- 7 **Dan D**, Hoag JB, Ellenbogen KA, *et al*. Cerebral blood flow velocity declines before arterial pressure in patients with orthostatic vasovagal presyncope. *J Am Coll Cardiol* 2002;**39**:1039–45.
- 8 **Schondorf R**, Benoit J, Wein T. Cerebrovascular and cardiovascular measurements during neurally mediated syncope induced by head-up tilt. *Stroke* 1997;**28**:1564–8.
- 9 **Schondorf R**, Stein R, Roberts R, *et al*. Dynamic cerebral autoregulation is preserved in neurally mediated syncope. *J Appl Physiol* 2001;**91**:2493–502.
- 10 **O'Mahony D**. Pathophysiology of carotid sinus hypersensitivity in elderly patients. *Lancet* 1995;**346**:950–2.
- 11 **Tea SH**, Mansourati J, L'Heveder G, *et al*. New insight into the pathophysiology of carotid sinus syndrome. *Circulation* 1996;**93**:1411–16.
- 12 **Lefferiotis G**, Dupuis JM, Victor J. Cerebral hemodynamics in carotid sinus syndrome and atrioventricular block. *Am J Cardiol* 2000;**86**:504–8.
- 13 **Parry SW**, Steen N, Baptist M, *et al*. Cerebral autoregulation is impaired in cardioinhibitory carotid sinus syndrome. *Heart* 2006;**92**:792–7.
- 14 **Zhang R**, Zuckerman JH, Iwasaki K, *et al*. Autonomic neural control of dynamic cerebral autoregulation in humans. *Circulation* 2002;**106**:1814–20.

IMAGES IN CARDIOLOGY

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Traumatic left ventricular true aneurysm: echocardiographic, MRI, and intraoperative images

A 12 year old boy presented in Kinshasa (Democratic Republic of Congo) with chest pain and lower limb oedema, reporting a history of blunt chest trauma after falling from a tree five years ago. Examination revealed a hyperdynamic pericardial bulge, no audible murmur, and hepatomegaly.

Two dimensional transthoracic echocardiography (TTE) performed by a portable machine (Acuson-Cypress, USA) demonstrated a giant apicolateral aneurysm (9 × 7 cm), communicating with the left ventricular (LV) apex (panels A and B). Colour Doppler showed to and fro flow. The LV was dilated (5.2 cm, + 5.1 Z score), with mildly decreased function.

Referred to our institute by a charity organisation (Chain of hope-Belgium), TTE and ventricular angiography confirmed the diagnosis. Coronary angiography was normal. Magnetic resonance imaging (MRI) demonstrated ruptured LV apicolateral aspect, suggesting a pseudoaneurysm (panel C). After surgical excision (panel D), histopathology revealed a true aneurysm with dense connective tissue and myocardial fibres. Pathogenesis was attributed to remodeling of scarred myocardium secondary to transmural contusion. Consequently, TTE and MRI proved insensitive in discriminating between true aneurysm and pseudoaneurysm.

At one year follow up in the Congo, the patient's physical examination and LV size and function were normal. Two years postoperatively, he died suddenly after an attack of convulsions a few days after a second trauma. Ventricular

Transthoracic two dimensional echocardiography: subcostal (A) and apical four chamber view (B) demonstrating a giant apicolateral aneurysm (arrow) communicating with the left ventricular apex. AO, aorta; LA, left atrium; LV, left ventricle; RA, right atrium; RV, right ventricle.

Magnetic resonance image, oblique view, demonstrating a giant aneurysm adjacent to the left ventricle (LV).

Surgical image of the opened aneurysm showing its communication with the left ventricular apex (arrows).

arrhythmia was suggested, but no post-mortem examination was performed.

In conclusion, a true aneurysm has a diminished risk of rupture, yet affects ventricular functions. Surgical excision improves the functions, but may evoke arrhythmogenic foci, raising the need for long term antiarrhythmic management after repair of a traumatic aneurysm.

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