Case report

Thrombosis of an idiopathic saccular azygos aneurysm

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Abstract

We report a case of a large saccular idiopathic aneurysm of the azygos vein which was discovered totally thrombosed at operation. To our knowledge, such a case of thrombosis occurring in this exceptional aneurysm location has never been previously reported.

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1. Case report

Idiopathic aneurysms of the azygos vein are exceptional [1–3], and most often incidentally discovered, simulating paratracheal tumors. The spontaneous course of such aneurysms is unknown, and to date, no case of rupture or thrombosis has been reported. We report herein the first case of an idiopathic large saccular azygos aneurysm that was totally thrombosed.

A 68-year-old man, heavy smoker, without any past medical history, underwent an electrocardiogram and a chest roentgenogram because he complained of recent chest pain. The electrocardiogram was normal, whereas the chest roentgenogram revealed a 6 cm well-limited right paratracheal opacity, that extended vertically in the upper mediastinum (Fig. 1). Physical examination was normal, without any sign of portal hypertension, abnormal collateral circulation or edema. On computed tomographic scan (Fig. 2), the opacity was posterior, closely appended to the right lobe, and associated with a limited pleural effusion. Its density was 65 Hounsfield units, and no enhancement occurred after injection of contrast medium. Fiberoptic bronchoscopy showed only an extraluminal compression of the posterior wall of the main bronchus, and of the intermedius bronchus, without endoluminal mucosae abnormalities. No malignant cells were revealed by systematic bronchial biopsies or cytology examination of endobronchial aspiration. Because of the suspicion of malignancy and the patient being a heavy smoker, an exploratory thoracotomy was performed. There was a reactionary pleural effusion. Adherences with the upper lobe were easily freed up and an aneurysm of the arch of the azygos vein was discovered. The aneurysm was totally thrombosed. The proximal and the distal parts of the azygos vein were normal, and the thrombosed aneurysm was easily resected. No other lesion was discovered. The pathology report indicated a saccular aneurysm of the azygos vein, totally thrombosed, with a large collar, that presented a thin but normal venous wall. No infiltration of the aneurysm walls or accumulation of inflammatory cells was seen.

2. Discussion

To date, this observation represents to our knowledge, the first reported case of a complete thrombosis of an idiopathic aneurysm of the azygos vein. There are many causes of azygos vein enlargement: right heart failure, superior vena caval occlusion below the azygos vein, portal hypertension, pregnancy, constrictive pericarditis, partial or total agenesis of inferior vena cava, and traumatic arteriovenous fistulas [4]. In such cases, dilatation is related to a major increase in blood flow through the azygos vein. Traumatic pseudoaneurysm may be a differential diagnosis of true aneurysm. It was eliminated in our case, because the patient did not have past history of chest trauma with right costal or transverse bone fractures, and because he did not have past history of vein or cardiac catheterism, with traumatic insertion of the catheter into the azygos vein. The question whether the origin of the saccular aneurysm could have been an upper lobe inflammatory process causing strong adherences with the azygos vein sometimes may be raised. However, in our case, the adherences with the lung were
Fig. 1. Computed tomographic scan showing a 6-cm right posterior paravertebral mass.

Fig. 2. Macroscopic appearance of the thrombosed aneurysm.
easily freed up, and there was no evidence of parenchymal lung inflammation sequelaes in the upper lobe.

Idiopathic aneurysm of the azygos vein is exceptionally rare: eight cases have been reported by Léna et al. [2] in 1996, and 10 cases by Watanabe et al. [3] in 1998. The origin of idiopathic aneurysm is unknown, but a congenital origin is suggested, considering that these saccular aneurysms could be due to the development of a remnant of an embryologic vein that empties in the transverse part of the azygos vein [5]. Most aneurysms of the azygos vein are asymptomatic, incidentally discovered, typically located at the junction of the trachea and of the right upper lobe bronchus. Such mediastinal paratracheal mass may evoke a mediastinal tumor, an adenopathy, a bronchogenic cyst or a lung tumor on routine chest X-ray. Symptoms, if at all noticeable, depend on the size of the aneurysm. When the aneurysm is enlarged, it may compress the right main bronchus, such as in our observation, or the superior vena cava, such as in the case reported by Barraine et al. [1]. In our report, the thrombosis of the aneurysm probably may have caused an inflammatory reaction with pleural effusion and pulmonary adherences, leading to unspecific chest pain. Although, the aneurysm may change in size with respiratory and postural manoeuvres or when the patient is upright, the exact nature of the lesion is not usually established until exploratory thoracotomy. In very few cases, the diagnosis has been made or has been suggested pre-operatively on computed tomography scanning, magnetic resonance imaging or on transoesophageal echography [2,3,6,7]. Undoubtedly, these examinations may help to evoke the vascular nature of the lesion, and to exclude neoplastic tumors. Selective angiography could be proposed to establish the diagnosis with certainty, but because the spontaneous evolution of such aneurysm vein is unknown, and because there is a theoretical risk of haemorrhagic rupture and of thrombosis with pulmonary embolus, we think these aneurysms must be operated on. Our observation demonstrates that thrombosis is not only a theoretical risk. Fortunately, our patient did not have any sign of pulmonary embolus. When the diagnosis of aneurysm of the azygos vein is made preoperatively, it may represent a good indication for resection with video-assisted thoracoscopic technique.

References