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CASE REPORT

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Cardiac paraganglioma: stent in right coronary artery prior to surgery resection

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Abstract

Cardiac paragangliomas are extremely rare. Sometimes surgical resection is a challenge owing to the proximity of vital structures and coronary arteries involvement. We report a case of a 34-year-old man with cardiac paragangliomas located between right atrium and right ventricle with a feeding blood supply from collaterals of the right coronary artery. In this case, we implanted a covered single stent (PK Papyrus®) in the right coronary artery with the objective of embolizing collateral branches and to reinforce the coronary artery wall. Although tumour mass was not reduced, vascularization was minimized, and this hybrid strategy made the surgery easier and safer.

Keywords: Cardiac paragangliomas • Embolization • Resection

INTRODUCTION

Extra-adrenal paragangliomas (PGLs) are neuroendocrine tumours usually developed in the abdomen (75%); only <2% of them are found in the chest, in which cardiac PGLs (CPGLs) are extremely rare [1]. Complete surgical resection is the gold standard for these tumours, but as PGL are highly vascularized tumours, the risk of intraoperative bleeding is high [2–3]. Thus, we present a case where a covered single stent (PK Papyrus®) was implanted in the right coronary artery prior to surgical resection.

CASE REPORT

A 34-year-old man was referred to our centre with a 2-year history of hypertension and headache without any other cardiovascular symptoms. Physical examination and blood test results were reported normal. F-dihydroxyphenyl-alanine positron emission tomography confirmed the diagnosis of CPGL. Chest computed tomography scan showed a mediastinal mass (4.5 cm × 3.2 cm × 4.2 cm) located between right atrium and right ventricle in contact with the aorta and the pulmonary artery (Fig. 1). Coronary angiography demonstrated a major feeding blood supply from collaterals of the right coronary artery (Fig. 2).

A covered single stent (PK Papyrus®) was implanted in the right coronary artery and then surgery was scheduled 1 month later to avoid the risks of double antiplatelet treatment.

An extremely vascularized dark purple mass with a white central scar was found (Fig. 2) in the atrioventricular groove. The mass protruded into the right ventricular wall and was densely adherent to the aorta and pulmonary artery, but it did not invade the pericardium. Arterial branches supplying the tumour were carefully identified and ligated. Feeling the stiff walls of the covered stent helped to easily identify the coronary artery, and, despite being heavily adhered to the right ventricle, no cardiac wall or coronary artery reconstruction was needed. Tumour was removed en bloc (Fig. 2), and the implantation zone invading the right ventricle muscle was resected and then sutured. Blood pressure remained stable during surgery.

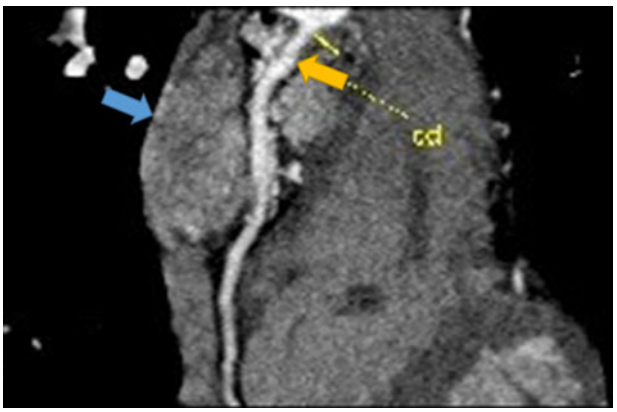

Figure 1: Chest CT-scan. Highly vascularized mass (blue arrow) receiving blood supply of branches of right coronary artery (yellow arrow). CT: computed tomography.

Postoperative course was uneventful, being discharged from the intensive care unit on 3rd postoperative day. Histological

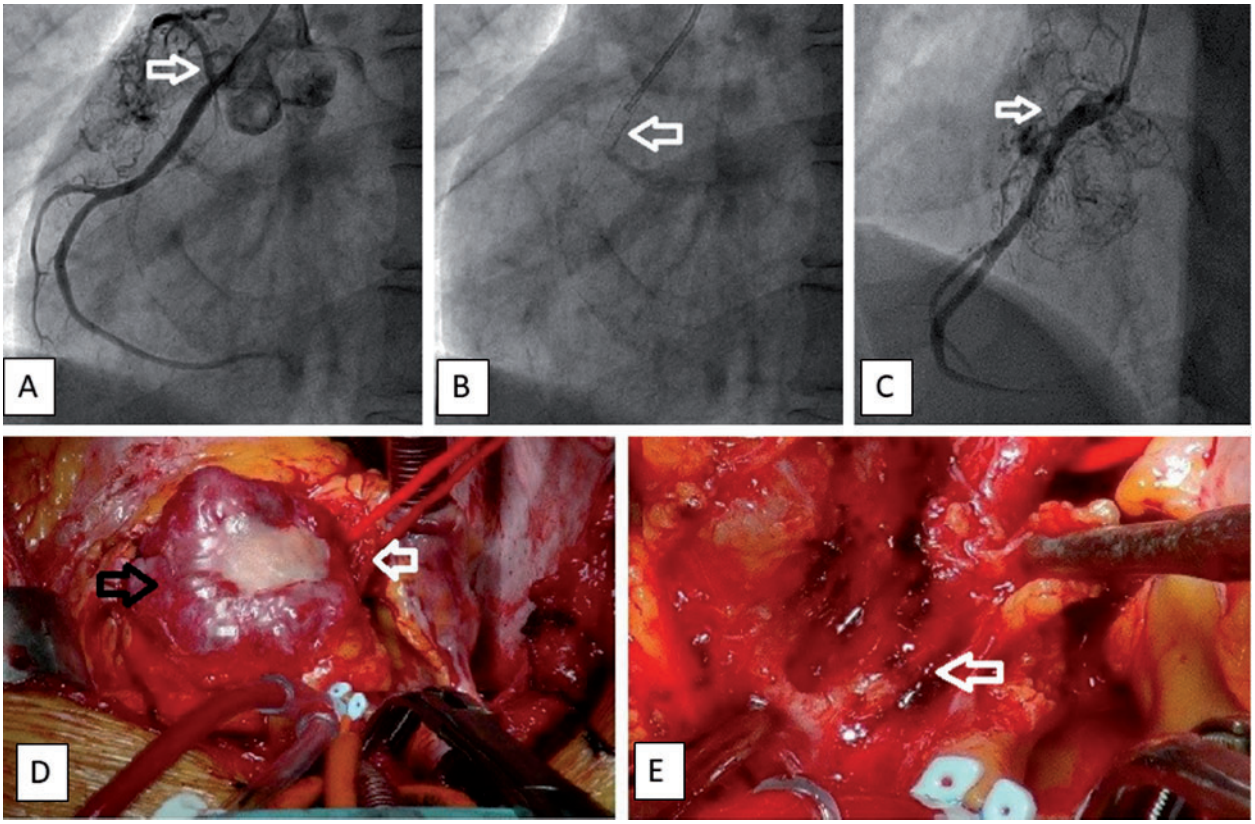

Figure 2: (A) Coronary angiography. Feeding blood supply from collaterals from the right coronary artery (white arrow). (B) Image taken after the implantation of a covered single stent (PK Papyrus®) in the right coronary artery (white arrow) occluding the collateral branches that fed the tumour, demonstrated by the absence of contrast in C (white arrow). (D) Intraoperative image of the mass (black arrow), its relationship with the right coronary artery (white arrow). (E) Intraoperative image after the resection of the mass.

examination confirmed the diagnosis and showed no malignant changes. The patient was discharged home on the 9th postoperative day. Chronic postoperative antiplatelet treatment with 100 mg of salicylic acid was maintained, but antihypertensive therapy was no longer necessary. Annual surveillance is being performed, with annual cardiac magnetic resonance and catecholamine urinary assay.

COMMENT

CPGLs are an uncommon subset of chromaffin cell tumours arising from neural crest cells. Because of their chromaffin cell origin, they can secrete catecholamines; however, not all CPGL are hormonally active [1–2]. Very few cases are reported in the literature, although CPGLs have been described in all the cardiac chambers, left atrial location is the most common [1–3].

The blood supply of CPGL depends on the coronary arteries. Around 58% receive blood from the right coronary artery, and 41% from the left circumflex coronary artery [1]. Preoperative embolization has proven to reduce the tumour size and the risk of intraoperative bleeding in PGL located in the neck and carotid body [4]. But very few papers have been reported in cardiac localization [5]. We implanted a covered single stent (PK Papyrus®) in the right coronary artery to occlude feeding branches and to reinforce the coronary artery wall as well. Although tumour size remained stable, the risk of right coronary artery damage during dissection was reduced, and thus, this strategy made the subsequent procedure easier and safer.

Consequently, we want to emphasize the importance of hybrid management in the treatment of CPGLs, especially in those located in areas where total resection is more difficult due to coronary arteries involvement.

Conflict of interest: none declared.

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