

Peritricuspid reentrant ventricular tachycardia in Ebstein's anomaly

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Ventricular tachycardia is a rare arrhythmia in Ebstein's anomaly. We describe a case where electroanatomical mapping showed reentry around the tricuspid annulus as a mechanism of ventricular tachycardia in a patient with Ebstein's anomaly. Scar in the atrialized part of the ventricle served as the substrate to facilitate reentry.

Case

A 40-year-old woman with Ebstein's anomaly of the tricuspid valve presented with recurrent episodes of palpitations and presyncope requiring cardioversion. Electrocardiogram recorded during the episode showed a regular broad complex tachycardia at a rate of 150 beats per minute with left bundle branch abnormality morphology, left axis deviation, and dissociated, slower atrial activity.

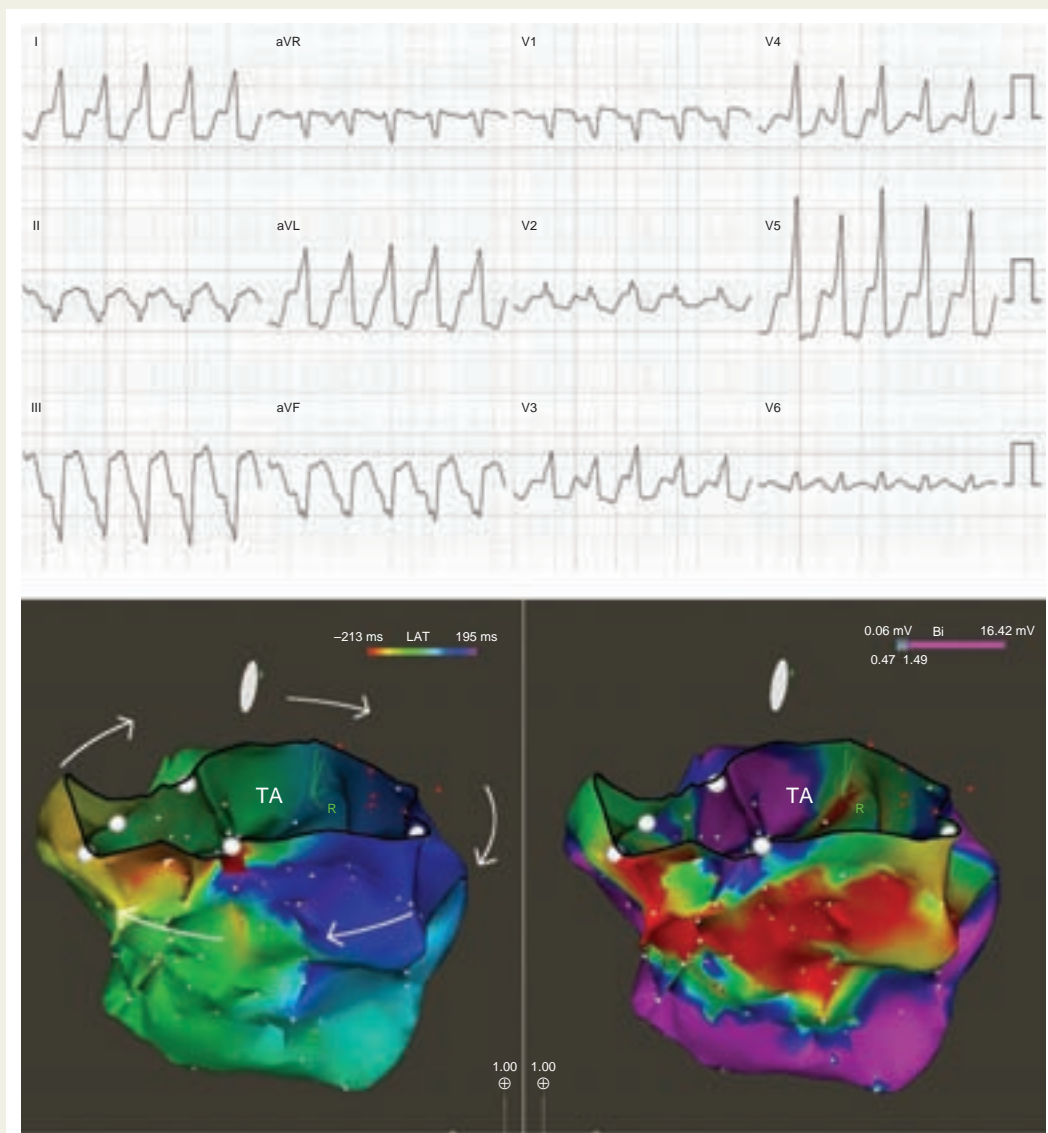


Figure 1 Peritricuspid reentrant ventricular tachycardia in Ebstein's anomaly. Top panel shows 12 lead electrocardiogram recorded during ventricular tachycardia. Left bundle branch abnormality with left axis deviation and early frontal transition are consistent with inferior septal right ventricle (RV) exit. Activation map in a modified posterior view during ventricular tachycardia is shown at bottom left. The white circles are location points along the tricuspid annulus (TA). Viewed from the back, activation spreads clockwise around the annulus. On bottom right is the voltage map showing the area of low voltage in the basal inferior RV.

During electrophysiology study, the tachycardia at cycle length (CL) 400 ms was induced by double ventricular extrastimuli. Mapping of the right ventricle was performed during tachycardia using an electroanatomical three-dimensional mapping system (CARTO, Biosense Webster). Bipolar voltage map showed a large scar in the basal inferior right ventricle. Activation proceeded between this scar and the annulus, exiting at the septal end of the scar (Figure 1). Local activation times around the tricuspid annulus spanned the whole cycle length and a 'head meets tail' pattern was seen confirming reentry around the annulus. Tachycardia terminated during attempted entrainment and radiofrequency ablation was done during sinus rhythm using an irrigated catheter (Navistar Thermocool, Biosense Webster) at 30 W with a flow rate of 25 ml/h to interrupt the isthmus between the scar and the annulus. After 28 radiofrequencies applications (978 s), tachycardia was no longer inducible.

Ventricular tachycardia is rare in Ebstein's anomaly and has previously been described with a focal mechanism.¹ In our patient, scarring was seen in the inferior, atrialized portion of the right ventricle and formed a substrate for peritricuspid reentry. Reentry around the tricuspid annulus has been previously described in patients with arrhythmogenic right ventricular dysplasia,^{2,3} but not, to our knowledge, in Ebstein's anomaly.

Supplementary material

Supplementary material is available at *Europace* online.

Conflict of interest: none declared.

References

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