Case report - Cardiac general

Video-assisted cardioscopy in a patient with left ventricular tumor of unknown etiology

Manfred Junemann-Ramirez1,2,*, Gemma Conn1, Andrew Marshall1, Adrian Marchbank1
1Department of Cardiothoracic Surgery, Southwest Cardiothoracic Centre, Plymouth, PL6 8DH, UK
2Department of Cardiology, Southwest Cardiothoracic Centre, Plymouth, PL6 8DH, UK

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1. Introduction

Intracardiac tumors are a rare clinical entity on which the mainstay of diagnosis relies on clinical history and imaging techniques. Malignant tumors very rarely justify surgical intervention and minimally invasive approaches are required in cases of uncertain diagnosis. The use of the videoscope via an aortic transvalvular approach appears ideally suited under these circumstances.

2. Case report

A 60-year-old male was admitted to a medical ward presenting with signs and symptoms of severe left ventricular failure. His chest X-ray on admission confirmed pulmonary edema. ECG showed a known right bundle branch block. Trans thoracic echocardiography showed a pedunculated large left ventricular mass 2.0×2.5 cm, originating from the free wall of the left ventricle, with globally impaired left ventricular function. Transoesophageal echo confirmed the mass in the left ventricle and suggested a further mass in the apex of the right ventricle of approximately 2 cm in diameter. Computed tomography and magnetic resonance imaging demonstrated both masses with no further abnormalities (Fig. 1 a,b). Four months previously he had been admitted on a surgical ward with an episode of acute right lower limb ischaemia which was treated conservatively. Five years previously he had been treated for acute promyelocytic leukaemia with chemotherapy within the AML 12 Protocol, including Anthracycline. A Hickman Line was inserted at that time without complication. A 10 mm 0 ° Storz® rigid thoracoscope was introduced through the aortic valve to visualise the cavity of the left ventricle. VATS instruments were used for exploration although they proved to be rather long in this situation. A 3×2 cm mass with a thin stalk attached to a trabeculum of the free wall was identified and transfixed facilitating the approximation of the mass close to the aortic valve (Fig. 2a). The mass was excised and a sample was sent for frozen section revealing no malignancy. The remainder of the left ventricular cavity was re-explored and no further lesion was identified. His postoperative recovery was uneventful.
Fig. 1. CT-Scan (a) and MRI (b) demonstrating tumor in the left and right ventricular cavity, respectively (arrows).

Pathological examination revealed a calcified thrombus. Microbiology was negative.

3. Discussion

Primary cardiac tumors are a rare clinical entity. The differential diagnosis includes thrombus, myxoma, lymphoma and sarcoma. The past medical history of this patient raised the possibility of the spread of lymphoma. No association between the chemotherapy received and primary cardiac tumors could be found in the literature. Only 25% of primary cardiac tumors are reported to be malignant. In a large postmortem series the overall incidence varies between 0.0017 and 0.03% [1]. Diagnosis relies on clinical history and imaging techniques and can be misleading [2]. Very rarely tissue diagnosis may be obtained by cardiac catheterisation. Survival rates for malignant cardiac tumors are uniformly poor regardless of treatment strategies which may include major surgery [3]. On the other hand the documented poor ventricular function of this patient could explain an increased risk of intraventricular thrombus formation. Severely impaired ventricular function due to cardiotoxicity of Anthracycline requiring cardiac transplant has been described [4]. A histologically confirmed diagnosis was therefore crucial for surgical decision making.

The use of video assisted cardioscopy has recently reported to be very useful in situations where minimally invasive approaches are required without compromising the quality of the intervention. This seems to be particularly useful in cases with uncertain diagnosis where the risks of a more invasive approach, such as ventriculotomy, might outweigh the possible benefits [5]. Patients with already impaired ventricular function may especially benefit from this approach. Video assisted cardioscopy has previously been used for a variety of cardiac surgical procedures including removal of primary left ventricular myxoma [6] and removal of left ventricular thrombus [7] where the benefits of this approach have been well described (for review see Reu-
thenbach et al. [8]). Further developments of this technique could include the use of a limited upper sternotomy as described for minimally invasive aortic valve replacement [9] and in effect no publication using this technique in conjunction with video assisted cardioscopy has been published to our knowledge. However, the authors experience in this approach was limited therefore precluding consideration of this potential route.

In conclusion this case report highlights the difficulties of reconciling the need of obtaining tissue diagnosis for appropriate decision making with the magnitude and potential complications of the diagnostic procedure itself. This is especially relevant in cases of potential malignant disease with limited prognosis. Further development of this technique will be dependent on centres with relevant expertise in this field.

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References