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Brief Report

Bi-auricular myxoma associated with atrioventricular dissociation in an 18-year-old boy: a case report

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Abstract Primary cardiac tumours are rarely found and have an incidence of 0.3% in all open-heart surgeries. Among those, approximately 70% are myxomas, most of them in the left atrium. The reported incidence of cardiac tumours in autopsy series is 0.001–0.28%. Right atrial myxomas are uncommon, but when present they often originate from the interatrial septum, and conduction disturbances are rarely noted as an accompanying feature in this condition. We report the case of an 18-year-old boy with a myxoma in both left and right atrium associated with atrioventricular dissociation.

Keywords: Left atrium; myxoma; male

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Intracardiac masses include primary and metastatic tumours, as well as cysts and thrombi.[1,2] Primary tumours have a frequency of 0.001–0.28% in post-mortem studies, of which 75% are benign and 50% are myxomas. Myxomas are seen in all age groups, but most often during the third and sixth decades of life.[3] Some can become quite large, resulting in compression of cardiac chambers or vital structures such as conduction tissue or coronary vasculature, as well as obstruction of cardiac valves and outflow tracts. Right atrial myxomas are uncommon, but when present they often originate from the interatrial septum, and conduction disturbances – mainly tachyarrhythmias and atrioventricular block of first degree – are noted as an accompanying feature.[4,5] We report a myxoma in both left and right atrium associated with an atrioventricular dissociation in an 18-year-old boy.

Case report

An 18-year-old boy presented to his primary medical doctor with gradually increasing dyspnoea on exertion, worsening lower limb oedema and orthopnoea.

On physical examination, the patient had gallop rhythm, systolic murmur grade 3/6 heard at the apex, a diastolic murmur grade 2/6 at the mitral valve area, liver at plus 2 centimetres under the costal arch, and lower limbs with mild pitting oedema.

The electrocardiogram (Fig 1a) showed an atrioventricular dissociation with an accelerated junctional rhythm. On the bidimensional transthoracic echocardiogram, in the four-chamber view, two atrial masses were seen: a large pedunculated mass (30 millimetres × 42 millimetres) attached to the atrial septum in the region of the fossa ovalis, protruding in the left ventricle during diastole (Fig 1b), and another in the right atrium (45 millimetres × 55 millimetres), very mobile (Fig 1c), protruding in the right ventricle during diastole, causing moderate tricuspid stenosis. The myxoma in the right atrium was attached to the lower part of the interatrial septum. The right atrium and the right ventricle were dilated. The colour Doppler showed a mild mitral valve regurgitation. The left ventricle was not dilated, with good systolic function, and no pericardial effusion. The chest X-ray showed a mild cardiomegaly.

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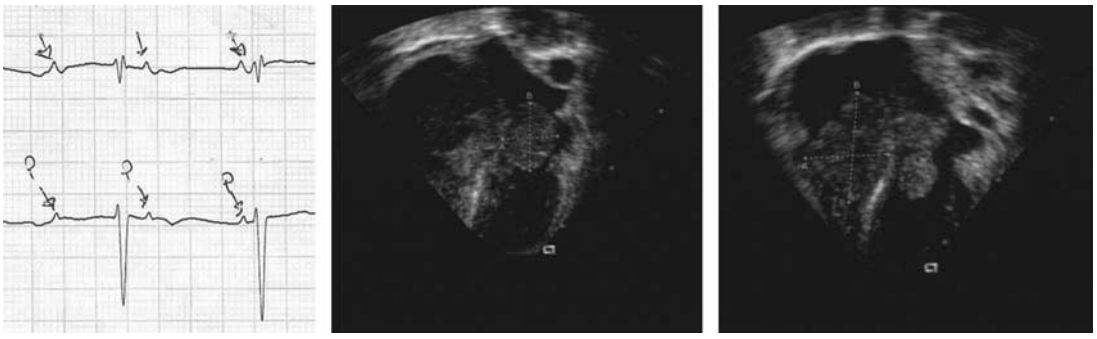

Figure 1.
The electrocardiogram of the patient showing an atrio–ventricular dissociation. The left and right atrial myxomas and in the middle image and the left extreme image, respectively.

Pertinent laboratory findings were mild leukocytosis, mild elevated erythrocyte sedimentation rate, and normal room arterial blood gas.

The indication in this case was the immediate surgical resection of the masses. The patient was prescribed furosemide, 20 milligrams, twice a day, spironolactone, 25 milligrams, once a day with a good evolution. While waiting for the next surgical mission in our institution, the patient had a cardiac arrest and died 2 weeks after admission.

Discussion

Myxomas are the most common cardiac tumours in the adult population. They are believed to be derived from the mesenchymal cell precursors. They form intracavitary masses predominantly in the left atrium attached to the fossa ovalis. In children, they are also common in the right atrium. The bi-auricular localisation of the tumours is rare in the general population.[6–8] The symptoms and physical signs are diverse, and echocardiography has proved a sensitive method for their detection. Various electrocardiographic findings have been reported. Paroxysmal or sustained supraventricular arrhythmias occur infrequently and are presumably due to mechanical irritation by the tumour. Evidence of right atrial hypertrophy is not uncommon, but features of right ventricular hypertrophy are unusual.[9] Myers et al[10] reported ventricular tachycardia and sudden death in children with intracardiac masses. The atrioventricular node lies in the lowest part of the right atrium, anterior to the ostium of the coronary sinus, and directly behind the attachment of the septal leaflet of the tricuspid valve. In our patient, the myxoma arose at this site, suggesting possible mechanical effects on the underlying conduction tissue or on its artery by vigorous movements of this large prolapsing tumour mass. Alternatively, marked pressure indentation/distortion of the interventricular septum by the prolapsing tumour may also be responsible for the slowing in atrioventricular conduction, and in our case for the atrioventricular dissociation.[11] As soon as an intracardiac mass is diagnosed, surgical intervention is essential, as the clinical picture may deteriorate rapidly to early sudden death. In our case, the absence of immediate surgical intervention led to the death of the patient. The treatment of choice is surgical resection, and the tumour should be resected together with a margin of tissue, to avoid recurrence. The deficit is closed primarily – as in our cases of myxoma – or using a pericardial or prosthetic patch – as in our patient with angiosarcoma. All intracardiac masses are potentially fatal and should be completely resected using proper protection techniques. Surgical treatment should be directed towards the elimination of mechanical obstruction and any other complication.[12]

Conclusion

This report suggests that large myxomas originating low in the right atrium close to the atrioventricular node can affect electrical conduction. Immediate surgical treatment should be directed towards the elimination of mechanical obstruction and other complications, which is a challenge in an African context marked by financial limitation and lack of human resources.

References

1. Kirklin JW, Barrat-Boyes BG. Cardiac tumor. In: Kirklin JW, Barrat-Boyes BG (ed.). Cardiac Surgery. Churchill Livingstone, New York, 1993: 1635–1642.
2. Bortolotti U, Maraglino G, Rubino M, et al. Surgical excision of intracardiac myxomas: a 20-year follow-up. Ann Thorac Surg 1990; 49: 449–453.
3. Taşdemir K, Emiroğullari ÖN, Ceyran H, et al. Intracardiac masses case study. Asian Cardiovasc Thorac Ann 2000; 8: 378–388.
4. Ojji DB, Ajiduku SS, Omonua OO, et al. A probable right atrial myxoma prolapsing through the tricuspid valve into the right ventricle: a case report. Cases J 2008; 1: 386.
5. Roberts DH, Ramsdale DR. First degree atrioventricular block associated with right atrial myxoma. Postgrad Med J 1990; 66: 140–141.

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6. Kuroczyński W, Peivandi AA, Ewald P, et al. Cardiac myxomas: short- and long-term follow-up. Cardiol J 2009; 16: 447–454.
7. Bateman TM, Gray RJ, Raymond MJ, et al. Arrhythmias and conduction disturbances following cardiac operation for the removal of left atrial myxomas. J Thorac Cardiovasc Surg 1983; 86: 601–678.
8. DePace NL, Soulen RL, Kotler MN, et al. Two dimensional echocardiographic detection of intraatrial masses. Am J Cardiol 1981; 48: 954–960.
9. Pinede L, Duhaut P, Loire R. Clinical presentation of left atrial cardiac myxoma. A series of 112 consecutive cases. Medicine (Baltimore) 2001; 80: 159–172.
10. Myers KA, Wong KK, Tipple M, Sanatani S. Benign cardiac tumours, malignant arrhythmias. Can J Cardiol 2010; 26: E58–E61.
11. Colucci WS, Braunwald E. Primary tumours of the heart. In: Braunwald E (ed.) Heart Disease: a Textbook of Cardiovascular Medicine. W.B. Saunders, Philadelphia, 1980, p 1501.
12. Al-Mateen M, Hood M, Trippel D, et al. Cerebral embolism from atrial myxoma in pediatric patients. Pediatrics 2003; 112: 162–167.