Introduction: The subcutaneous implantable cardioverter-defibrillator (S-ICD; Boston Scientific, Marlborough, MA, USA) is a useful tool to prevent sudden cardiac death without intra-cardiac lead related complications. However some inappropriate shock cases because of oversensing due to entrapped subcutaneous air early after implantation have been reported. We investigate the subcutaneous air absorption rate at one week after implantation by imaging computed tomography (CT).

Methods: The patients who underwent S-ICD implantation received CT scan immediately after operation and one week after. We calculated the volume of subcutaneous air using a three-dimensional image analysis system to determine its absorption rate.

Result: Of the patients who received S-ICD implantation at our hospital, seven consented patients were surveyed whose data was available. The mean age was 50.3 ± 19.0 years old (71% of men), and the mean body mass index was 23.6 ± 4.1. The conventional three incision method was performed in six patients and two incision method was in one patient. The mean subcutaneous air immediately after implantation and one week after were 28.1 ± 4.8 ml and 0.16 ± 0.18 ml, respectively, showing the absorption rate was 99%.

Conclusion: The subcutaneous air was almost absorbed at one week after S-ICD implantation, suggesting a low occurrence of inappropriate shock due to entrapped air after a week after operation.