

Clinical Setting: 92 y F with HTN, remote breast cancer, Parkinson's presents with generalized weakness and bilateral leg swelling.

HR - 42

BP - 125/52

RR - 16

SpO2 - 93%

Temp - 97.6 F

This is a case of **Severe Hyperkalemia**.

The ECG shows bradycardia with some intermittent long pauses and some more “premature” appearing beats. I do not see any clear p-waves, making this most likely either complete heart block, slow a-fib, or an irregular junctional escape rhythm.. It’s not just a simple complete heart block - in that case, the QRS complexes should be very consistent, even if p-waves are difficult to find. The QRS is quite wide without a clear bundle branch block morphology. The T-waves are varies - some are large though not particularly “peaky,” some are nearly absent.

The bizarre rhythm is most consistent with hyperkalemia. Remember, not all hyperkalemia EKG’s will should all the classic findings, in the order you suspect - sometimes peaked T’s never show up. Also, when you get potassium above 6.5, you can go into ventricular tachycardia/fibrillation even without EKG findings just prior to the dysrhythmia.

Potassium level (mmol/L)	Mechanism	ECG changes
5.5 – 6.5	Repolarisation abnormalities	Peaked T waves
6.5 – 7.0	Progressive atrial paralysis	P wave widening/flattening PR prolongation P waves eventually disappear
7.0 – 9.0	Conduction abnormalities	Bradyarrhythmias: Sinus bradycardia; high-grade AV block with slow junctional and ventricular escape rhythms; slow AF Conduction blocks (bundle branch block, fascicular blocks) Prolonged QRS interval with bizarre QRS morphology
> 9.0	All of above	Development of sine wave appearance (pre-terminal rhythm) Asystole Ventricular fibrillation PEA with bizarre, wide complex rhythm

(source - <https://litfl.com/hyperkalaemia-ecg-library/>)