symptom-free at one-year follow-up.

Conclusion: This case highlights the feasibility and safety of minimally invasive surgical resection for large AVAs in carefully selected patients. It underscores the importance of individualized, multidisciplinary decision-making in the management of such rare vascular anomalies.

Keywords: minimally invasive, Azygos vein aneurysms, conservative, thoracoscopic resection

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BACKGROUND/INTRODUCTION

Azygos vein aneurysms (AVAs) are extremely rare, with fewer than 150 cases described in the literature globally. AVA is a rare vascular anomaly. AVAs are generally incidental and asymptomatic and are found on imaging done for an unrelated indication [1]. AVAs present most commonly as a radiographic or CT mediastinal mass, and the majority of patients with AVAs are asymptomatic [2,3]. While uncommon, some patients can present with pulmonary embolism. Along with thrombosed AVAs, direct compression or rupture of the trachea/bronchi by adjacent structures or by the esophagus can happen [2,3]. Congenital situations like portal hypertension and/or long-standing heart failure can cause AVAs and can be linked to traumatic hemodynamic incidents [4,5]. Since there are not many cases, the difficulty of choosing between conservative treatment and guidelines results in inadequate management of AVAs. Symptom presence, aneurysm size and growth, and surgical complications all affect the surgical interventions [6,7]. As part of our attempt to add to the literature on rare entities and create management plans for such presentations, we report an AVA that was discovered incidentally and treated without difficulty with minimally invasive surgery [8,9,10].

RESULTS

A 52-year-old female who had been treated for years for hypertension and had no history of thoracic surgery complained of a coughing illness of 3 weeks' duration before the patient consulted, and the case was intervened after an initial visit to a primary care physician. She did not report having hemoptysis, dyspnea, fever, chest pain, or weight loss.

No abnormality was encountered during the examination. Cardiovascular and respiratory findings, as well as vital signs, were stable.

As part of the initial evaluation, a right paratracheal mass was discovered on a chest X-ray. At the azygos vein, a noticeable saccular aneurysm measuring 4.1cm on contrast-enhanced computed tomography (CT) of the chest originated at the carina level. There were no indications of compression, pulmonary embolism, or thrombus. A laboratory test that was performed was a coagulation profile, which returned to a normal state.

A multidisciplinary meeting involving thoracic surgery, vascular medicine, and radiology to examine the case. Depending on the size of the aneurysm and the patient's age, there was a possibility of thrombosis, embolism, and rupture in the future, therefore, surgical resection was recommended. Following. After being informed of the benefits and drawbacks, the patient provided her informed consent.

As part of the standard preoperative evaluation, the patient underwent tests for heart and pulmonary function. Both were in the typical ranges.

Under general anesthesia, the patient was placed in the left lateral decubitus position. A three-port video-assisted thoracoscopic surgery (VATS) was performed. A wide neck that emerged from the main azygos vein

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June 2025 Issue

indicated the presence of an AVA in the posterior mediastinum. Vascular staplers were used to control the vein both proximally and distally. After being removed all at once, the aneurysm was sent for histopathological examination. After confirming hemostasis, a chest tube was inserted.

In the operating room, the patient was extubated before being moved to the surgical ward. The chest tube produced minimal output, and her hemodynamic status remained stable after surgery. The chest tube was removed on postoperative day two, and the patient was discharged on day three. It was recommended that she refrain from intense exercise for four weeks.

A saccular aneurysm with thin walls was discovered during gross examination of the specimen, measuring 4.1 x 3.3 cm. Histopathology confirmed the venous aneurysm's existence. It also showed no cancer or no thrombosis.

The patient exhibited no symptoms at the follow-up appointments at one month along one year. A CT scan showed evidence that no vascular abnormalities had recurred.

DISCUSSION

Azygos vein aneurysms (AVAs), rare vascular anomalies, can be acquired or congenital. Underlying connective tissue disorders, portal hypertension, or heart failure often cause acquired forms from illnesses or trauma with increased central venous pressure [7]. Most AVAs show no symptoms. They are generally discovered just incidentally during imaging that is performed for reasons that are unrelated. Upon chest radiographs as well as CT scans, they do often appear as mediastinal or paratracheal masses [8]. When present, symptoms can involve dysphagia, persistent cough, chest pain, or palpitations, often caused by compression of nearby structures or issues like thrombosis, pulmonary embolism, or rarely, rupture [9].

Although MRI can be useful in certain situations to further characterize vascular anatomy and rule out other pathologies, CT angiography is still the gold standard for diagnosis because it offers comprehensive anatomical information and is essential for surgical planning. AVA management options include observation, particularly in stable asymptomatic cases, endovascular intervention, anticoagulation if thrombosis is present, or surgical resection [10]. Large size symptomatic presentation, thrombus evidence, or rupture risk factors are among the reasons for surgery [11]. Minimally invasive procedures like robotic surgery and video-assisted thoracoscopic surgery (VATS) have shown better outcomes and reduced morbidity when compared to open thoracotomy. An analysis of the literature currently in publication highlights the infrequency of AVAs as well as the lack of agreement regarding their treatment, with the majority of specialists recommending tailored choices based on patient-specific variables and aneurysm characteristics [12].

CONCLUSION

This case highlights the importance of considering AVA when making a differential diagnosis of

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mediastinal masses and demonstrates that for certain patients, minimally invasive surgical resection is a safe and efficient course of treatment. Long-term follow-up is essential to monitor for late complications or recurrence.

LIMITATION

This case report represents a single patient experience and lacks long-term, multi-patient outcome data to generalize treatment strategies for AVAs.

RECOMMENDATION

Further studies and case series are needed to establish standardized management guidelines for AVAs.

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CONFLICT OF INTEREST

The author declares no conflict of interest related to this study.

LIST OF ABBREVIATIONS

AVA – Azygos Vein Aneurysm

CT – Computed Tomography

VATS – Video-Assisted Thoracoscopic Surgery

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