

## EP CASE REPORT

# Epicardial ventricular tachycardia successfully ablated from the left atrium in a case with a prior mitral valve repair

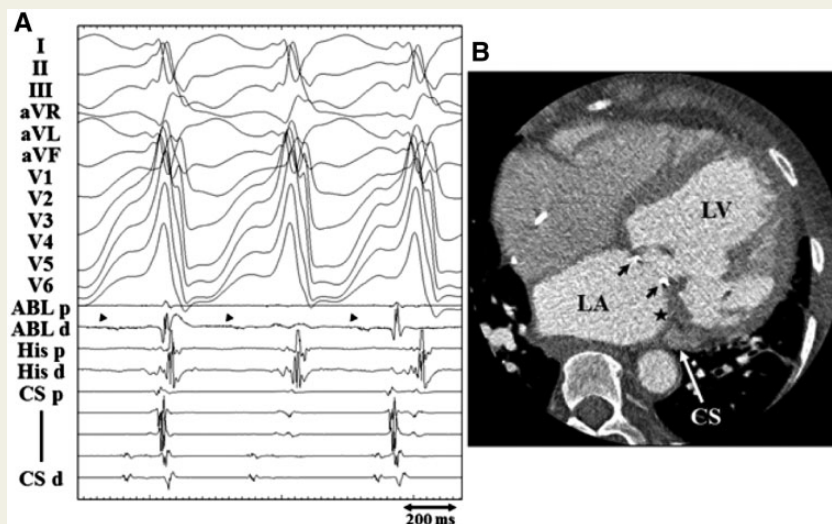
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A 59-year-old woman with a history of a mitral valve repair with an annuloplasty band due to severe mitral regurgitation, and sustained ventricular tachycardia (VT), underwent electrophysiological testing. At baseline, a VT with a cycle length of 475 ms persisted, exhibiting a right bundle branch block and right inferior axis QRS morphology (Figure 1A). Rapid pacing from the right ventricle did not demonstrate any entrainment. The ventricular activation recorded from the coronary sinus (CS) catheter during the VT was the earliest at the posterior aspect and preceded the QRS onset by 73 ms (Figure 1A). The activation map in the left ventricle (LV) during the VT revealed a centrifugal pattern from the LV base. The local ventricular activation at this site was 34 ms later than the earliest ventricular activation within the CS. Further mapping was performed along the mitral annulus (MA) in the left atrium (LA) through a transseptal approach, and the earliest ventricular activation preceding the QRS onset by 141 ms was recorded from the LA above the posterior MA (Figure 1A and Supplementary material online, Figure S1). A single irrigated radiofrequency application at this site eliminated the VT (Supplementary material online, Figure S1). Post-procedural enhanced cardiac computed tomography (CT) demonstrated that the LA at the successful ablation site was in direct contact with the epicardial LV base below the posterior MA (Figure 1B). During >6 months of follow-up, the patient has been free from any VT recurrence.

Catheter ablation of VTs associated with prior valvular surgery is often challenging.<sup>1,2</sup> This report illustrated a successful catheter ablation of a VT occurring after mitral valvular surgery by delivering a radiofrequency application from the LA. In this case, the VT was suggested to originate from an epicardial origin because the LA at the successful ablation site was in direct contact with the epicardial LV base. The LA and LV walls are normally not in contact with each other, and the strange anatomical relationship between the LA and LV in this case was likely to have resulted from a structural remodelling that the enhanced cardiac CT demonstrated. First, the annuloplasty band tightened and shrank the MA ring, and both the LA and LV along the MA were pulled towards the centre of the MA. Second, the LA and the LV were severely dilated. The findings in this case suggested that pre-procedural imaging would be important for evaluating any structural remodelling after mitral valve surgery and also that mapping and catheter ablation in the LA might be considered when VTs occur with such structural remodelling.



## Supplementary material

Supplementary material is available at *Europace* online.

**Conflict of interest:** none declared.

### References

1. Eckart RE, Hruzckowski TW, Tedrow UB, Koplan BA, Epstein LM, Stevenson WG. Sustained ventricular tachycardia associated with corrective valve surgery. *Circulation* 2007;**116**:2005–11.
2. Tokuda M, Tedrow UB, Kojodjojo P, Inada K, Koplan BA, Michaud GF et al. Catheter ablation of ventricular tachycardia in nonischemic heart disease. *Circ Arrhythm Electrophysiol* 2012;**5**:992–1000.