- 15. Richards S, Aziz N, Bale S, Bick D, Das S, Gastier-Foster J et al.; on behalf of the ACMG Laboratory Quality Assurance Committee. Standards and guidelines for the interpretation of sequence variants: a joint consensus recommendation of the American College of Medical Genetics and Genomics and the Association for Molecular Pathology. *Genet Med* 2015;**17**:405–24.
- 16. Zipes DP, Camm AJ, Borggrefe M, Buxton AE, Chaitman B, Fromer M et al. ACC/AHA/ESC 2006 Guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death: a report of the American College of Cardiology/American Heart Association Task Force and the European Society of Cardiology Committee for Practice Guidelines. *Europace* 2006;8:746–837.
- Krahn AD, Healey JS, Chauhan V, Birnie DH, Simpson CS, Champagne J et al. Systematic assessment of patients with unexplained cardiac arrest: cardiac arrest survivors with preserved ejection fraction registry (CASPER). *Circulation* 2009;**120**:278–85.
- Fernández-Falgueras A, Sarquella-Brugada G, Brugada J, Brugada R, Campuzano O. Cardiac channelopathies and sudden death: recent clinical and genetic advances. *Biology (Basel)* 2017;6: 1–21.
- Wijeyeratne YD, Behr ER. Sudden death and cardiac arrest without phenotype: the utility of genetic testing. *Trends Cardiovasc Med* 2017;27:207–13.
- Papadakis M, Raju H, Behr ER, De Noronha SV, Spath N, Kouloubinis A et al. Sudden cardiac death with autopsy findings of uncertain significance—potential for erroneous interpretation. *Circ Arrhythm Electrophysiol* 2013;6:588–96.

IMAGES IN ELECTROPHYSIOLOGY

doi:10.1093/europace/euaa098 Online publish-ahead-of-print 1 May 2020

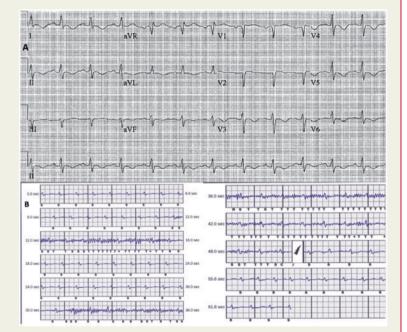
Inappropriate subcutaneous implantable cardioverter-defibrillator shock due to electromagnetic interference

Utkarsh Kohli 🕞 ¹* and Sohail Hassan²

¹Division of Pediatric Cardiology, Section of Pediatrics, Comer Children's Hospital and the University of Chicago Pritzker School of Medicine, 5841 S Maryland Ave., RM C104-E, MC 4051, Chicago, IL 60637, USA; and ²Division of Electrophysiology, Department of Cardiology, St. John Hospital and Medical Center, Detroit, MI, USA * Corresponding author. Tel: 773-702-6172; fax: 773-702-2319. *E-mail address*: ukohli@peds.bsd.uchicago.edu

A 34-year-old male with prolonged QTc (*Panel A*, QTc: 560 ms, likely long QT syndrome subtype 2) felt a shock while using a drill [>12 inches (30 cm) away from S-implantable cardioverter-defibrillator]. Device interrogation revealed low amplitude QRS complexes marching through the noise which coincided with the use of drill suggesting electromagnetic interference (EMI) (*Panel B*).

Low amplitude of QRS complexes may have contributed to the inability to filter out the external noise. Smart pass filter (9 Hz high-pass filter, enabled) reduces amplitude of low frequency signals (T waves) but is not useful for high frequency signals like EMI. The EMI (notch) filter (non-programmable) of the device was set at 60 Hz. The band pass filter (3–40 Hz, wide-range filter, non-programmable) was also enabled. The patient has not used the drill since then and is doing well.



Published on behalf of the European Society of Cardiology. All rights reserved. © The Author(s) 2020. For permissions, please email: journals.permissions@oup.com.