

University of Groningen

## Inappropriate shock caused by P wave oversensing in an entirely subcutaneous ICD

Mulder, B A; Maass, A H; Blaauw, Y

*Published in:*  
 Netherlands Heart Journal

*DOI:*  
[10.1007/s12471-018-1099-z](https://doi.org/10.1007/s12471-018-1099-z)

**IMPORTANT NOTE:** You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

*Document Version*  
 Publisher's PDF, also known as Version of record

*Publication date:*  
 2018

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Mulder, B. A., Maass, A. H., & Blaauw, Y. (2018). Inappropriate shock caused by P wave oversensing in an entirely subcutaneous ICD. *Netherlands Heart Journal*, 26(7-8), 411-412. <https://doi.org/10.1007/s12471-018-1099-z>

**Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).


**Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*



# Inappropriate shock caused by P wave oversensing in an entirely subcutaneous ICD

B. A. Mulder<sup>1</sup>  · A. H. Maass<sup>1</sup> · Y. Blaauw<sup>1</sup>

© The Author(s) 2018. This article is an open access publication.

A 28-year-old woman with familial hypertrophic cardiomyopathy caused by a mutation in the gene encoding MYH7 presented with an implantable cardioverter defibrillator (ICD) shock to the emergency department. In the past she suffered from non-sustained ventricular tachycardias as well as atrial flutter but she had not experienced an ICD shock before. She cycled home and felt dyspnoeic and shortly thereafter experienced a bang and intense burning sensation retrosternally. ICD interrogation revealed an inappropriate shock because of P wave oversensing. Fig. 1a shows her electrocardiogram with large P waves due to atrial enlargement. Fig. 1b shows inappropriate sensing with detection of both QRS complexes and P waves (arrows indicate sensed P waves). This triggered the ICD to deliver a shock as the calculated frequency exceeded the conditional shock zone. To prevent future shocks, the vector was manually selected and the SMART Pass filter was turned on. During exercise testing appropriate QRS sensing was observed up to 130 beats per minute.

**Open Access** This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

---

✉ B. A. Mulder  
b.a.mulder@umcg.nl

<sup>1</sup> University Medical Center Groningen, Department of Cardiology, Thoraxcenter, University of Groningen, Groningen, The Netherlands



**Fig. 1a,b** **a** shows electrocardiogram with atrial enlargement, **b** arrows indicate all *p*-waves classified as S or T. *S* sensing of an event not classified as tachycardia, *T* sensing of an event classified as tachycardia. *dot* indicates sensing of an unclassifiable event that is discarded, *C* indicated capacitor charging and the *lightning symbol* indicates a shock delivered

