Giant apical aneurysm without coronary artery disease

Stéphane Chevallier, Jean-Christophe Stauffer

Cardiology Service, Hôpital Cantonal de Fribourg, Switzerland

A 66-year-old patient with some years' history of apical hypertrophic cardiomyopathy treated by beta-blockers attended for follow-up echocardiography. This revealed a giant apical aneurysm as shown in figure 1A. The obstruction is still visible at the aneurysm outflow, as shown by the aliasing in colour Doppler (arrow, fig. 1B). A significant gradient is present in pulsed waved Doppler (fig. 2). Coronary angiography showed no significant coronary lesion (fig. 3). The ventriculogram confirmed the aneurysm and the obstruction at mid-ventricular level (arrow, fig. 4). The patient died from a non-cardiac cause (lung cancer) two years later.

Apical aneurysm in hypertrophic cardiomyopathy is not a rare finding, and many cases have been reported. It is known that the disease is frequently missed by echocardiography with 57% sensitivity [1]. Magnetic resonance is a good alternative means of diagnosing apical hypertrophy [2] and assessing the presence of apical aneurysm (more commonly found than previously thought [3]). This finding is apparently associated with a poor prognosis and a high rate of sudden death, embolic stroke and heart failure [1, 4].

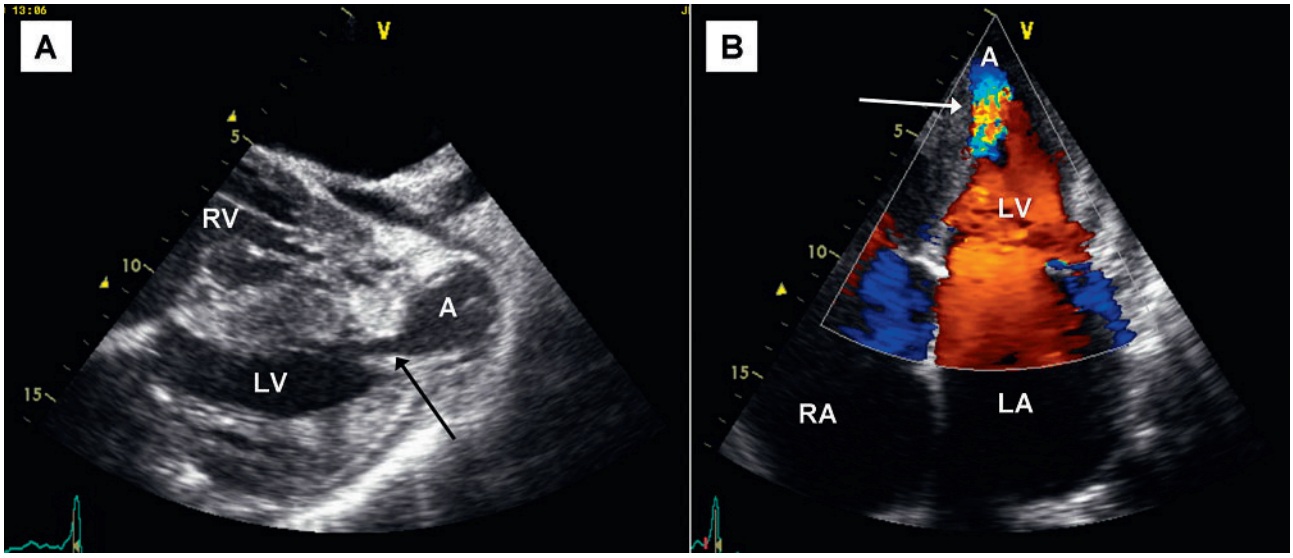
The exact mechanism of aneurysm formation is still unclear, but there is evidence to suggest a high

Figure 1

A Sub-costal view. Arrow shows the aneurysm neck.

B Apical four chambers view with colour Doppler. Arrow shows the aliasing at the neck of the aneurysm.

RA = Right atrium; RV = right ventricle; LA = Left atrium; LV = left ventricle; A = aneurysm.



Correspondence:
Prof Jean-Christophe Stauffer
Service de cardiologie
Hôpital Cantonal de Fribourg
CH-1708 Fribourg
staufferjc@h-fr.ch

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Figure 2
Pulse waved Doppler at the level of the aneurysm neck. A premature ventricular beat causes a rise in the obstruction.

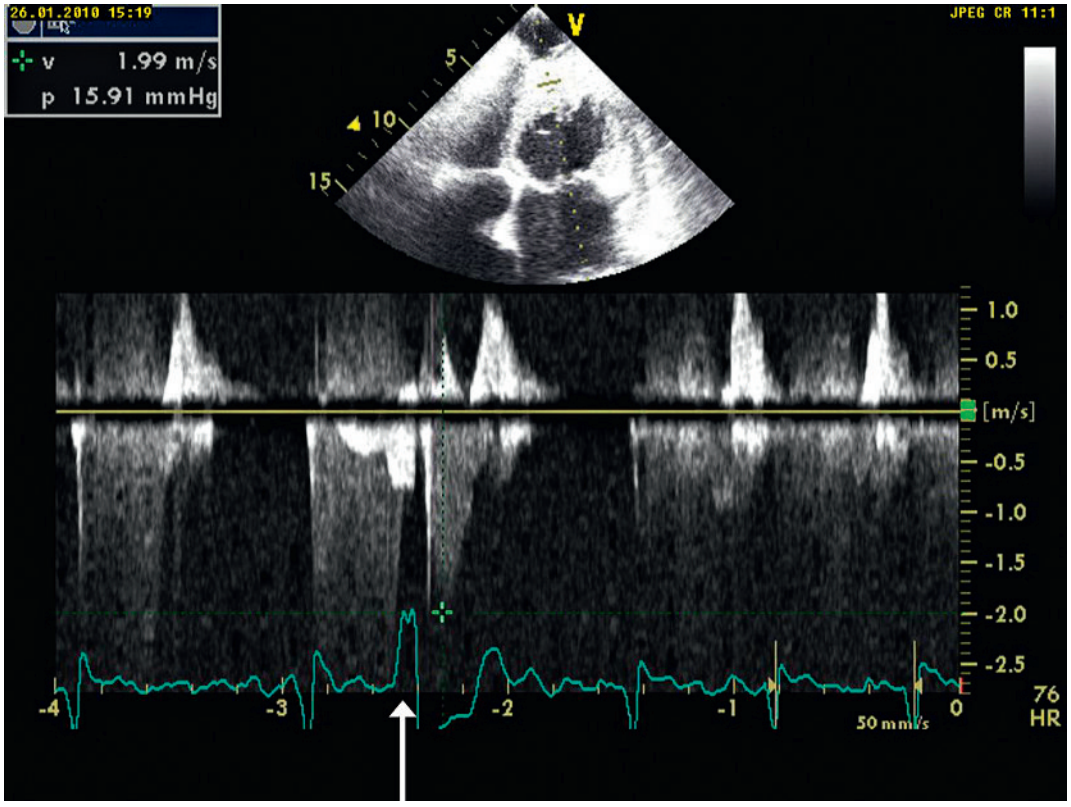


Figure 3
A Coronary angiogram of the left coronary artery. No significant stenosis is visible.
B Coronary angiogram of the right coronary artery. No significant stenosis is visible.

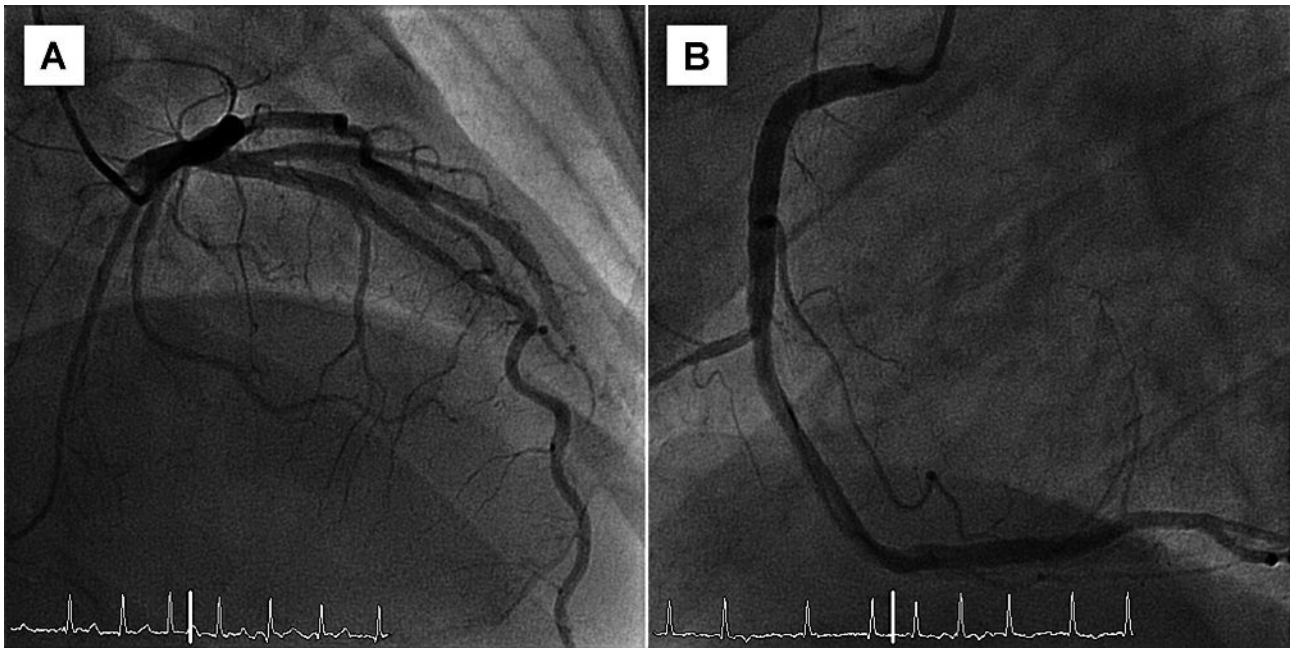
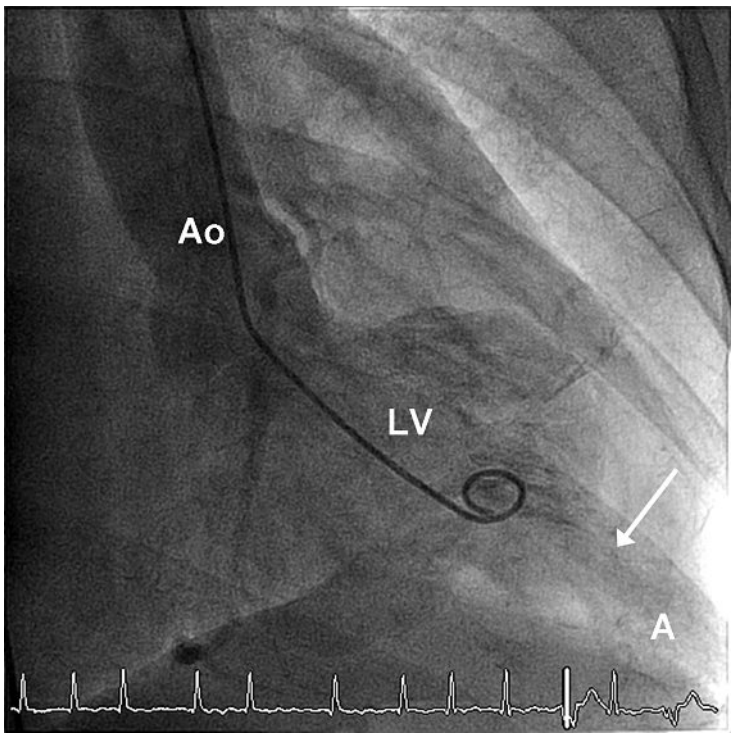


Figure 4
Ventriculogram. Arrow shows the neck of the aneurysm.
Ao = Aorta; LV = Left ventricle; A = Aneurysm.



chronic intraventricular pressure gradient due to mid-ventricular obstruction triggering infarction [5, 6]. Some other mechanisms may be involved, since magnetic resonance shows diffuse late gadolinium enhancement in these cardiac walls [3].

Management consists of anticoagulant to prevent embolism and consideration of an ICD implantation to prevent sudden cardiac death [1, 6].

References

1 Maron MS, Finley JJ, Bos JM, Hauser TH, Manning WJ, Haas TS, et al. Prevalence, clinical significance and natural history of left ventricular apical aneurysm in hypertrophic cardiomyopathy. Circulation. 2008;118:1541–9.
2 Moon JC, Fisher NG, McKenna WJ, Pennel DJ. Detection of apical hypertrophic cardiomyopathy by cardiovascular magnetic resonance in patient with non-diagnostic echocardiography. Heart. 2004;90:645–9.
3 Fattori R, Biagini E, Lorenzini M, Buttazzi K, Lovato L, Rapezzi C. Significance of magnetic resonance imaging in apical hypertrophic cardiomyopathy. Am J Cardiol. 2010;105:1592–6.
4 Alfonso F, Frenneaux MP, McKenna WJ. Clinical sustained uniform ventricular tachycardia in hypertrophic cardiomyopathy: association with left ventricular aneurysm. Br Heart J. 1989;61:178–81.
5 Matsubara K, Nakamura T, Kuribayashi T, Azuma A, Nakagawa M. Sustained cavity obliteration and apical aneurysm formation in apical hypertrophic cardiomyopathy. J Am Coll Cardiol. 2003;42:288–95.
6 Nakamura T, Matsubara K, Furukawa K, Azuma A, Sugihara H, Katsume H, et al. Diastolic paradoxic jet flow in patients with hypertrophic cardiomyopathy: evidence of concealed apical asynergy with cavity obliteration. J Am Coll Cardiol. 1992;19:516–24.