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Short reports

Radionuclide angiography in the diagnosis of congenital intrapericardial aneurysm of the left atrial appendage

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The purpose of this communication is to emphasise the usefulness of radionuclide angiography in the diagnosis of a rare congenital anomaly of the left atrium which until recently could be detected only by contrast angiography or surgical exploration.

Case report

A healthy looking 34-year-old man was admitted to the coronary care unit with a three-month history of palpitations and dizziness. Physical examination did not reveal any abnormalities except a tachycardia of 190/min which on electrocardiography was shown to be atrial fibrillation. The patient had had similar attacks in the recent past. In the absence of any obvious cause for the arrhythmia, a single synchronised DC shock was applied with successful restoration of sinus activity. Auscultation at the lower heart rate was completely normal. The electrocardiogram in sinus rhythm showed broad, biphasic P waves in lead V1.

A postero-anterior chest radiograph showed an abnormal left heart contour compatible with a pathological process in the region of the left atrial appendage. On fluoroscopy the mass did not pulsate.

Despite a strong clinical suspicion of intracardiac disease in the region of the pulmonary artery or the left atrium, echocardiography was completely normal. Laboratory investigations including tests for thyroid function were also normal.

Sequential nuclide first pass scintiscanning was carried out using 15 mCi 99^{m} Tc as pertechnetate injected as a bolus into a peripheral vein. Thirty sequential pictures of one second duration each were filmed in the left anterior oblique position (fig 1). A highly concentrated and persistent activity was observed at the level of the left atrial appendage. Pulmonary angiography confirmed the presence of a left atrial appendage aneurysm (fig 2) during the left heart phase of the circulating contrast agent. Three weeks after admission the heart was exposed by left lateral thoracotomy. The pericardium was intact. A $6\times6\times3{\cdot}5$ cm aneurysm of the appendage communicating with the left atrial cavity by a thin neck (fig 3) was excised. There was no thrombus in the sac. Microscopy revealed that the walls were composed of dense fibrous tissue; at the neck, however, normal muscle fibres were seen. The postoperative course was uneventful. During the follow-up period of over six months the

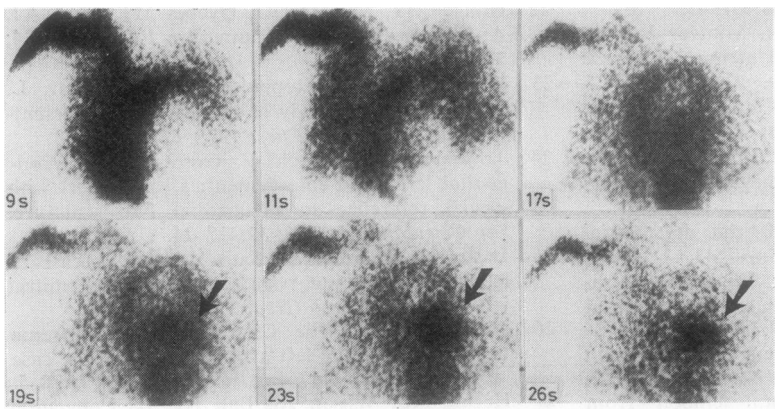

Fig 1 *Arrows point to the concentrated activity in the region of left atrial appendage.*

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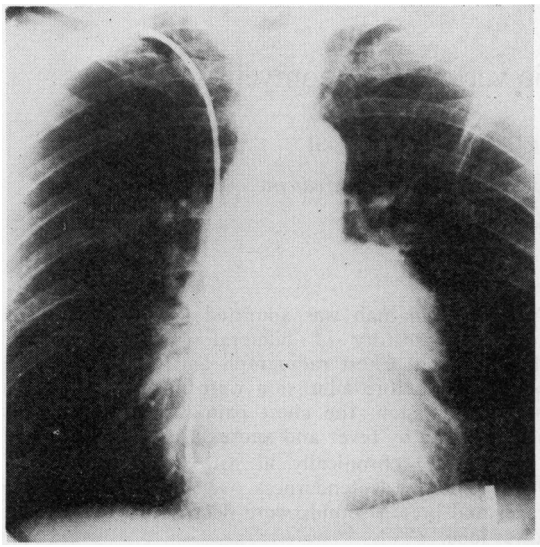

Fig 2 *Pulmonary angiogram during left heart phase showing abnormal dilatation of the left atrial appendage.*

patient has remained symptom-free and is back at fulltime work.

Discussion

Intrapericardial aneurysmal dilatation of the left atrial appendage is one of the rarest congenital malformations of which we believe ours is the twentieth reported case.[1 2] Most of the cases present with recurrent supraventricular arrhythmias, as did our patient, and/or complications arising from peripheral arterial embolisation. The abnormal chest radiograph, a strong clinical suspicion combined with contrast angiography or surgical exploration or both has usually clinched the diagnosis.

Attempts at visualisation of the aneurysm with radioisotope material were first made by Godwin *et al.*[3] A precordial scan with I^{131}-labelled albumin indicated the mass to be intracardiac in origin. Systematic study with sequential imaging was carried out by Krueger *et al*[4] and more recently by McClelland.[2] These recent studies demonstrated that radionuclide angiography provided information which compares favourably with that obtained on contrast angiography. Our own observations have confirmed this. The aneurysm was likewise adequately visualised on scintiscanning.

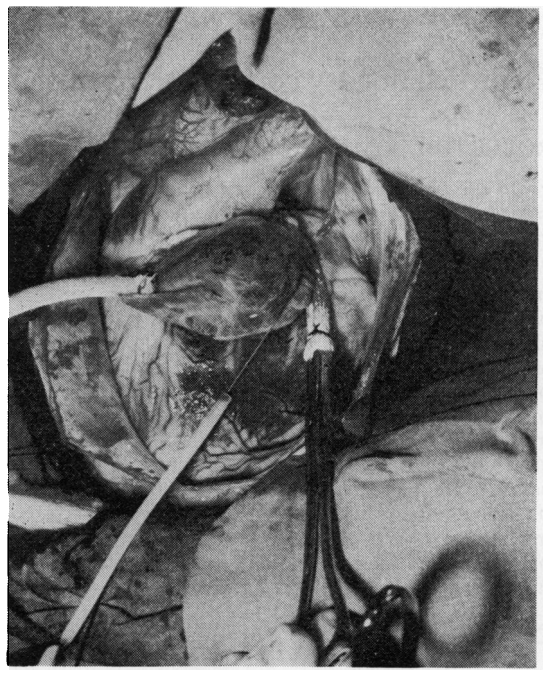

Fig 3 *Left atrial appendage aneurysm seen at operation. The "neck" of the aneurysm is clamped.*

Surgical excision of the aneurysm is advised, because the patients are usually cured of the supraventricular arrhythmias after operation.[1 5] Removal of the aneurysm may also lessen the risk of systemic emboli.

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