AVRT with QRS Alternans Refractory to Medical Treatment: A Challenging Case from Pahang, Malaysia

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A 26-years old lady G3P2 with underlying SVT, presented to Labor And Delivery Unit at district hospital with SROM (Spontaneous Rupture of Membrane) and contractions of 5 minutes apart at 37 weeks 6 days. She was initially diagnosed with SVT during 2014 when presented with palpitation few weeks post partum for her second children. Heart rate was observed at 160 bpm with ECG documented as SVT and managed with Verapamil. Echocardiogram was performed during same admission and noted EF of 39% but unfortunately she defaulted our follow up. Antenatal history was unremarkable apart from late booking at 31 weeks. Currently she represented again with contractions and reduced exercise tolerance. Blood pressure was 130/60, heart rate of 150 bpm and temperature of 38. Clinically, lung auscultation was clear with no additional heart sounds. ECG is performed and as below. She was managed with IV Adenosine 18 mg, IV Verapamil of 7.5 mg and reverted to sinus rhythm. Then she was transferred to primary centre and underwent emergency Lower Segment Caesarean Section (LSCS) in view of fetal distress which was uneventful. IV Augmentin was commenced for acute pharyngitis evidenced by injected pharynx.

![QRS complex](image)

**Figure 1:** Narrow QRS complex with QRS alternans and rate of 160

Initial blood investigations revealed Na of 139 mmol/L, K of 3.7 mmol/L, Creatinine of 48 umol/L, Mg of 0.84 mmol/L and phosphate of 1.02. Calcium was decreased with 1.72 mmol/L and was corrected immediately with repeated result indicated normal range of calcium. Echocardiogram was repeated and noted EF of 20% with global hypokinesia. Otherwise valves were normal. In addition TSH was within normal range of 0.42 uIU/mL.

However, few hours post LSCS, her heart rate raised to 160 with blood pressure of 135/60. ECG was performed with similar findings and hence total of 30 mg IV Adenosine and 7.5 mg IV Verapamil were given but failed to revert the rhythm. Thus, synchronised cardioversion was performed with initial joule of 50 and escalating to 150 J and later 200 J with good
response. Repeated ECG showed sinus tachycardia at 120 bpm. However, her heart rate increased again ranging from 150 to 170 bpm on the next morning and thus IV Amiodarone 300 mg was given as bolus with 900 mg as slow infusion. She was counselled for Electrophysiologist study but refused despite multiple counselling session. Thus she was commenced on Bisoprolol 7.5 mg. She recovered well and later discharged with regular follow up.

Our clinical vignette demonstrated the difficulties we encountered in treating AVRT with merely antiarrhythmic drugs. In addition, the choice of antiarrhythmic drugs were limited and hence emphasize the need for synchronized cardioversion.