A 5-year-old girl with catecholaminergic polymorphic ventricular tachycardia received an implantable cardioverter-defibrillator (ICD) in abdominal position after she had survived ventricular fibrillation. A shock lead was placed in the sinus transversus and a bipolar epicardial pace-sense lead was actively fixed to the left ventricle. Over time, the R-wave amplitude decreased from 10.3 mV post-operatively to finally <2 mV 2.5 years later (Panel A), resulting in T-wave oversensing and inappropriate shock. There was no change in pacing threshold and pacing impedance. The sensing polarity was changed from the true bipolar to the integrated bipolar configuration using the epicardial high-voltage coil as one of the sensing poles, resulting in an increase of R-wave amplitude to 8 mV without significant change in the T-wave amplitude (Panel B).

Far-field sensing of myopotentials in this configuration was carefully ruled out. Ventricular fibrillation was induced and correctly detected and treated by the device. There were no further episodes of T-wave oversensing. This case illustrates a possible electronic troubleshooting of detection issues related to small R-wave and underlines the importance of an increasing flexibility in the selection of ICD electric vectors.

The full-length version of this report can be viewed at: http://www.escardio.org/communities/EHRA/publications/ep-case-reports/Documents/troubleshooting-r-wave-cardioverter-defibrillator-shock.pdf.