

# Unexpected turn in a thought to be crystal clear arrhythmia

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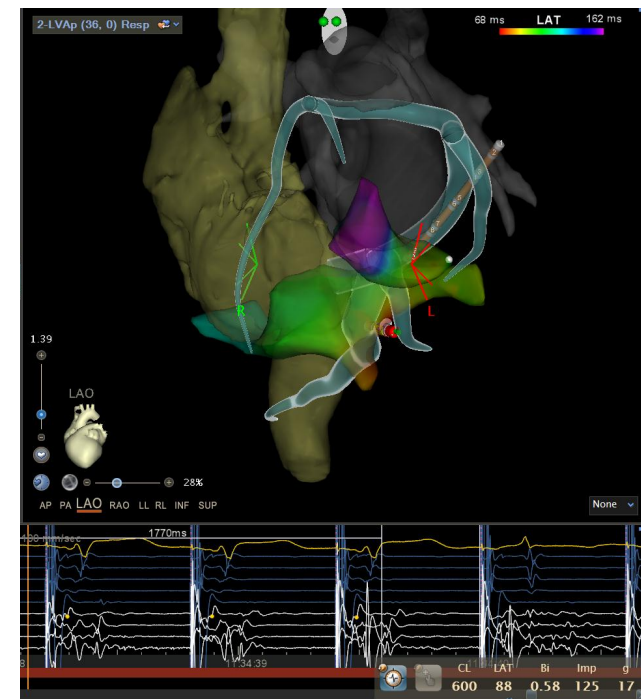
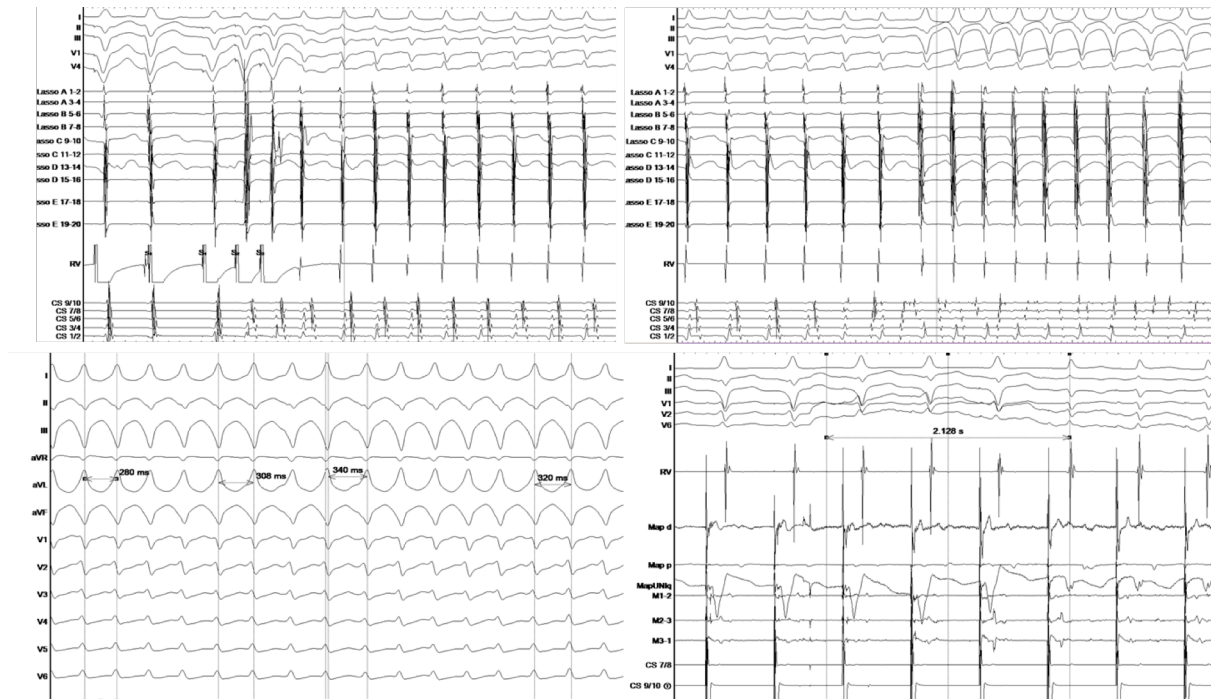
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## Introduction

An otherwise healthy woman at the age of 53 years presented at a regional hospital due to nausea and palpitations. As part of the initial work-up an electrocardiogram (ECG) was recorded, which showed a regular wide complex tachycardia of around 200 beats per minute (bpm). Because of hemodynamic instability an urgent electrocardioversion needed to be done. Afterwards the patient was transferred to our hospital for further diagnostic investigations. The basic clinical assessment (ECG, transthoracic echocardiogram, blood tests) were inconspicuous. Coronary artery disease could be ruled out by coronary computed tomography angiography (CCTA). In the complementary cardiac magnetic resonance imaging (MRI) signs of late enhancement could be found at the peak of the posteromedial papillary muscle. Taking everything together a scar related ventricular tachycardia was the most likely differential diagnosis. Prior to implantation of an implantable cardioverter-defibrillator (ICD) an antiarrhythmic medication (betablocker and class IC antiarrhythmic) was established and the patient was assigned for catheter ablation of ventricular tachycardia.

## Methods

In expectation of a papillary muscle related ventricular tachycardia an intracardiac echocardiography (ICE) catheter was placed in the right atrium (RA), as were EP catheters in the apex of the right ventricle (RV) and the coronary sinus (CS). Under echocardiographic and fluoroscopic guidance a transeptal puncture was performed and a multipolar navigational diagnostic catheter (CARTO PENTARAY) was put forward into the left ventricle. Via programmed ventricular stimulation (PVS) non-decremental ventriculoatrial (VA) conduction with a short VA interval and the earliest atrial activation nearby the CS entrance could be detected. Shortly after atrial fibrillation (AF) with rapid ventricular response was triggered by ventricular extrastimulus testing (VET) and quickly degenerated into an almost regular wide complex tachycardia mirroring the initial ECG at the emergency admission. Persistence of the rhythm disorder after administration of an intravenous 10mg Adenosin bolus-injection accompanying maximum pre-excitation proved the concept of an FBI tachycardia – the combination of atrial fibrillation and a malignant accessory pathway. Immediately prior planned electrocardioversion the rhythm disorder stop spontaneously. Thereafter the accessory pathway could be located at the entrance from the middle cardiac vein where it was successfully treated by temperature guided radiofrequency ablation. Preinterventional imaging served as a valuable tool to delineate CS anatomy and branches.



## Results

So far the patient's follow-up is unremarkable. The ICD implantation procedure was canceled as was the antiarrhythmic medication.