Letter by Gamble et al Regarding Article, “Inappropriate Shocks due to Subcutaneous Air in a Patient With a Subcutaneous Cardiac Defibrillator”

We were interested to read the report of Zipse et al.,1 reporting inappropriate shocks delivered by a subcutaneous defibrillator because of undersensing, ascribed to entrapped subcutaneous air surrounding the distal sensing electrode.

We encountered a similar phenomenon in a recent patient, although in our case it was because of air entrapment around the proximal sensing electrode. Our patient was a 22-year-old woman, receiving a subcutaneous defibrillator after idiopathic sustained fast polymorphic ventricular tachycardia. The procedure was performed using the 2-incision implantation technique as described by Knops et al.,2 tunneling the distal electrode through a sheath to avoid the superior incision near the sternal notch. The patient received 2 inappropriate shocks 2 hours after the end of the procedure because of low-amplitude signals with artifact on the primary sensing vector (proximal electrode-generator). We initially suspected (after advice from the company) a connection problem and reopened the wound to check this. Subsequently, it was noted that chest radiography showed air entrapped around the proximal electrode. The abnormal sensing resolved once the air had been absorbed.

We have since noted that the appearance of subcutaneous emphysema is frequently seen around the electrodes after subcutaneous defibrillator implantation, as would be expected after an open operation. It seems that this radiographic phenomenon is much more frequent than the clinical manifestation of abnormal sensing. It is important to examine both postero-anterior and lateral chest x-rays carefully because air entrapment may only be evident on one of these views.

This complication is important because recognition of the problem can avoid unnecessary wound exploration. We have modified our technique to instill sterile water around the proximal electrode, aiming to reduce the risk of air entrapment. We would also suggest that the 2-incision technique, by placing the distal electrode without another incision, is less likely to result in air around the distal electrode.

We think that further surveillance of this incidence of this problem is important to minimize the risk of inappropriate therapies.

Disclosures

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