

## Cardiac arrest in a patient with atrial fibrillation and heart failure and with normal coronaries

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There is a high risk of cardiac arrest with a patient with atrial fibrillation and heart failure(HF). This is because to both disease progressions can lead to ventricular fibrillation and ventricular tachycardia. This case reviews a patient with cardiac arrest whose definite etiology was undefinable through CAG. The diagnosis was confirmed through another cardiac arrest event during ICU admission. A 65-year-old man with a history of COPD and atrial fibrillation with HF was found unresponsive with cardiac ventricular fibrillation(Fig.1a) and was transferred to the emergency room after being resuscitated through cardioversion. The initial EKG showed ST-depression and T-wave inversion in inferior leads and RBBB in anterior leads.(Fig.1b) Laboratory CK-MB and hs-Troponin values were 7.2ng/ml and 649.5pg/ml respectively, suggesting the cause to be an ischemic event. However, emergency coronary angiogram did not show any significant stenosis in both coronary arteries. The patient was admitted to the ICU after IV nitrate infusion and was treated with other medications, such as dobutamine, fimasartan, furosemide and carvedilol. During ICU care, sudden onset of circulatory collapse with low blood pressure occurred due to pulseless VT. Normal sinus rhythm was restored through DC conversion but ST-elevation developed in inferior and lateral leads.(Fig.1c) This was completely resolved through 200ug of IV nitroglycerine, at which point the diagnosis of variant angina was made. ICU Rhythm monitoring revealed that this pulseless VT event occurred after IV NTG infusion discontinuation due to low blood pressure. This case shows how timely diagnosis of variant angina in a hemodynamically unstable patient can dramatically alter the appropriate treatment. A precise method of diagnosis is by observing typical ECG changes during attacks of vasospastic angina. ST elevations in leads corresponding to the culprit normalize upon administration of a fast-acting nitrate. Overall, a more effective method is needed to quickly identify variant angina. Meantime, raising the index of suspicion and having a comprehensive diagnostic approach is the take home message of this case report.

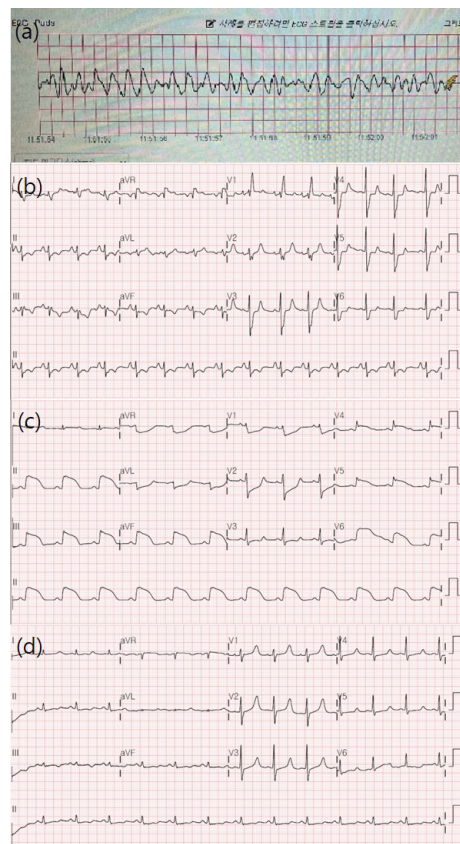


Figure 1: EKG  
(a) during transfer  
(b) in emergency room  
(c) before nitroglycerine infusion in ICU  
(d) after nitroglycerine infusion in ICU