

# Macro T wave alternans in incessant orthodromic atrioventricular reentrant tachycardia(AVRT).

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March 30, 2022

## Macro T Wave alternans in incessant orthodromic atrioventricular reentrant tachycardia (AVRT)

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**Keywords:** Incessant, Repolarisation.

**Disclosures:** None

**Funding:** None

**Conflict of interest:** None

**Case :** 35 year female with structurally normal heart presented with incessant long RP tachycardia (Fig-1). Interestingly the T wave morphology and amplitude were changing with each alternate beat suggestive of macro T wave alternans (TWA). Serum electrolytes ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{++}$ ,  $\text{Mg}^{++}$ ) were within normal limit. Electrophysiology study revealed constant VA interval with same eccentric (earliest A signal in CS7-8 pole) atrial activation pattern in all beats. Tachycardia was confirmed to be orthodromic atrioventricular re-entrant tachycardia through right posteroseptal pathway which was successfully ablated.

**Discussion :** Macro T wave alternans or repolarisation alternans is a rare electrical phenomenon. It suggests inhomogeneity in refractoriness of the myocardium which cause unidirectional functional block and re-entry resulting in malignant ventricular arrhythmias. It is commonly seen in QT prolongation, electrolyte imbalance, acute myocardial ischemia and in patients with severe left ventricular systolic dysfunction. QRS alternans in orthodromic AVRT is a well known entity but T wave alternans as described in our case is rare one to be reported. Tomcsayni J et.al have reported a case of atrial tachycardia with TWA which disappeared after termination of tachycardia. Differential recovery of  $\text{Ca}^{++}$  channels in cardiac myocytes in incessant AVRT may be the plausible explanation.

**Figure Legends :**

Fig-1 Narrow complex regular tachycardia showing T wave alternans.

Fig-2 Corresponding electrograms (EGM) also showing macro T wave alternans (TWA) with same VA interval and atrial activation pattern which suggests that there is no beat to beat variation of RP interval and P wave morphology; thus confirming it T wave alternans.

Fig-3 Post ablation electrocardiogram showing no T wave alternans.

