Online Case Report

Surgical excision of metastatic malignant melanoma involving the tricuspid valve

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An 83-year-old man presented with a large intracavitary metastatic malignant melanoma, infiltrating the anterior leaflet of the tricuspid valve. The tumour was excised completely along with the anterior leaflet of the tricuspid valve which was replaced. The patient was well 2 months after surgery.

Keywords: Metastatic melanoma – tricuspid valve

Malignant melanoma is unique in terms of its high incidence of metastases to the heart, ranging from 50–71% in autopsy studies. The high incidence of cardiac melanomas is largely a manifestation of the tumour's propensity to metastasise widely before causing death. Malignant melanoma can involve any and all chambers of the heart. Isolated metastases can occur; however, more commonly, the metastases are extensive with pericardial, myocardial and endocardial involvement. Pure endocardial involvement and valvular involvement is rare. Melanoma is more likely to be present in the right heart chambers.¹

Once cardiac metastases from melanoma are identified, the patient usually has widely disseminated disease and rarely is treatable with operation.¹

We recently resected a large intracardiac metastatic malignant melanoma, straddling the tricuspid valve, along with tricuspid valve replacement and coronary bypass grafting. This is the first report describing a metastatic melanoma infiltrating the tricuspid valve with successful surgical excision.

Case report

An 83-year-old man was detected to have a systolic murmur during routine check-up. Previously, he had undergone excision of a right shoulder malignant melanoma lesion (Clark level 4), 9 years previously, and

Figure 1 Tumour as seen from the right atrium.

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Figure 2 Attachment of the anterior tricuspid leaflet to the dumb-bell-shaped tumour.

excision of a locally recurrent tumour in the scar of the previous site, down to the muscle fascia level 2 years previously. A cardiac echo performed revealed a pedunculated, lobulated mass in the right ventricle adjacent to the tricuspid valve.

A pre-operative CT and PET scan revealed metastatic disease in the para-aortic lymph nodes, right lung, retroperitoneal nodes and right pararenal metastases.

Despite the wide-spread metastasis, considering the long history of the disease and the patient's anticipated extended survival with adjuvant chemotherapy, it was decided to excise the large intracardiac tumour.

A standard median sternotomy was performed. The external appearance of the heart was unremarkable. A standard cardiopulmonary bypass with aortobicaval cannulation was established. On administration of the cardioplegia, the silhouette of the tumour was obvious in the region of the tricuspid valve.

On right atriotomy, a large melanotic dumb-bell shaped mass, 3 cm x 2 cm on the atrial side and a larger 5 cm x 3 cm lobulated mass (Fig. 1) sitting adjacent to and infiltrating the anterior leaflet of the tricuspid valve (Fig. 2) was found. The anterior tricuspid leaflet was excised, the tumour dissected free from the ventricular wall and the junction with the septal leaflet, where it was infiltrating the atrioventricular nodal area. The tricuspid valve was replaced. Cardiectomy closure and de-airing was followed by a gradual wean off bypass in a paced ventricular rhythm.

Following surgery, he required a dual chamber pacemaker. The remaining postoperative course was uneventful, and he was discharged on the 8th postoperative day.

Histological examination of the mass revealed epitheloid malignant cells with abundant melanin pigment, suggesting the diagnosis of an intracardiac metastasis of a malignant melanoma.

On follow-up 8 weeks' postoperatively, he was asymptomatic with a normal chest X-ray and a paced rhythm.

Discussion

Malignant melanoma has a high incidence of metastases to the heart with frequencies ranging from 50–71%.¹ Malignant melanoma can involve any and all chambers of the heart. Isolated metastases can occur; however, more commonly, the metastases are extensive with pericardial, myocardial and endocardial involvement. Pure endocardial involvement is rare.³ Melanoma is more likely to be present in the right heart chambers.¹

Reports of cardiac metastases have been increasing because of better methods of treating primary tumours and improved survival.¹

There have been a few reports of successful complete and palliative resection of intracardiac metastatic melanomas, from right atrium, right ventricle and the left atrium;^{1–5} however, there has been no previous report describing infiltrative metastases to the tricuspid valve with subsequent successful surgical excision.

The infiltration of the anterior tricuspid leaflet necessitated the replacement of the tricuspid valve. Considering the age of the patient, freedom from long-term anticoagulation and the low incidence of valve thrombosis, a bioprosthesis was used.

The proximity of the tumour to the antero-septal commissure further increased the risk to the conduction bundle.

With the use of modern, non-invasive, diagnostic techniques, intracardiac metastatic melanomas are now more readily diagnosed.^{1,3} With better anticipated survival with chemotherapy, more such patients will present for surgical resection in the future. With better results with chemotherapy, despite wide-spread metastasis, surgical cure should be offered to all suitable cases.

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