Primary melanoma of the heart: case report of an association with coronary stenosis

Abstract A 63-year-old man presented with unstable angina. The coronary angiogram revealed a proximal left anterior descending artery (LAD) stenosis and an irregularity on the anterior wall of the left ventricle. Intraoperatively, a malignant melanoma, independent of the coronary stenosis, was identified and resected, and an internal mammary graft was inserted. No primary tumor was found. The patient is alive 18 months after operation, with a normal magnetic resonance imaging (MRI), which seems to be the technique of choice for following-up heart melanomas.

Key words Melanoma - Tumor - Coronary mammary graft - Magnetic resonance imaging

Introduction

Cardiac tumors are uncommon, with an incidence of less than 0.03%, and among these, malignant tumors are exceptional, representing 31 of the 133 cases studied by Murphy [4]. Malignant melanoma has a tendency to metastase to the heart [3] and, to our knowledge, primary cardiac melanoma has never been reported. In this paper, one case of primary melanoma of the heart discovered during coronary bypass surgery is described. The preoperative diagnosis was difficult as coronary disease was associated with the tumor.

Case report

In August 1993, a 63-year-old man was admitted to our Institution for unstable angina pectoris. The patient had no history of prior ischemic disease. The chest was clear on auscultation, the heart rate was regular at 80 beats/min with a normal electrocardiogram. Physical examination showed high blood pressure (170/80 mmHg), and the chest roentgenogram a normal-sized heart and two lungs free of lesions. Biochemical investigations revealed dyslipidemia. A trans-thoracic echocardiogram showed normal ventricular function. A coronaryography (Fig. 1) revealed single vessel disease with a proximal stenosis on the left anterior descending artery (LAD) including the diagonal branch (LADD). The ejection fraction was 65% and no paradoxical contraction was observed on the ventriculography. Moreover, angiogram revealed a vascular density on an anterior wall area. To identify the latter, a thoracic computed tomographic scan (Fig. 2) was performed, which confirmed that the lesion was limited to the anterior wall of the left ventricle, but did not permit a specific diagnosis. Because of the unstable angina, surgery was performed. Intraoperatively, a nodular tumor with black pigmentation was observed on the anterior aspect of the heart. In this case, the tumor was resected and a sequential mammary graft LAD-LADD was inserted. Histological examination confirmed the diagnosis of malignant melanoma infiltrating the myocardium with fusiform cells, nuclear abnormalities and black pigment inside the cells or in the...
interstitium, which was also proved by immunological examination. The patient had no past history of melanoma and no primary tumor was found through complete investigations. Transesophageal echocardiography and magnetic resonance imaging (MRI) eliminated an intracardiac extension. The patient underwent chemotherapy with Deticene and cisplatin and was discharged from the hospital on the 28th day. At 24-month follow-up he was free of symptoms with a normal coronary angiography and a normal MRI.

**Discussion**

To our knowledge, no case of primary cardiac malignant melanoma has ever been reported. It is generally admitted [1, 3, 4] that this lesion is secondary to a primary tumor, the site of which is usually found either prior to or after cardiac surgery: back [1], chest [5], thigh [3]. In this report, no extracardiac primary melanoma was discovered before surgery or during follow-up despite complete screening, thus implying that this tumor of the heart was a primary lesion.

No other case of cardiac melanoma associated with coronary stenosis has been previously reported in the literature. As in our case, myocardial development is more frequent [1, 3] than an intracavitary [2] or epicardial [5] location. The walls of the large and small coronary arteries can be invaded by the tumor: in exceptional cases 2/70 in an autopsy study [3]. But no cardiac melanoma has been revealed by angina pectoris. In our case, the coronary disease was certainly atheromatous: the patient presented some cardiovascular risk factors (gender, high blood pressure, dyslipidemia, age) and the coronary stenosis was far away from the tumor. The angiography did not show coronary stenosis or parietal irregularities near the melanoma. Finally, although the resection was incomplete, the LAD artery itself remained free.

In this case of isolated tumor, the clinical diagnosis was impossible because the patient had no symptoms from his cardiac lesion, which was discovered incidentally on routine coronary angiography. In contrast to other reports [1, 2], transthoracic echocardiography could not identify the lesion. A thoracic computed tomographic scan showed the tumor, however without etiological diagnosis. Magnetic resonance imaging seems to be a specific method for diagnosing melanoma, because the melanine contained in these tumors is a ferromagnetic agent giving a more intense, brighter contrast, specific to melanoma [1, 2, 5]. Moreover, this technique is very important in identifying a relapse during the follow-up after resection. Because of the slow development of these tumors [3], resection could theoretically permit acceptable long-term survival in a patient with isolated melanoma, as our case.

**References**

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