An unusual indication for subcutaneous implantable cardioverter defibrillator (ICD) following unsuccessful transvenous ICD implantation.

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Introduction: Since the approval of subcutaneous implantable cardioverter defibrillator (S-ICD) in 2016 in Japan, the number of implantation of S-ICD has been increasing. S-ICD is suitable for patients with inadequate venous access because of device infection, lead extraction and venous obstruction. We herein report an unusual indication for S-ICD following unsuccessful transvenous-ICD (TV-ICD) implantation. A 73-year-old woman with a past history of dilated cardiomyopathy (left ventricular ejection fraction: LVEF=20%), chronic heart failure (New York Heart Association; class II), chronic atrial fibrillation (QRS duration: 90ms) and mitral valve replacement was hospitalized due to ventricular fibrillation. Following the complete recovery of motor and neurological function with intensive care and cardiac rehabilitation, implantation of TV-ICD was tried. However, lead delivery into right ventricular apex was failed since it was difficult to place technically because of the abnormally enlarged right atrium. (77*110mm, Figure) Moreover, sensing and pacing failure was observed at another place of right ventricle such as septum or basal region. Nevertheless, ICD implantation was thought to be still needed since sudden cardiac death because of fatal arrhythmia could be occurred with high probability in the present case. A few weeks later, S-ICD implantation was planned and successfully implanted. Although according to the previous reports, an invasive surgical approach of ICD implantations may be a therapeutic option for the patients with limited venous access, mortality rate for the surgical approach remains still relatively high.

Methods: N/A

Result: N/A

Conclusion: This case highlighted the possibility that the patients with an unsuccessful implantation due to the enlarged right atrium can be the candidates for S-ICD implantation as well as surgical approach.