

## Supplementary Materials

### Supplementary A. Patient information

An 85-year-old man underwent mitral and aortic valvular replacement with prosthetic mechanical valves 33 years ago for severe valvular regurgitation, and received 2nd and 3rd redo operations owing to prosthetic valve failure 22 years (redo mitral valve replacement [MVR] and aortic valve replacement) and 3 years ago (redo MVR), respectively. The patient was also diagnosed with atrial fibrillation 33 years ago, and sinus rhythm was maintained with amiodarone. Recently, his left ventricular (LV) function was depressed to a LV ejection fraction of 31%, and medications for heart failure, including beta-blocker (bisoprolol), were added to his previous medications.

The patient was admitted to the emergency department owing to severe palpitation with dizziness. Electrocardiography showed sustained ventricular tachycardia (VT), and his mean blood pressure was 53 mmHg. Immediate direct current cardioversion was performed. Intravenous amiodarone was administered, and an implantable cardioverter defibrillator (ICD) was implanted. However, frequent ventricular beats with non-sustained or spontaneously terminated sustained VT were observed continuously with hemodynamic instability. The patient's left ventricle was dilated with an ejection fraction of 27%; however, no significant coronary stenosis or vasospasm was observed on coronary angiography with ergonovine provocation testing.