THE SHIP DOCTOR

ECGs Under Pressure

50 Emergency Cases, Serial Tracings and Lookalikes



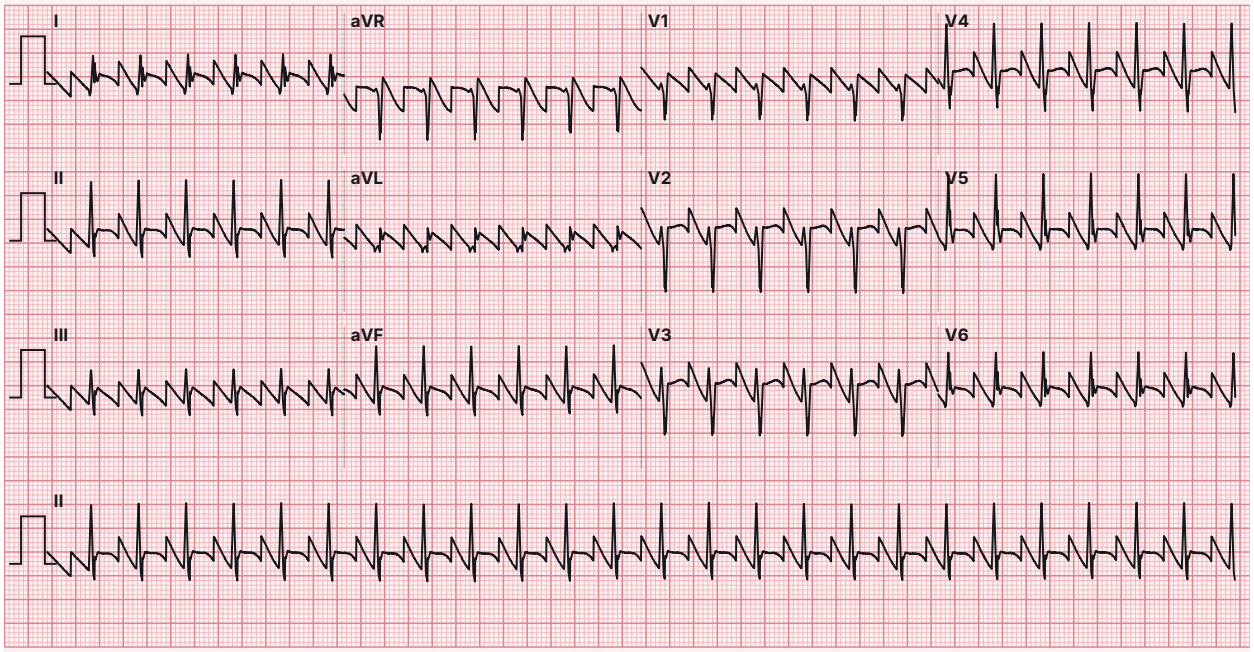
Dr Ezekiel Aluda Osolika

CASE 14

Palpitations and a rate of exactly 150, aged 64

64, male, hypertensive. Two days of palpitations and mild breathlessness. BP 128/78, HR 150 and metronomically regular. He mentions his pulse has been "150 every time" at home.

Presentation ECG



25 mm/s · 10 mm/mV. Read it before turning the page. Shown at 68% of full size.

BEFORE YOU TURN OVER

1. What is the rhythm?
2. What is abnormal, and in which territory?
3. What is the single next action?

YOUR READ

RATE

RHYTHM

AXIS

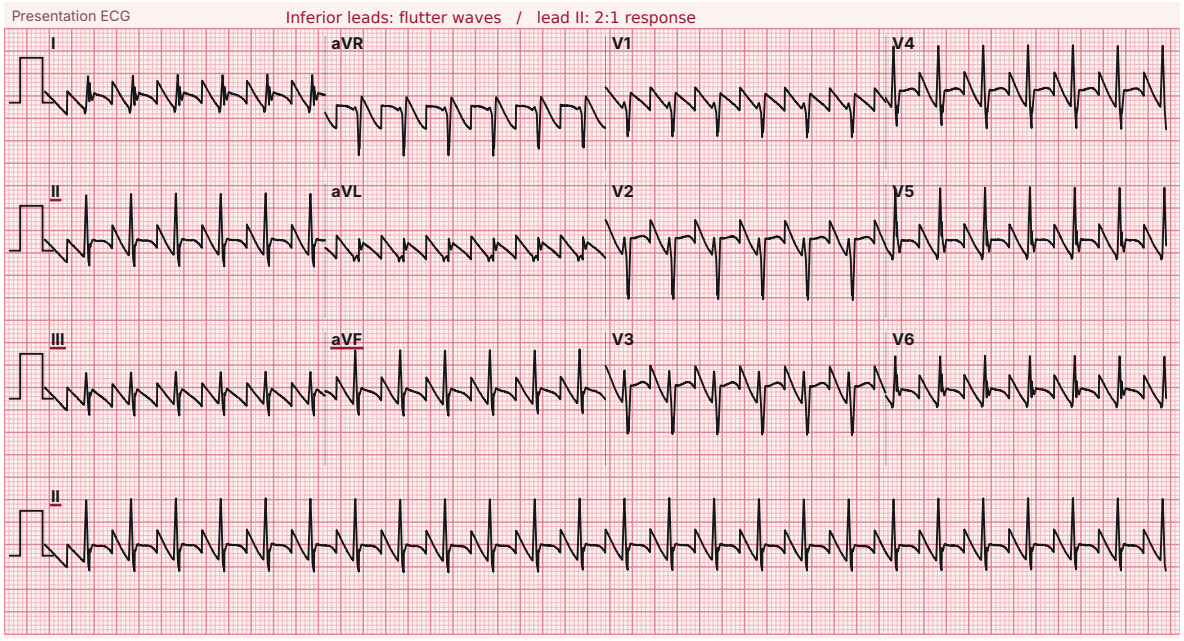
PR / QRS / QT

ST AND T

DIAGNOSIS

NEXT ACTION

Typical atrial flutter with 2:1 atrioventricular conduction



Sawtooth in the inferior leads, two atrial waves for each QRS. Shown at 64% of full size.

WHAT IS ON THE TRACE

- Regular narrow complex tachycardia at almost exactly 150/min.
- A sawtooth baseline in II, III and aVF — negative flutter waves at about 300/min.
- The second flutter wave of each pair is partly buried in the preceding T wave.
- Two atrial waves for every QRS: 2:1 conduction.
- QRS 90 ms.

WHY IT MATTERS

Untreated typical flutter has an atrial rate close to 300/min, and the AV node conducts in whole number ratios, so 2:1 gives a ventricular rate near 150. Any regular narrow tachycardia at 140 to 160 should be assumed to be flutter until the atrial activity is seen, because at that rate every other flutter wave hides inside a QRS or T wave. Flutter carries the same thromboembolic risk as atrial fibrillation, so the anticoagulation decision is the same and is independent of whether you restore sinus rhythm.

WHAT TO DO NOW

1. Look for the hidden waves: inspect II, III, aVF and V1, and compare the T wave shape with an old tracing — a T wave that has grown a shoulder is a buried flutter wave.
2. If the waves are still not visible, use adenosine or a vagal manoeuvre to produce transient AV block and unmask them. This is diagnostic, not therapeutic; the flutter will continue.
3. Rate control, anticoagulation assessed by CHA_2DS_2-VASc, and referral for consideration of cavotricuspid isthmus ablation, which is a definitive treatment with high success rates.
4. If unstable, synchronised cardioversion — flutter often converts at low energies.

THE TRAP

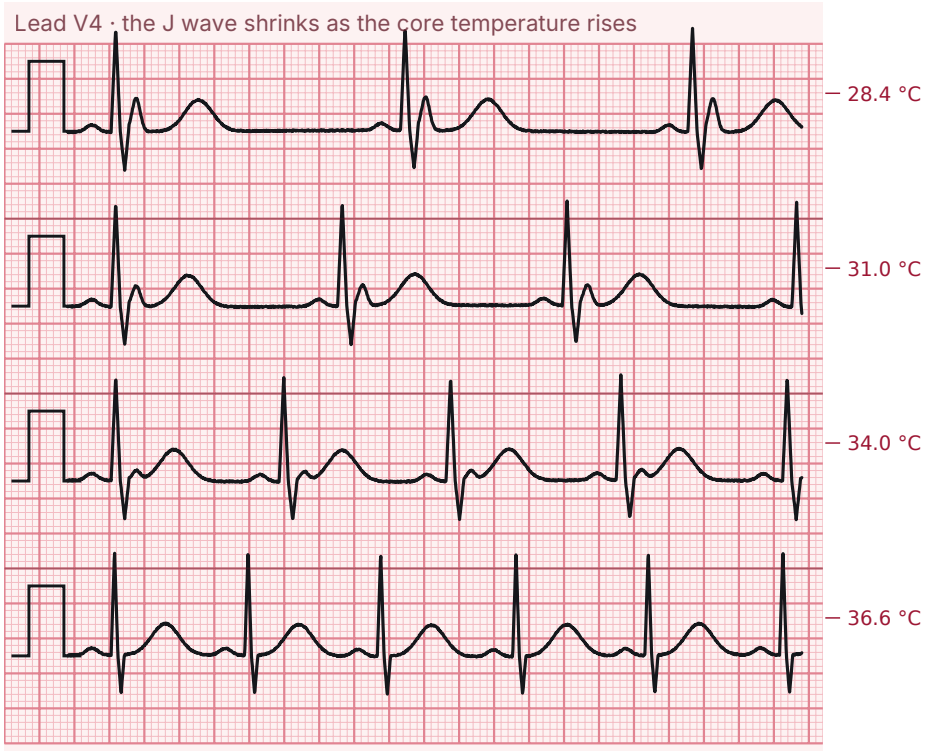
Calling it sinus tachycardia. Sinus tachycardia at exactly 150 in a resting, comfortable patient is unusual; sinus rates vary with respiration and activity, while 2:1 flutter sits on 150 and does not move. A rate that refuses to vary is itself a clue.

REMOTE, OFFSHORE OR LOW-RESOURCE

Stable flutter can allow time to assess rate control and stroke risk with specialist advice. Shock, ongoing ischaemia, syncope with hypotension or severe heart failure requires emergency treatment and monitored transfer. Share the ECG with the receiving team.

Hypothermia, rewarmed

The Osborn wave is temperature-dependent, and it shrinks as the patient warms. These four strips track one patient from 28.4 °C to normothermia. Watching the J wave disappear and the intervals shorten is a useful bedside confirmation that rewarming is working, particularly where a reliable core temperature is hard to obtain.



Lead V4 during rewarming. The J wave, the bradycardia and the prolonged intervals all resolve together.

PRACTICAL NOTE

Tympanic and oral temperatures are unreliable in a cold, shut-down patient, and many thermometers do not read below 32 °C at all. If your device cannot read low, the ECG gives you a crude but genuine indication of direction of travel.