

# Subendocardial haemorrhage prohibits the success of catheter ablation in a prolonged ventricular tachycardia procedure: a case report

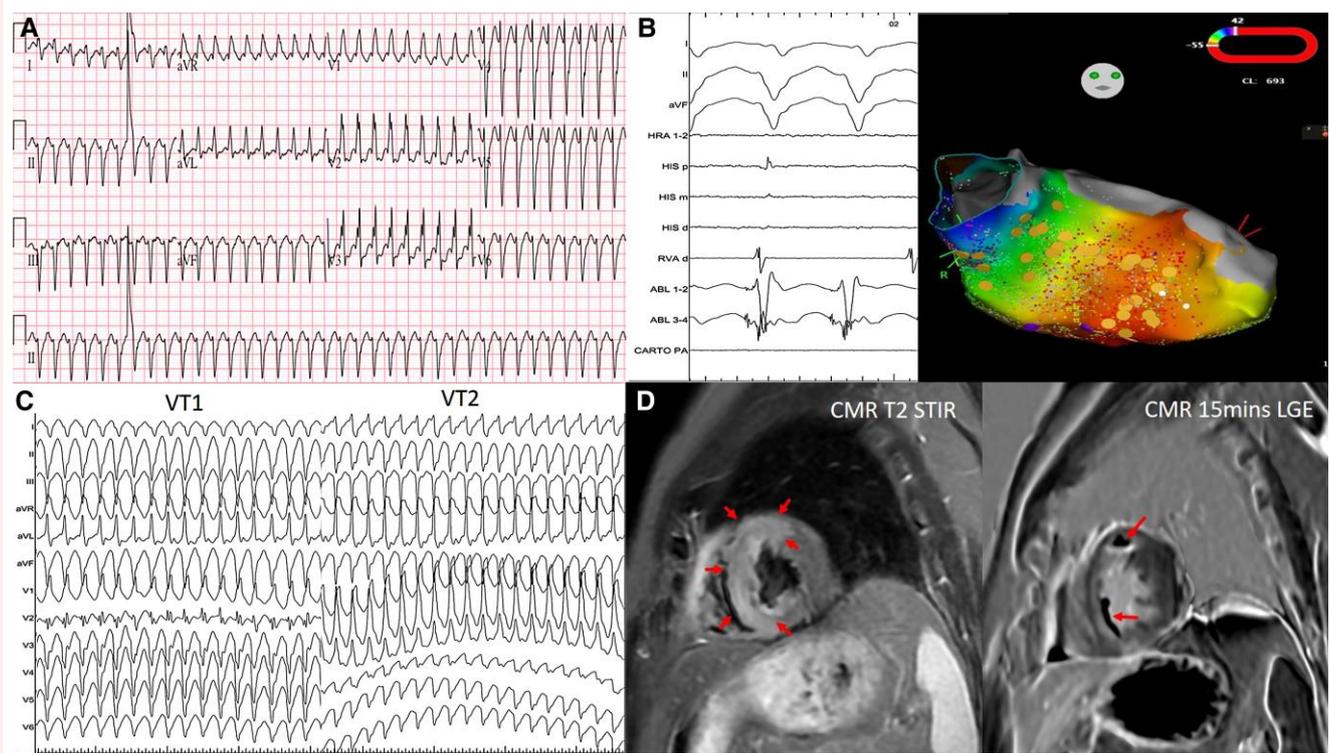
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A 38-year-old man had been experiencing paroxysmal palpitations with dizziness for 1 year. Electrocardiography revealed wide QRS tachycardia with right bundle branch block and right superior axis deviation

(panel A). Echocardiography and coronary angiography both revealed no remarkable abnormalities. Programmed ventricular stimulation with or without isoproterenol infusion induced the same tachycardia.



**Figure 1.** (Panel A) Electrocardiography revealed wide QRS tachycardia with right bundle branch block and right superior axis deviation. (Panel B) An activation map showed a reentrant circuit around the left posterior septum area. (Panel C) A different type of VT was induced. (Panel D) The MRI revealed the obstruction was located in the subendocardial region of the interventricular septum, the apical anterior, the apical inferior, and the apex segment, in accordance with the catheter ablation area.

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An activation map showed a re-entrant circuit around the left posterior septum area (panel B). During tachycardia, two distinct potentials were observed, namely Purkinje potential (PP) and pre-Purkinje potential (pre-PP). We targeted the area with the shortest pre-PP and PP interval in local electrograms. Spontaneous termination of ventricular tachycardia (VT) was noted during catheter ablation with a power setting of 35 W. However, post-ablation testing induced VT recurrence. Repeated ablation with higher energy was performed in the larger neighbouring area, and a type of VT different from that of the original was induced (panel C). We terminated the intervention due to prolonged procedure time, and verapamil was prescribed for symptom control. One day after intervention, magnetic resonance imaging revealed increased signal intensity on T2-weighted short-tau inversion recovery imaging and dark no-reflow regions in late gadolinium enhancement imaging, which is compatible with the pattern of microvascular obstruction. The obstruction was located in the subendocardial region of the interventricular septum, the apical anterior, the apical inferior, and the apex segment, in accordance with the catheter ablation area (panel D). The acute subendocardial microvascular

obstruction led to insufficient energy conduction and caused the failure of this prolonged procedure (*Figure 1*).

**Consent:** The authors confirm that written consent for submission and publication of this case report, including the images and associated text, has been obtained from the patient in accordance with COPE guidelines.

**Conflict of interest:** All authors have no conflicts of interest to declare. All authors have seen and agree with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

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### **Data availability**

No new data were generated or analysed in support of this research.