SAQ 9

A 68-year old woman presents by ambulance to your Emergency Department. She complains of chest pain and general lethargy. She has a history of hypertension, atrial tachyarrhythmia and has a PPM in situ.

Vital signs:
BP 98/65
RR 20
Sats 100% on 2 L/min
Temp 36.3 ^{o}C
BSL 6.1 mmol/L

a. Describe the key features on her ECG (5 Marks)

1 Mark for each of:
- *Bradycardia - ventricular rate ~48 bpm*
- *Marked QRS prolongation 320-360ms*
- *Failure to capture*
    - *Likely 2:1 ventricular capture although I would accept complete failure to capture with ventricular escape rhythm*

1 Mark for any below up to 2 marks
- *A-V sequential pacing spikes rate 90 bpm*
- *No evidence of pacemaker inhibition from native complexes - failure to sense*
- *Left axis deviation*
- *Significant ST segment changes*
- *ST elevation leads II, III, aVF, aVR*
- *ST depression leads I, aVL, V2-6*
- *Occasional native atrial activity - best seen in leads V1-2*

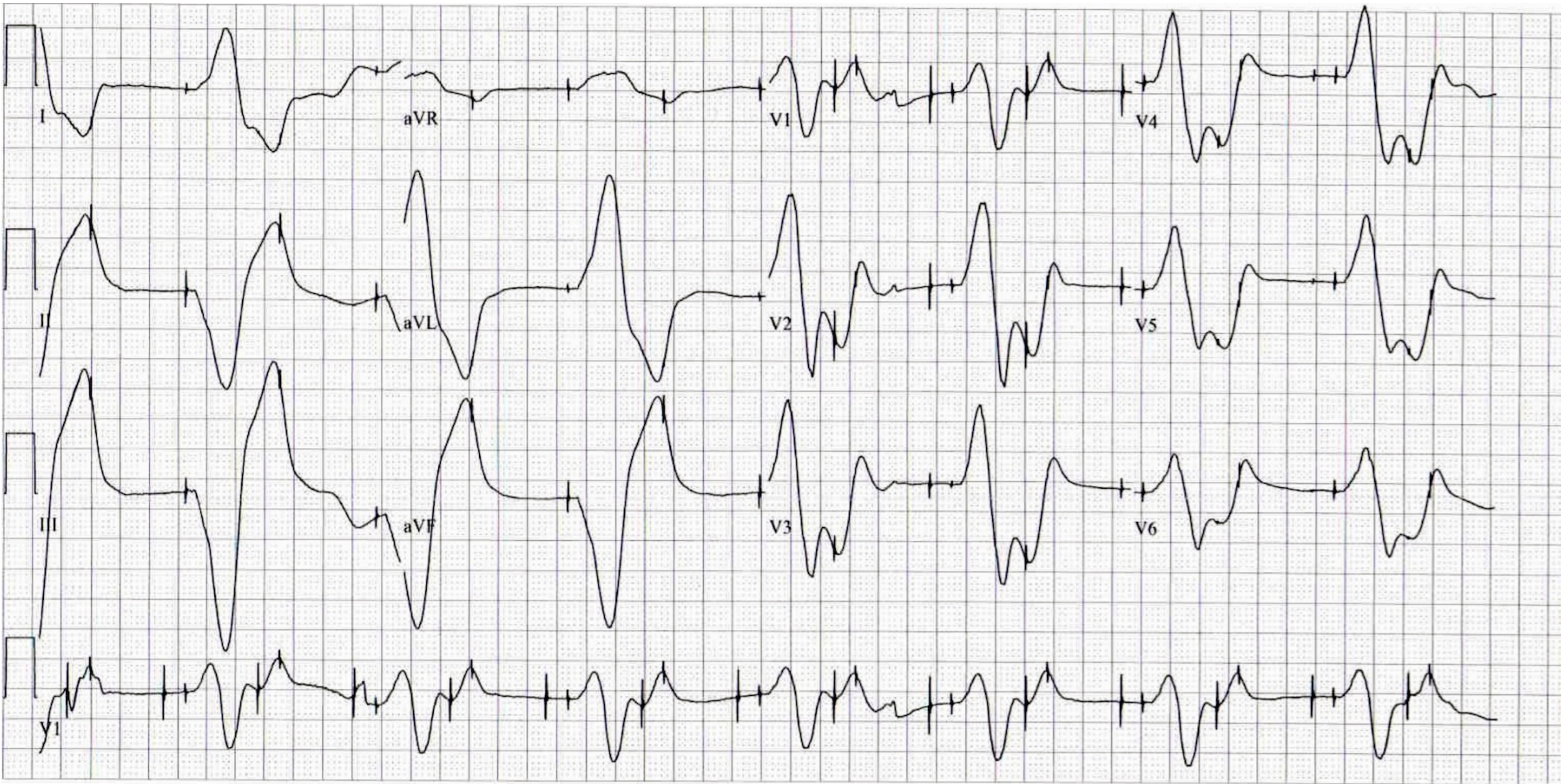
No marks for mentioning Sgarbossa criteria as lack of LBBB morphology means it doesn't apply

b. List the potential causes for the ECG changes (5 Marks)

1 Mark for each of:
- *Hyperkalaemia - the actual cause in this case*
- *Drug toxicity - must give example of agent - digoxin / propranolol / TCA / CCB*
- *Ischaemia / infarction*
    - *V. suspicious ST changes but all could be due to abnormal ventricular activation given QRS prolongation*

1 Mark up to two marks for any of:
- *Cardiomyopathy*
- *Myocarditis*
- *Pacemaker issues*
    - *Lead migration*
    - *Electrode fibrosis*
    - *End-of-life - battery failure*
    - *Wire fracture*
    - *Programming failure*

ECG taken from Life in the Fast Lane Pacemaker Panic Case #2 by Mat Goebel http://lifeinthefastlane.com/pacemaker-panic-2/



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