

## Cardiac Alternans

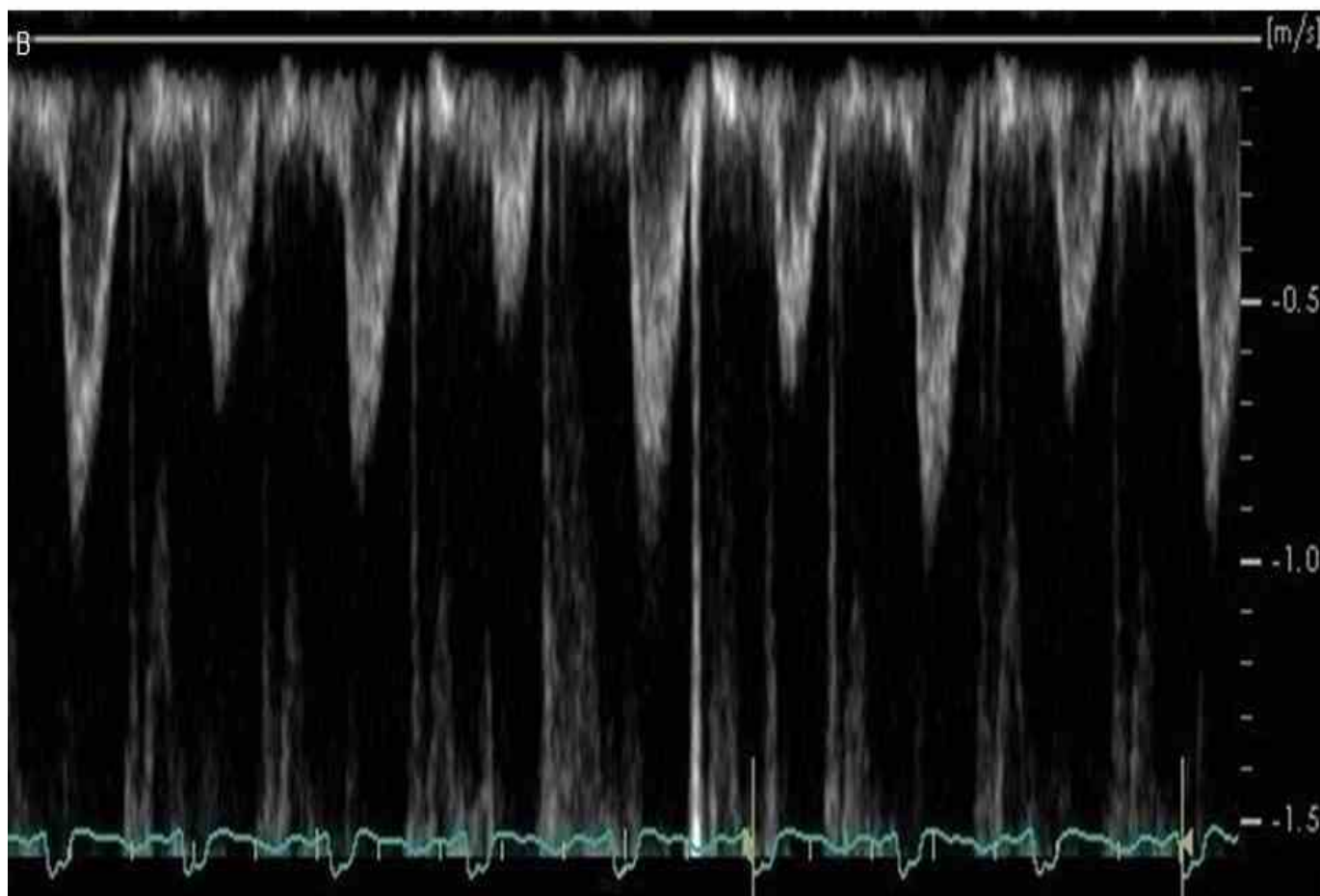
Sakiko Honda, MD\*; Tatsuya Kawasaki, MD, PhD; Michiyo Yamano, MD; Tadaaki Kamitani, MD, PhD

\*Sakiko Honda, MD

Department of Cardiology, Matsushita Memorial Hospital, Osaka, Japan

Tel: +81-66992-1231, Fax: +81-66992-4845; Email: honda.sakiko@jp.panasonic.com

### Clinical Image



## Image Description

A 69-year-old man presented to the emergency department of our hospital with worsening dyspnea. On examination, the pulse was calculated to be almost 70 beats per minute although the heart rate was 140 beats per minute on the monitor. Interestingly, the heart sounds fluctuated in amplitude, with a gallop rhythm (Supplement audio file). A phonocardiogram, obtained at the apex at a paper speed of 50 mm/s, showed additional heart sounds on the low-frequency (Panel A, middle, asterisk) and an alternans of the first and second heart sound on the low- and middle-frequency (Panel A, lower, I and II). Echocardiography showed an enlarged left ventricle and a reduced ejection fraction of 33%; of note, an alternans was also detected in left ventricular outflow on Doppler assessment (Panel B). The patient was diagnosed with congestive heart failure, accompanied by pulsus alternans, auscultatory alternans, and mechanical alternans. Cardiac alternans is a good sign of impaired left ventricular function [1,2] and can be touched, heard, and seen in clinical practice. The cardiac alternans in this patient disappeared next day after the initiation of standard therapy including diuretics and vasodilators.

## References

1. Rosenbaum DS, Jackson LE, Smith JM, Garan H, Ruskin JN, Cohen RJ. Electrical alternans and vulnerability to ventricular arrhythmias. *N Engl J Med.* 1994; 330: 235-241.
2. Merchant FM, Armondas AA. Role of substrate and triggers in the genesis of cardiac alternans, from the myocyte to the whole heart: implications for therapy. *Circulation.* 2012; 125: 539-549.

**Manuscript Information:** Received: February 18, 2016; Accepted: April 26, 2016; Published: April 29, 2016

**Authors Information:** Sakiko Honda, MD\*; Tatsuya Kawasaki, MD, PhD; Michiyo Yamano, MD; Tadaaki Kamitani, MD, PhD  
Department of Cardiology, Matsushita Memorial Hospital, Osaka, Japan

**Citation:** Honda S, kawasaki T, Yamano M, Kamitani T. Cardiac alternans. *Open J Clin Med Case Rep.* 2016; 1107

**Copy right statement:** Content published in the journal follows Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>). © **Honda S 2016**

**Journal:** Open Journal of Clinical and Medical Case Reports is an international, open access, peer reviewed Journal focusing exclusively on case reports covering all areas of clinical & medical sciences.

Visit the journal website at [www.jclinmedcasereports.com](http://www.jclinmedcasereports.com)

For reprints & other information, contact editorial office at [info@jclinmedcasereports.com](mailto:info@jclinmedcasereports.com)