

Trouble on the treadmill



Dr Stephen Fenton

Dr Stephen Fenton is a cardiologist in private practice with the Sydney Cardiolog Group.

Case presentation

A 73-year-old retired farmer presented with a recent history of exertional chest discomfort with activities such as walking up hills.

He has been a heavy smoker in the past and is taking medication for mild hypertension and hyperlipidaemia.

There is a history of chronic atrial fibrillation being managed with warfarin, though no treatment to control rate has been necessary.

Physical examination reveal-ed an irregular pulse with a rate of 86 per minute and a BP of 130/85 mmHg.

Examination was otherwise unremarkable.

His resting ECG demonstrated atrial fibrillation with partial RBBB and some slight non-specific ST-T wave changes.

He was subsequently referred for an exercise stress test. After two and a half minutes the patient described some light-headedness and then collapsed.

Based on the exercise ECG (illustrated right), what do you think is the likely scenario?

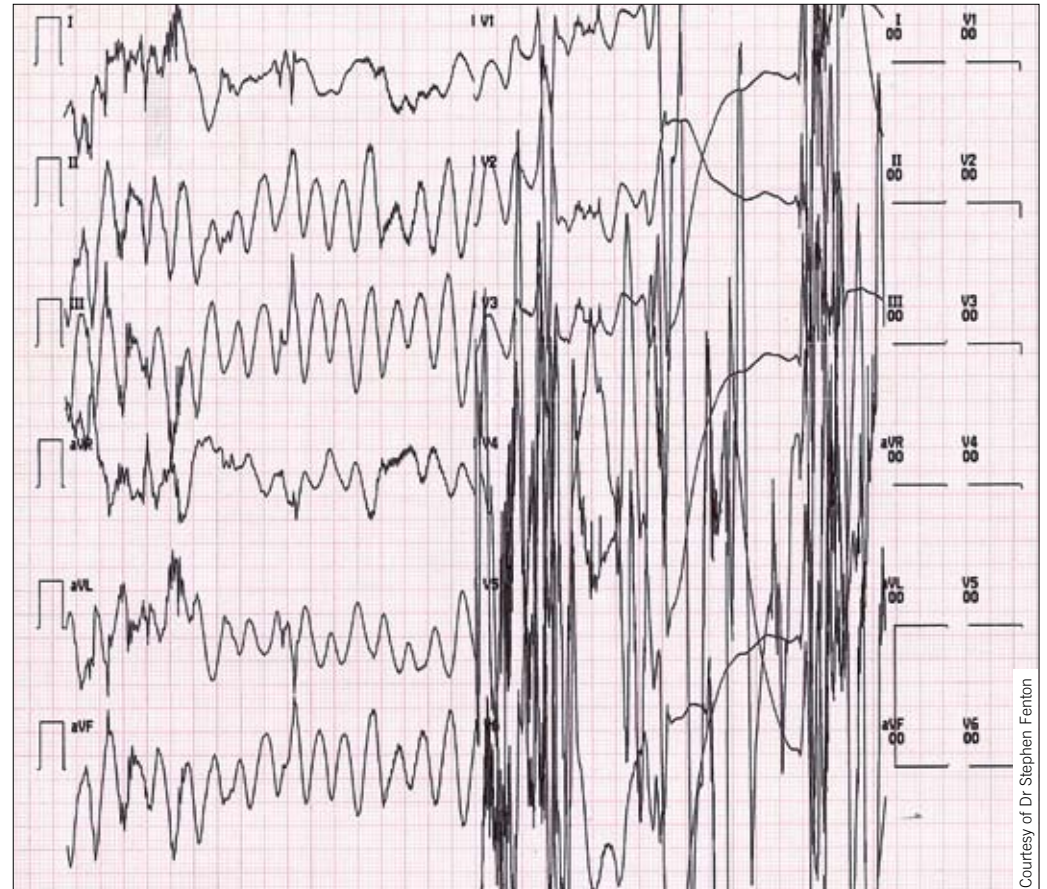
1. A probable vasovagal episode with significant artefact on the ECG due to electrodes coming off during the syncope.
2. Rate-dependent LBBB and artefact.
3. Rapid atrial fibrillation with further aberrancy of the right bundle branch pattern.
4. Sinus tachycardia with rate dependent WPW.
5. Ventricular tachycardia managed by defibrillation.

Discussion

This patient presents with a history quite suggestive of underlying obstructive coronary artery disease. He has strong risk factors and given the suspicious history would be considered at high risk.

The ECG demonstrates a wide complex somewhat erratic tachycardia to start with at a rate of about 280 per minute. This is consistent with ventricular tachycardia, and in an unconscious patient this should always be regarded as the diagnosis.

The patient was promptly defibrillated, which accounts for the artefactual appearance but it can be seen, particularly in lead



Courtesy of Dr Stephen Fenton

V-6, that normal narrow QRS complexes are restored following the successful defibrillation. The correct answer is therefore number 5.

His resting ECG demonstrated atrial fibrillation

Outcome

The patient was urgently stabilised and referred to hospital, where immediate coronary angiography demonstrated a totally occluded left anterior descending artery and this was successfully stented.

The statistical chances of such a serious arrhythmia occurring during treadmill testing are extremely low, but all

exercise testing facilities need to be appropriately equipped with a full range of resuscitation equipment, including a defibrillator and well trained and experienced staff.

This patient was fortunate in having this episode in a controlled environment, as had such an event occurred while walking on the street, it almost certainly would have led to sudden death.

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