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CASE STUDY

An unusual case of atrial fibrillation

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1. Initial patient presentation

A 46 year old female presented to an emergency department (ED) late in the evening complaining of palpitations. The patient reported ongoing symptoms for 30 minutes at the time of presentation and had self-referred to the ED. On arrival, her main symptoms were 'pounding heart', a fluttering feeling in the throat and mild chest discomfort. The patient was triaged as category 2 using the Manchester Triage Scale and a 12-lead ECG confirmed Atrial Fibrillation (AF). The patient was admitted to the resuscitation area to a monitored bed.

2. Relevant history

She had experienced an episode that morning with diaphoresis, feeling light-headed and reported that she had briefly lost consciousness while on a train commuting to work. The patient did not recall any palpitations or chest pain during this earlier episode. She recovered with no further events during the day. The current onset of palpitations was noted when the patient went to bed and she noticed her heart beating unusually faster than normal. There was no previous cardiovascular history of note with a blood pressure of 90/60. There is no family history of arrhythmias with only medical history was mother with hypertension and hypothyroidism. Allergies to grass pollen and cats and mild asthma were noted but no regular current medications taken. She had previously been diagnosed and treated for Vitamin D deficiency. Socially the patient was usually fit and well and worked full time, did not drink coffee (a known CNS stimulant) or other drinks with high caffeine content such as energy drinks, was a nonsmoker and drank 4–6 units of alcohol a week. She exercised regularly and body mass index was 24 (i.e. within the normal range).

3. Relevant physical examination findings

On examination, she was well-looking and not unduly distressed. Observations on admission were blood pressure 130/80, pulse 115 bpm and irregular, respiratory rate 16 and oxygen saturations of 98% on room air. Pulsus alternans (where there is a difference between each beat, with every second beat feeling 'weaker' than the previous one) was noted on examination and no other significant findings noted. On auscultation, no abnormal heart sounds were heard and chest was clear. The patient commented that she usually had a resting heart rate of 50–60 bpm and had always had low blood pressure. Her 12-lead ECG showed AF with a rate of 96 bpm (see Fig. 1).

4. Relevant diagnostics

Routine bloods were taken (electrolytes and thyroid function tests), intravenous cannulation was performed and continuous monitoring instigated. Blood results were within the normal range (see Table 1) and urinalysis was negative. Recent Vitamin D blood tests were checked and found to be in the normal range. A diagnosis of AF was made.

5. Case progression

After four hours of AF at a rate of 96–110 bpm, an emergency physician examined the patient and ordered a chest x-ray, which was clear. To assess the risk of stroke and how to manage the AF, the CHA_2DS_2-VASc score was calculated. The CHA_2DS_2-VASc score assigns one point for each of the following risk factors: congestive

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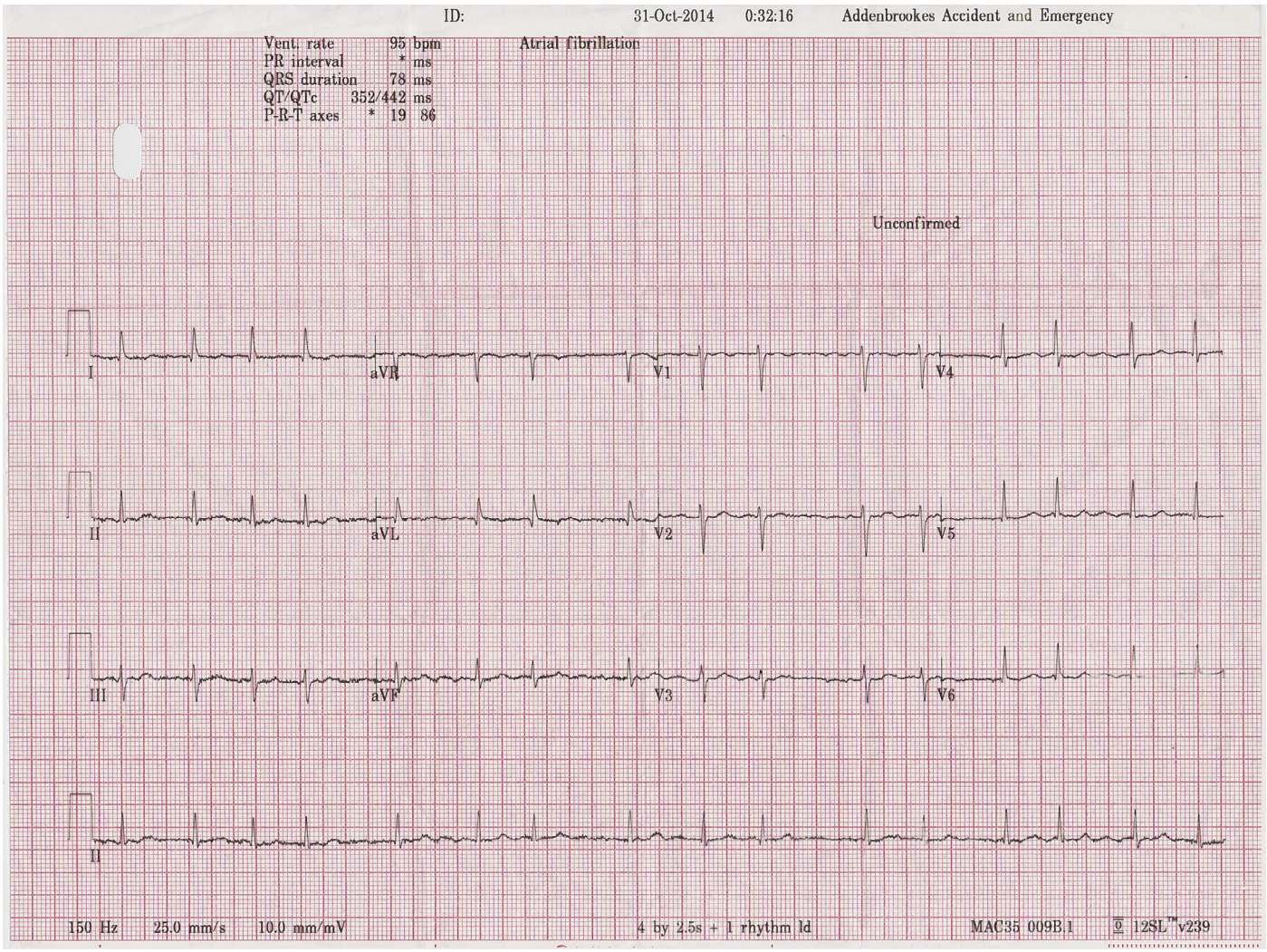

Fig. 1. 12-lead ECG.

heart failure, hypertension, diabetes, previous stroke or TIA, history of vascular disease, aged 65–74 years and female gender. Two points are assigned to those who are 75 years and older with a maximum score of 9. In this case, the CHA_2DS_2-VASc score was 1 (female gender), and therefore anticoagulation was not indicated (National Institute of Health and Clinical Excellence, 2014) and cardioversion was deemed appropriate and could be performed.

Table 1
Blood test results.

Electrolytes	Value (normal range)
Sodium	139 (133–146 mmol/L)
Potassium	5.0 (3.5–5.3 mmol/L)
Creatinine	69 (44–97 umol/L)
Glucose	4.5 (3.5–8.0 mmol/L)
Lipid profile	
Cholesterol	4.5 mmol/L
HDL	1.74
LDL	2.49
Triglycerides	0.60 (0.30–1.80 mmol/L)
Cholesterol/HDL ratio	2.6
Vitamin D	
Vitamin D2	<5
Vitamin D3	51.5
Thyroid function test	
Serum TSH level	2.37 (0.35–5.5 Mu/L)
Serum free T4 level	13.8 (10.0–19.8 pmol/L)

Table 2
Echocardiogram parameters.

Echo parameter:	Value:
Left atrium LAA	17.5 cm^2
Right atrium RAA	15.9 cm^2
Ejection Fraction Biplane	66%
PASP estimated	19 mmHg + 0–5 mmHg
LVEDV MOD BP	92 mL
LVESV MOD BP	35 mL

Conscious sedation with propofol was applied and cardioversion undertaken (100 Joules). Sinus rhythm was restored (54 bpm, BP 90/60). The patient immediately felt better and was discharged home one hour later with a consultant follow-up review booked on the acute admission ward.

An outpatient echocardiogram was organized, and the results were normal in terms of both function and structure (Table 2).

6. Final case outcome

The patient was discharged home and on review with an emergency consultant 48 hours after discharge, the patient remained in sinus rhythm and informed the consultant about their use of glutamine (a protein supplement used to assist with weight loss and in promoting muscle growth). The patient believed that the

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