Case report

Mediastinal paraganglioma irrigated by coronary vessels in a patient with an atypical chest pain

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Abstract

We present a case of non-functioning anterior mediastinal paraganglioma in a 61-year-old woman. The tumour was accidentally discovered on a coronary angiography performed in an atypical precordial pain and dyspnea. The coronary angiography showed a vascular tumour in the paraaortic localization irrigated from two branches of coronary arteries. Diagnosis was confirmed by a thoracic tomographic scan which revealed an anterior mediastinal tumour. Complete tumour resection was done through a sternotomy with extracorporeal circulation without cardiac arrest. The histological examination of the operative specimen was characteristic of paraganglioma.

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1. Introduction

Paragangliomas are tumours originated from the paraganglionar tissue deriving from stem cells of the neural crest. The sympathetic ganglia are connected by the sympathetic trunks and also the paraganglia are found throughout the body: in the adrenal medulla, along the aorta, in walls of blood vessels, and scattered through various organs such as the heart, prostate, and ovary [1].

Paragangliomas are generally slow-growth tumours and rarely develop into malignant ones [2]. These tumours are usually discovered as an asymptomatic mass in the third and fourth decades with a female predominance [3,4].

Paragangliomas can be divided in two groups:

1. Pheochromocytomas: tumours with catecholamine secretion. Almost 90% of pheochromocytomas occur in the adrenal glands. Extra-adrenal pheochromocytomas constitute less than 10% of all pheochromocytomas, and less than 2% occur in the chest. The life-threatening effects are primarily mediated through the hypersecretion of catecholamines.

2. Chemodectomas: tumours without catecholamine secretion. They have similar embryologic origin as pheochromocytomas and occur in the same sites; but while they do not cause hypercatecholaminemia, they can cause symptoms and signs through local pressure or invasion.

2. Case report

A previously healthy 61-year-old female presented a history of atypical precordial pain and low sensation of dyspnea during 1 month before. The physical examination was normal and preoperative laboratory values (blood and urine analysis, CK-MB, exercise test and ecocardiography) were unremarkable.

A coronary angiography was performed to study the atypical chest pain. The coronary angiography revealed the neoformation of multitudes of vessels, which arose from circumflex artery
branches and sinusal node of the right coronary artery. Multitude of vessels of both ascended branches were irrigating a mass with regular aspect situated on the anterior face of the ascending aorta and pulmonary artery (Fig. 1).

A thoracic topographic scan was performed showing an anterior mediastinal tumour, very good delimited, about $4 \times 2$ cm size, without infiltration of adjacent structures and with pericardial effusion. The tumour was localized in the anterolateral face of the ascending aorta and showed a well defining plane with it. This mass captioned intense intravenous contrast (Fig. 2).

With the diagnostic of the mediastinal mass with abnormal irrigation the patient was operated through a median sternotomy. An intra pericardial tumour was found localized in the anterior face of the ascending aorta and very good encapsulated. This tumour was irrigated by a numerous great vessels, which arose from aorta and coronary arteries corresponding to the angio- graphy imaging. A minimal pericardial effusion was found.

The important arterial irrigation forced the use of the extracorporeal circulation without the cardiac arrest to remove the tumour. No great venous drainage was identified. The definitive diagnosis was done by the histological evaluation, which revealed that the tumour was a paraganglioma. The postoperative period was uneventful and the patient was discharged on the 10th postoperative day.

3. Discussion

Anterior mediastinal paragangliomas are unusual tumours of extra-adrenal chromaffin tissue associated with the autonomic nervous system, usually very irrigated, and generally lie within or in close proximity to the thymus [5]. The elective treatment is the total surgical resection [6,7].

It is difficult to diagnose chemodectomas: they are not secreting tumours, and their clinical presentation is usually poor in symptoms, they often have an important irrigation and because of it a catastrophic haemorrhage can occur during the time of the operation. In our case the abnormal irrigation by the coronary arteries alerted us about the possibility of the very irrigated paraganglionar tumour. An extra corporeal circulation without cardiac arrest was necessary for the total resection of the tumour.

![Fig. 1. Coronariography is showing the neoformation vessels arisen from circumflex artery and right coronary artery.](image1)

![Fig. 2. TAC showing the tumour localized in the anterolateral face of the ascendant aorta and well defining plane with it.](image2)
References


