

## Left ventricular myxoma

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Only two patients with a left ventricular myxoma have so far been operated upon. The first was a 32-year-old woman who had had four successful embolectomies in the region of the aortic bifurcation. A closed operation for presumed mitral stenosis was then performed when the diagnosis of a left intraventricular tumour was made. This tumour was removed through a left ventriculotomy and the patient recovered (Kay, Anderson, Meihaus, Lewis, Magidson, Bernstein, and Griffith, 1959). The second patient who was operated upon was a 14-year-old girl with a systolic heart murmur and a peak systolic gradient of 52 mm. Hg across the aortic valve at rest. At cineangiography an oval tumour mass was detected in the left ventricular chamber. This moved freely during the cardiac cycle and impinged upon the aortic valve during systole. During diastole the tumour fell back approximately 2 cm. Through an extensive left atriotomy, with detachment along the annulus of the anterior mitral leaflet, a tumour was approached and excised. The access and visibility in the left ventricle were poor. The patient died eight days after operation due to disruption of the suture line in the mitral valve. At necropsy a residual tumour, measuring 2 by 3 mm., was found, and in addition there were two other small polyps 1–2 mm. in size arising from the undersurface of the mitral valve and the chordae tendineae (Thomas, Edmark, Jones, and Eyer, 1963).

Two further cases of left ventricular myxoma discovered at necropsy have been reported; one was a 10-year-old girl who died from embolism to both renal arteries. In this patient five long polypoid myxomatous masses arose near the posterior papillary muscle, the chordae tendineae, and the ventricular apex. The other reported case was a 45-year-old woman who died from a coronary artery thrombosis with a small left ventricular myxoma as an incidental necropsy finding. During the same period at least 230 reports of left atrial myxoma have been accumulated in the literature. Since only one successful

case of left ventricular myxoma has been reported, it may be justifiable to report another in which the tumour was successfully removed through the aorta.

### CASE REPORT

A 52-year-old woman with five years' history of pain over the heart and dyspnoea on exertion had sudden attacks of pain over the heart and dyspnoea lasting for 15 to 20 minutes. After two years of heart symptoms the patient had an embolus to the aortic bifurcation. Aortography showed complete occlusion of the abdominal aorta. Embolectomy was immediately performed. Microscopy of the embolus revealed a myxoma. The patient was then referred for pulmonary artery angiocardiology, but no tumour in the left side of the heart was diagnosed. Two years later the heart symptoms continued but were not so pronounced as before the embolic episode. Further angiocardiology from the pulmonary artery clearly demonstrated a 1 by 1 cm. tumour in the left ventricle 2 to 3 cm. below the aortic valvular plane. The tumour was located immediately above the anterior papillary muscle and moved with the heart contractions. Left ventricular angiography and cineangiography verified the diagnosis with the tumour most clearly seen during early systole (Fig. 1a). Reviews of the angiograms obtained two years earlier revealed that the left ventricular tumour was in fact present at that time. Surgery was advised and performed through a median sternotomy and transverse aortotomy. During 48 minutes' perfusion, the aorta was occluded for 33 minutes; the left coronary artery perfusion was performed for 17 minutes with an oesophageal temperature of 31° C. On top of the anterior papillary muscle there was a myxoma of 1.5 cm. diameter. Removal was rather difficult as friable tumour prolongations were found between the chordae tendineae (Figs 2 and 3). The part of the tumour lying between the chordae tendineae was removed piece by piece. The base of the tumour with the top of the papillary muscle was removed *en bloc* without injury to the chordae tendineae. The heart took over the circulation well after termination of the perfusion and no mitral insufficiency could be palpated and no remnants of the myxoma either in the left atrium or

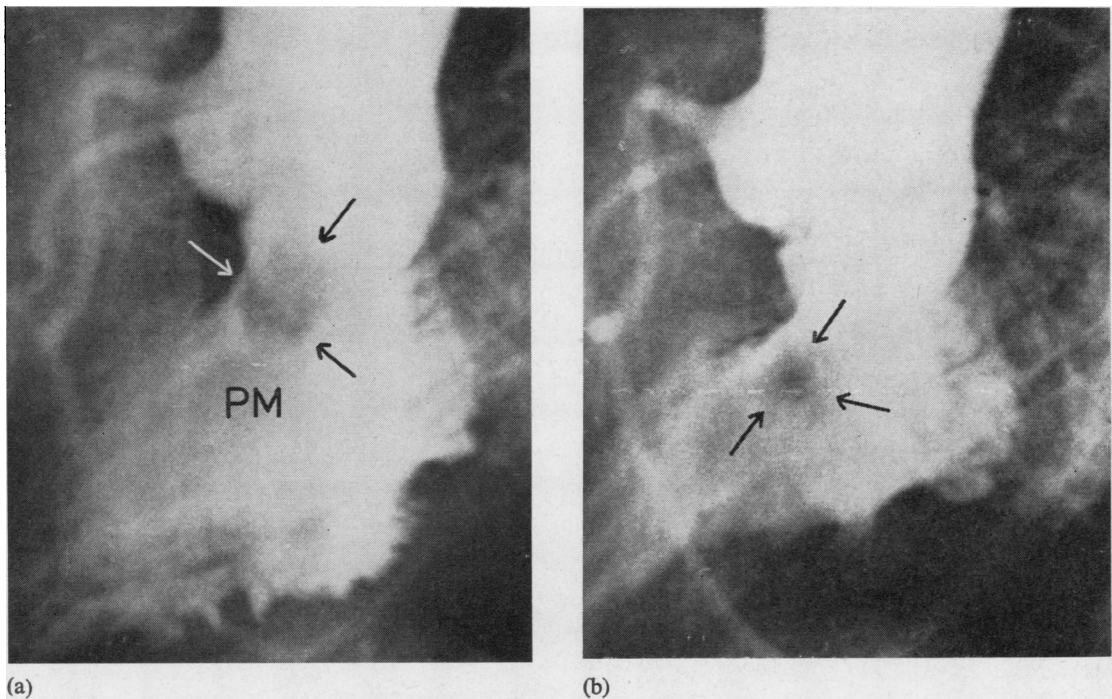


FIG. 1. *Left ventricular angiocardiology, lateral view. Tumour in left ventricle (arrows) immediately above and moving with the anterior papillary muscle (PM); (a) early systole; (b) end-systole.*

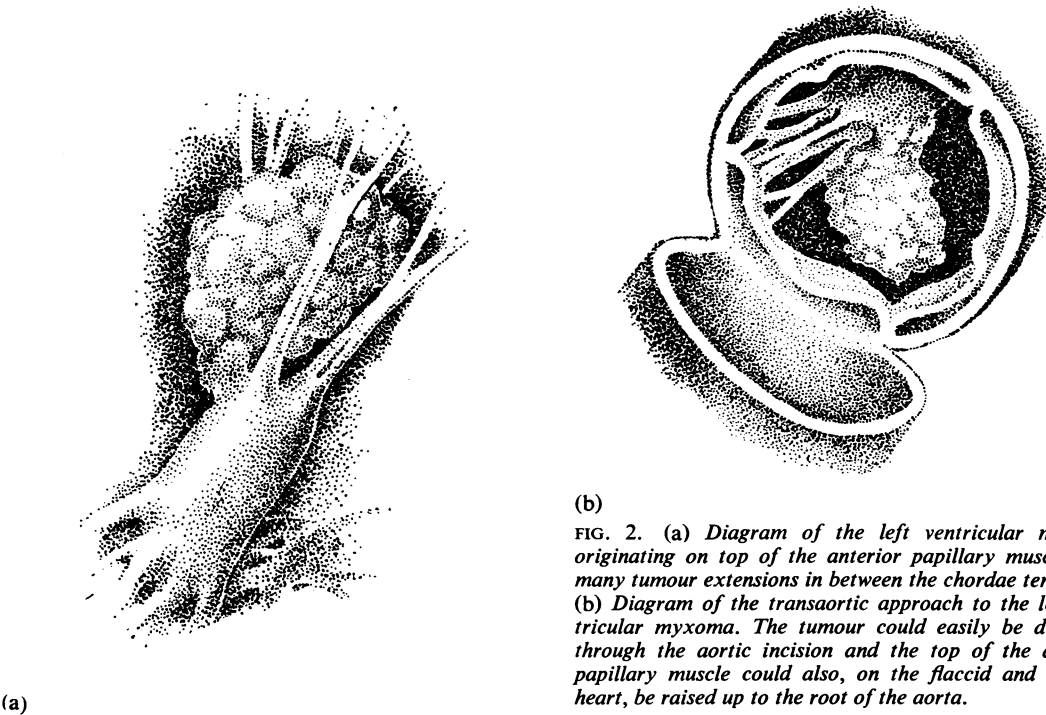


FIG. 2. (a) *Diagram of the left ventricular myxoma originating on top of the anterior papillary muscle with many tumour extensions in between the chordae tendineae.* (b) *Diagram of the transaortic approach to the left ventricular myxoma. The tumour could easily be delivered through the aortic incision and the top of the anterior papillary muscle could also, on the flaccid and relaxed heart, be raised up to the root of the aorta.*



FIG. 3. Photograph at operation. A forceps retracts the tumour out through the aortotomy incision. The top of the anterior papillary muscle with the chordae tendineae can easily be seen through the aortotomy incision.

in the left ventricle were felt. Pathological investigation showed an endocardial myxoma on fragments of heart muscle with normal endocardium. Five days after operation a mediastinal haematoma necessitated a further thoracotomy and evacuation of the haematoma, but the origin of the bleeding could not be found. A haematoma in the incision that had been used to expose the iliac artery had to be evacuated. The patient needed post-operative respirator treatment for 15 days and recovered.

#### DISCUSSION

For suspected cases of intracardiac myxoma we have preferred to use angiocardigraphy with contrast injection into the pulmonary artery. Injection into the left atrium has been avoided since the transeptal catheter may dislodge embolic material from myxomata that usually originate from the interatrial septum if they arise in the atrium. In a case of left ventricular myxoma, retrograde left ventriculography with the use of either cineangiographic or conventional biplane filming techniques would be the procedure of choice. Our patient had an embolus into the

aortic bifurcation, and the diagnosis was obtained by histological investigation of the embolus after removal. The patient's symptoms with attacks of pain and dyspnoea must be ascribed to partial outflow obstruction of the left ventricle caused by the tumour itself. The patient stated that the symptoms were less pronounced after the embolic episode, and at the time of reinvestigation only a faint systolic murmur could be heard over the base of the heart.

There are three different approaches to the left ventricle that could be discussed, and in the three patients who have so far undergone operation each surgeon has used a different approach. First the transatrial approach with detachment of the anterior mitral leaflet along the annulus is not advisable, as pointed out by Thomas *et al.* (1963). Post-operative valve detachment is very different from that of the tricuspid valves in cases of ventricular septal defects or tetralogy of Fallot because in these cases the jet of blood shunted through the defect causes the septal tricuspid leaflet to become thick and fibrous so that it holds the sutures well. In contrast, the thin normal delicate mitral valve may not hold sutures. Kay *et al.* (1959) preferred left ventriculotomy. From our own experience with cases of obstructive cardiomyopathies in which, having tried both, we consider the aortic preferable to the left ventricular approach, the aortic approach was chosen and provided an adequate exposure in this case. If the tumour had been situated closer to the apex of the heart left ventriculotomy would have been preferred. The multicentricity of tumour origin reported in two cases may, from a technical standpoint, speak in favour of a left ventriculotomy.

In our case the tumour was situated only 2 to 3 cm. below the aortic valves and an adequate exposure could be obtained through the aorta. In order to obtain the same wide exposure of the upper portion of the left ventricle and the chordae tendineae and papillary muscles a rather big left ventriculotomy would have been needed.

#### SUMMARY

A myxoma of the left ventricle with pre-operative diagnosis is reported; the operative procedure was carried out through an aortotomy.

#### REFERENCES

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