"TWISTING OF THE POINTS": A HEMODYNAMICALLY UNSTABLE VENTRICULAR SCARE

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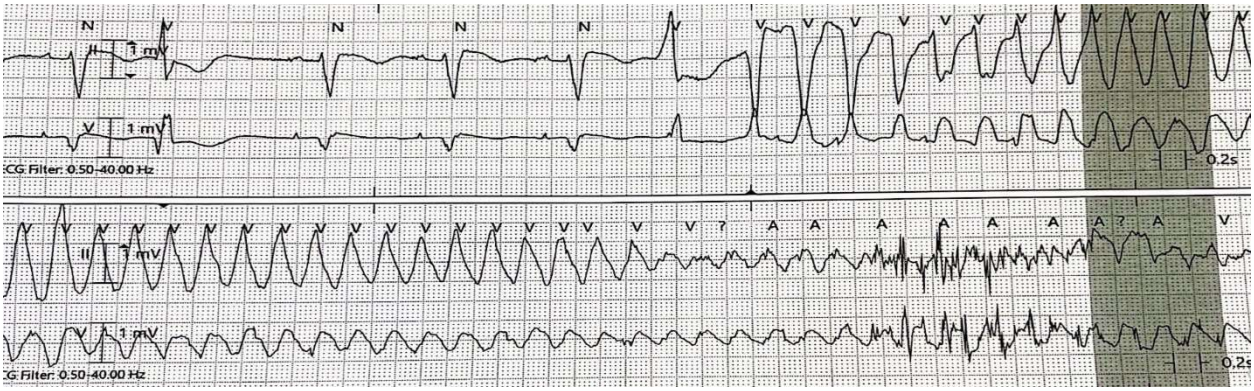
Case Vignette:

Torsades de pointes is a form of polymorphic VT (ventricular tachycardia) that occurs in the context of acquired or congenital prolongation of the QT interval. The classical EKG (electrocardiograph) finding is described as "twisting" around the isoelectric line.
We present the case of an 89-year-old woman with a medical history of atrial fibrillation, hypothyroidism, and tachycardia-induced cardiomyopathy (recovered ejection fraction of 55-60%). She presented with intermittent episodes of palpitations associated with chest discomfort and dizziness. On admission, her EKG was notable for wide complex tachycardia with a rate of 150 with known a left bundle branch block. An echocardiogram demonstrated new reduction in her ejection fraction to 20% with global left ventricular dysfunction. She was started on Amiodarone: 400mg twice daily along with gradual uptitration of beta-blockers. Following which, she cardioverted to sinus rhythm and her heart rate was well controlled in the range of 50s-60s. After the third dose of Amiodarone, the patient was observed to have polymorphic VT resulting in hemodynamic instability: unresponsiveness followed by myoclonic jerks. Telemetry demonstrated a PVC (premature Ventricular Contraction) causing a 'R-on-T' phenomenon, followed by an abrupt onset of polymorphic VT. Her QTc on repeat ECG was 564. .



For management, intravenous magnesium sulfate was administered immediately and urgent electrophysiology consultation was requested. Mechanical pacing with a temporary transvenous pacer was considered, but due to the patient's known wide left bundle branch block, the patient would have a risk of asystole if her temporary pacing wire was displaced. Therefore, isoproterenol was started with a goal heart rate of >90 beats per minute to reduce QT interval. Lidocaine drip was also started due to multiple episodes of polymorphic VT and she was transferred to the critical care unit. Ultimately, she underwent ICD (Implantable Cardioverter Defibrillator) placement for overdrive pacing to avoid any episodes of bradycardia/prolonged QT interval as it was determined she would continue to need antiarrhythmic and rate controlling medications due to her poorly controlled atrial tachycardia and cardiomyopathy. She was discharged home on Mexiletine and Amiodarone.

Medications are among the most common cause for acquired prolongation of QT interval and Amiodarone is among the most notorious ones. Magnesium sulfate acutely followed by isoproterenol for pharmacological pacing are known therapies for management, especially when transvenous pacemakers are not ideal.