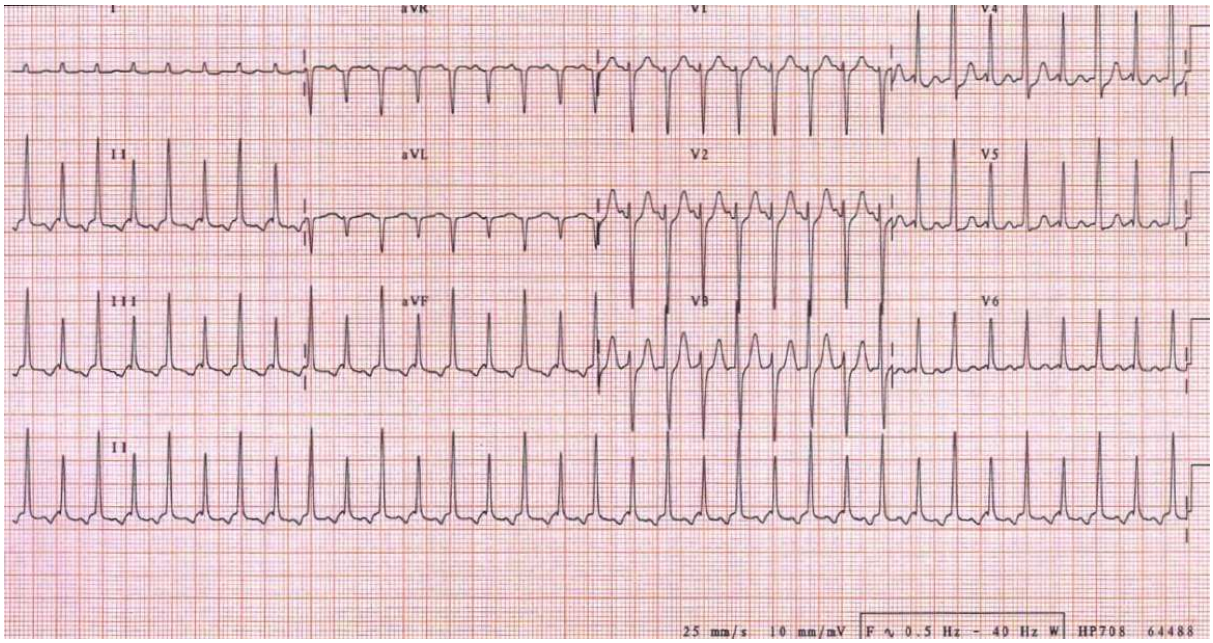
VAQ 2008.2.6 ECG

A 50 year old man presents with shortness of breath and sharp central chest pain of 24 hours duration. He has no past medical history and is on no medication.



Describe and interpret his ECG. (100%)

ECG showing narrow complex tachycardia with electrical alternans.

There are many causes of this including PE, ACS, LV dysfunction, AVNRT, and pericardial effusion. Inferior ST segment changes may be rate related or ischaemic. This clinical context and ECG are most likely to represent AVNRT.

Rate 190 (or near)
Rhythm narrow complex regular SVT
P waves present in terminal portion of QRS consistent with AVNRT
Axis normal

Waves
P – limited interpretation – only clearly seen in V1, V2
Q – in aVR, aVL; no diagnostic features
R – appropriate R wave progression
S – no diagnostic features
T – inverted I, aVF, II, III
U – not seen

Intervals
PR – likely short (<0.12)
QRS – narrow (<0.12s)
ST – mild ST depression inferiorly (II, III, aVF)
QTc – visually >0.5 of R-R but interpretation requires nomogram with extreme tachycardia

Additional
electrical alternans with changing QRS voltage (need at least 2 potential causes of this from SVT (prefer AVNRT), PE, ACS, pericarditis, pericardial effusion, idiopathic)

Most likely – SVT (AVNRT)
supported by
- PR 190
- P wave in terminal QRS
- minimal ST/T changes
- delayed presentation
  - this same ECG is used by Dunn to demonstrate SVT…

Most concerning – pericardial effusion +/- tamponade
- 24h history noted
- QRS complexes not low-voltage as would be expected for significant pericardial effusion
- pericarditis
  - supported by 24h history sharp chest pain
  - no other features of pericarditis seen (saddle ST elevation, PR depression/elevation)
- PE, ACS
  - can cause SVT and electrical alternans

Interpretation

Extreme tachycardia
Electrical alternans
ST/T waves changes
Most consistent with AVNRT (PSVT)