

## SHORT CASES IN CARDIOLOGY

## Exercise induced supraventricular tachycardia?

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Electrocardiograms (ECGs) are susceptible to noise which can make interpretation difficult. Exercise testing presents particular problems in this regard, hence our reliance on an averaged ECG for diagnosis. On occasion ECG artefacts may be sufficiently organised to render differentiation from a true arrhythmia difficult, with potentially important consequences for patient management.<sup>1</sup> We present such a case.

A 59 year old woman presented to the cardiology clinic with exertional chest pain and pal-

pitations and was referred for exercise testing. She had been seen 11 years before with complaints of palpitation and dizziness. Further investigation at that time had revealed paroxysmal supraventricular tachycardia (SVT) mediated by a left posteroseptal accessory pathway. After successful radiofrequency ablation her palpitations improved.

During her technician supervised Bruce protocol exercise test, the trace shown in fig 1 was produced. The patient suffered chest pain during stage 3 of the exercise test, associated with inferolateral ST depression. No arrhythmia was noted by the technicians.

On closer inspection of the trace it can be seen that the raw rhythm (bottom trace) appears to be sinus in origin with a rate of 88 beats/min. The apparent SVT was caused by artefact from a faulty electrode in the V5 position (not shown). During the averaging process the computer derived the heart rate from the artefact and superimposed this rate on the previously averaged QRS morphology, producing the pseudo-SVT.

The patient has subsequently undergone further exercise testing without arrhythmia and now awaits coronary angiography.

This case illustrates the potential dangers of computer averaged ECGs and reiterates the need for close doctor-technician communication in a technician run exercise test service.

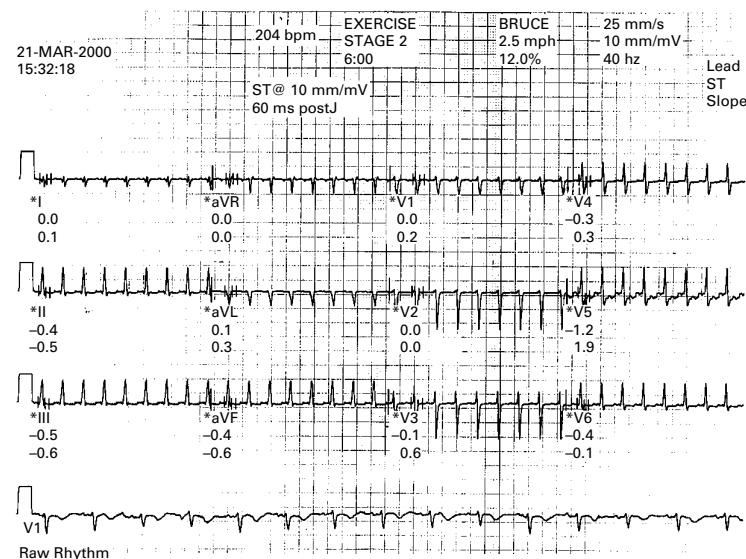


Figure 1 ECG tracing produced during technician supervised Bruce protocol exercise test.

1 Knight BP, Pelosi F, Michaud GF, *et al*. Clinical consequences of electrocardiographic artifact mimicking ventricular tachycardia. *N Engl J Med* 1999;341:1270-4.