Coincidence of true and false left ventricular aneurysms after myocardial infarction

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SUMMARY False aneurysm of the left ventricle is a rare complication of myocardial infarction. In this case cross sectional echocardiography demonstrated the presence of both true and false left ventricular aneurysms. This was confirmed at operation when both aneurysms were successfully resected.

A false aneurysm or pseudoaneurysm is a contained myocardial rupture, its wall being lined by pericardium and mural thrombus.¹ It is a rare complication of myocardial infarction.² In contrast with true ventricular aneurysm it has a tendency to rupture and therefore requires operation.³

Previous reports have demonstrated the value of cross sectional echocardiography in distinguishing true aneurysms from false aneurysms.⁴ True and false aneurysms rarely coexist and when they do the diagnosis may not be apparent. We report on a case that was diagnosed before operation.

Case report

A 70 year old man sustained an anterolateral myocardial infarction in May 1984. He made an uneventful recovery and was discharged well. He was readmitted two months later complaining of a deterioration in his breathing over the previous 48 hours. He had also noticed a pleuritic retrosternal chest pain. On examination he was in left ventricular failure with a sinus tachycardia of 120 beats per minute, blood pressure 110/70 mm Hg, and bilateral basal crepitations. His apical impulse was dyskinetic and displaced laterally and inferiorly.

His electrocardiogram showed ST segment elevation in leads V2 to V6, which was similar to the pattern seen when he was discharged from hospital. A chest radiograph showed pulmonary oedema, and a new shelf on the left border of the heart shadow consistent with a ventricular aneurysm. Pulmonary oedema responded to diuretics.

Echocardiography showed a large aneurysmal region at the apex of the left ventricle (fig 1). There appeared to be a "septum" separating the most apical part of the aneurysm from the left ventricle. This "septum" moved towards the body of the left ventricle in systole, suggesting that the distal segment was expanding. No connection could be identified between this cavity and the rest of the left ventricle and it was taken to represent a false aneurysm.

Angiography demonstrated a connection between the left ventricle and the apical chamber as well as a true left ventricular aneurysm. At operation the

Fig 1 Cross sectional echocardiogram in the apical four-chamber view showing the following structures: false aneurysm (FA), left ventricle (LV), and true aneurysm (TA).

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Fig 2 Diagrammatic representation of the intraoperative findings. LV, left ventricle; RV, right ventricle; TA, true aneurysm; FA, false aneurysm.

findings were confirmed. There was an apical true left ventricular aneurysm with a false aneurysm separated by a thin membrane (fig 2). Both aneurysms were resected. Six months after operation he was symptom free with normal exercise tolerance.

Discussion

A false aneurysm of the left ventricle is rare. It most commonly follows myocardial infarction but may also occur as a sequel to cardiac operation, trauma, or endocarditis.² It is a contained myocardial rupture and its walls consist of pericardium and thrombus. The complications of false aneurysm are similar to those of true aneurysm except for the important fact that they tend to rupture.⁵ Therefore, false aneurysm should be treated by early operation irrespective of the patient's symptoms.

True and false aneurysms may be distinguished by echocardiographic⁶ and angiographic findings.⁷ Cross sectional echocardiography is now established as a reliable method of demonstrating the major distinguishing feature of a false aneurysm—a neck that is narrower than the fundus of the aneurysm.⁴

In our case the false aneurysm was superimposed on a true aneurysm—a rare combination. The diag-

nosis was suspected principally because of the most unusual mobile band that separated the distal part of the left ventricle from the body of the ventricle. This could not be explained as a true aneurysm and no orifice could be seen despite a careful search in several views. At operation the thin septum proved to be thin infarcted myocardium and a small orifice was found. We have been unable to find similar descriptions of these distinctive echocardiographic findings, which presumably resulted from the development of a false aneurysm through the wall of a true aneurysm, the thin band being part of the original wall of the true aneurysm.

We thank Mr Graham Leech for his comments on the echocardiogram.

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