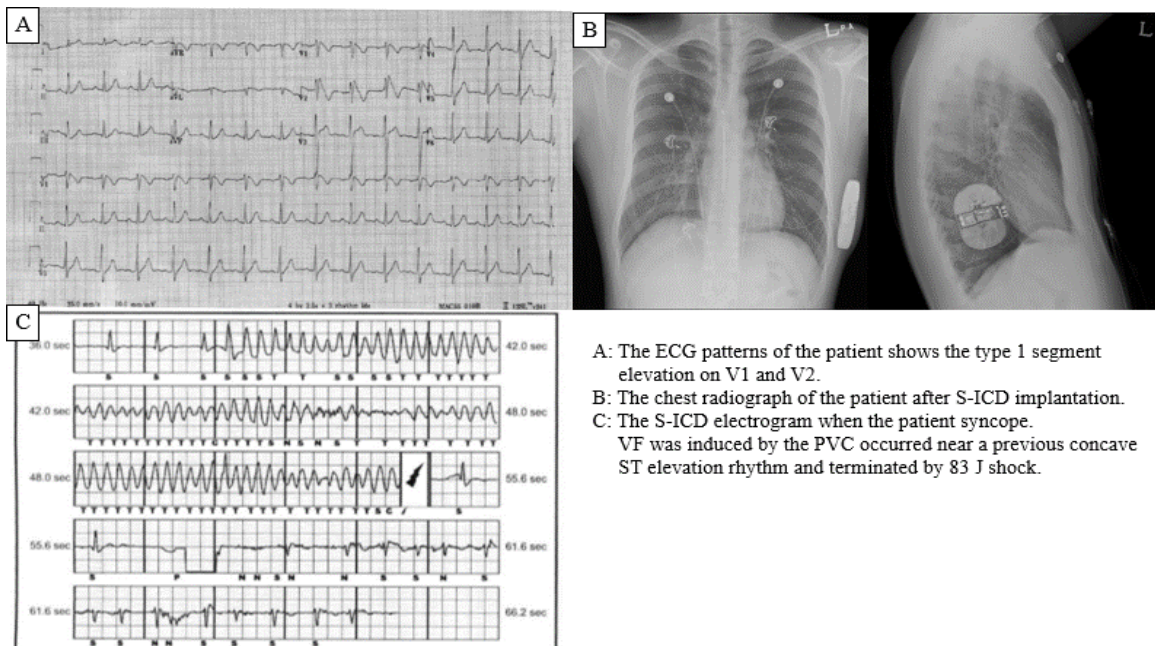


## A case of subcutaneous ICD insertion in patient with Brugada syndrome

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An implantable cardioverter-defibrillator (ICD) is an effective treatment method to prevent sudden death in patients with arrhythmia. A subcutaneous ICD (S-ICD) is a device that with an electrode inserted into the thoracic lumen without touching the cardiovascular system. We present a successful case of S-ICD insertion in patient with Brugada syndrome (BrS). A 27-year-old man presented to the ER after resuscitated from Ventricular fibrillation (VF) cardiac arrest. He had no family history of sudden death. The ECG upon arrival with fever showed type 1 segment elevation on V1 and V2. The angiogram and echocardiography were nonremarkable. Ergonovine stimulation test showed no coronary spasm. Treadmill test resulted no arrhythmias and ST changes. Epinephrine stress test, using the Mayo protocol, showed no QT prolongation. He had no SCN5A gene mutation. Flecainide test was not performed because patient refused. By the 2005 HRS/EHRA criteria, he was diagnosed with Type 1 BrS: type 1 segment elevation on right precordial lead and documented VF. The S-ICD was implanted because he was young with high activity and BrS did not require pacing due to the low risk of bradycardia and monomorphic VT. The S-ICD was implanted using the single-incision technique and the pulse generator pocket was placed between the musculus latissimus dorsi and musculus serratus anterior. Five months later, the patient presented to ER again with seizure after severe stress. According to the S-ICD report, the VF was induced by the PVC occurred near a previous concave ST elevation rhythm. After 15 seconds, the ICD sensed tachyarrhythmia and the shock effectively restored to the sinus rhythm. No clinical events occurred after treatment with quinidine. The S-ICD has its advantage in reducing the risk of lead extraction or lead failure in young patients with high activity and patients who require vascular preservation. However, it cannot be applied to arrhythmia patients who need pacing since it has no stimulation function. The S-ICD is a good alternative to compensate disadvantages of transvenous ICD, and it can also be the first treatment of choice if S-ICD has a pacing function in the future.



A: The ECG patterns of the patient shows the type 1 segment elevation on V1 and V2.  
B: The chest radiograph of the patient after S-ICD implantation.  
C: The S-ICD electrogram when the patient syncope.  
VF was induced by the PVC occurred near a previous concave ST elevation rhythm and terminated by 83 J shock.