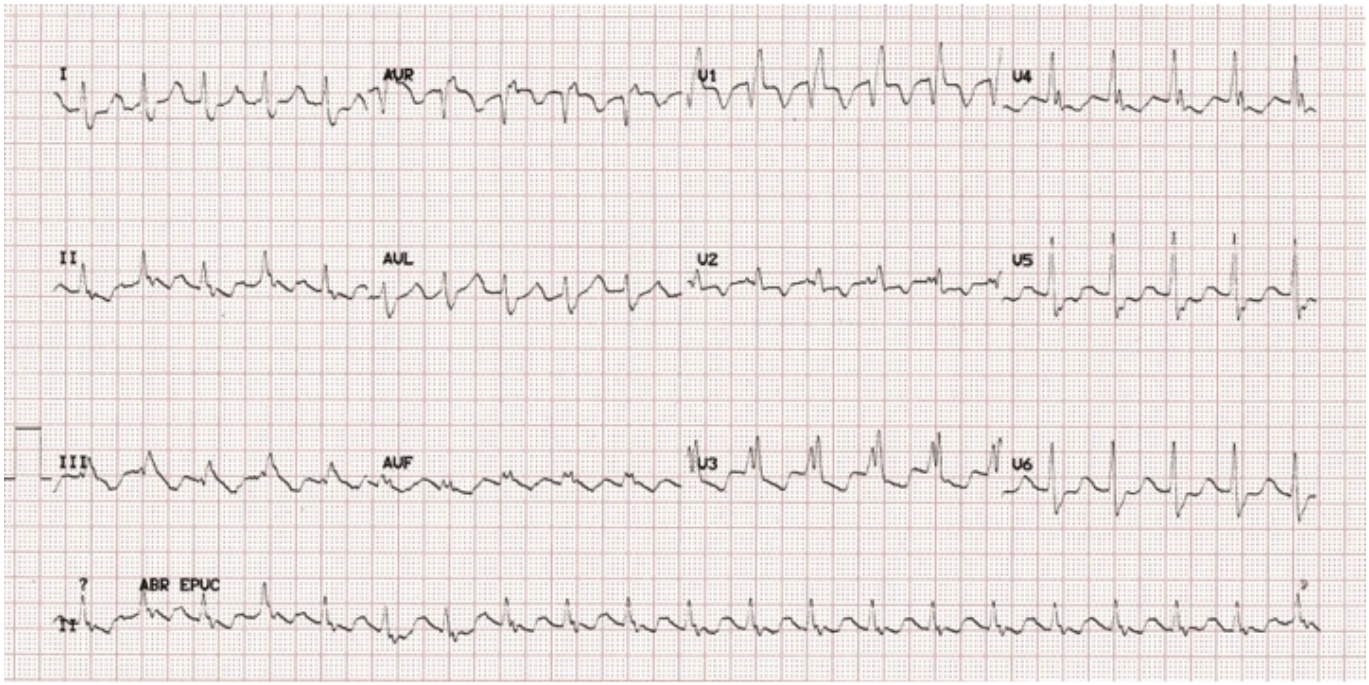
ECG #1

Describe and interpret the following 12-lead electrocardiogram:



Show solution

Rate:

Atrial = N/A

Ventricular = 125 min^{-1}

Rhythm:

Difficult, but on the balance of probabilities it is likely VT.

P waves:

Nil

QRS complex:

Duration = 156 ms

Axis = 30°

Q Waves:

Nil

R wave progression:

Normal

LV Hypertrophy [Sokolow; S_{V1} + (R_{V5} or R_{V6}) > 35mm) *or* R_I + S_{III} > 25mm]?

No

RV Hypertrophy [R/S ratio V_5 or V_6 < 1 *or* R/S ratio V_1 > 1 *or* $S_1S_2S_3$ pattern]?

No

ST segments:

Duration = 120 ms

Morphology = sagging depression II, III, aVF, V3-6

T waves:

Duration = 100 ms

Morphology = inverted III, aVF, V1-3

QT interval:

QT duration = 378 ms

QTc duration = 510 ms

Additional comments:

Nil

Interpretation:

This is very tricky! The QRS shows a RBBB pattern and is longer than 140ms: this favours VT. There is positive concordance: this also favours VT. However, VT should have a rate of > 130 min^{-1}. A rate of < 110 min^{-1} is referred to as an accelerated idioventricular rhythm. Causes for a slower rate might include AV nodal blocking drugs, which may also prolong the QRS complex. Further evidence against the diagnosis of VT is the lack of extreme axis, the absence of AV dissociation, fusion, or capture beats, and the absence of Brugada's sign (RS nadir > 100 ms).

No history was provided, so interpretation must proceed with caution.