A 44-year-old man with dilated cardiomyopathy was admitted to hospital with heart failure. Despite maximum inotropic therapy, he developed cardiogenic shock. Therefore, an Impella 5.0 (Abiomed, Danvers, MA, USA) was implanted, and the clinical and hemodynamic state improved. The following day, however, the urine turned dark red (Figure A), and hemoglobin decreased (from 10.2 to 9.0 mg/dL) without bleeding, suggesting hemolysis. Laboratory data indicated a sudden elevation of total bilirubin (from 1.4 to 5.8 mg/dL) and of lactate dehydrogenase (from 266 to 1,149 U/L), as well as a decrease in haptoglobin (from 72 to <9 mg/dL). Emergency echocardiography showed that the suction port of the Impella device was located 35 mm from the aortic valve, within the manufacturer recommendations (Figure B), but that the Impella device was striking the left ventricular (LV) septal wall (Figure C, D). Fluoroscopy showed a large-amplitude swinging motion of the Impella device in the LV (Figure E; Supplementary Movie 1). We repositioned the Impella device with the suction port 55 mm from the aortic valve to prevent this pendulum motion (Figure F, G; Supplementary Movie 2). In 1 h, the urine returned to a yellowish color (Figure H) and the hemolysis decreased. We hypothesize that the pendulum motion created shear stress between the septal wall and the suction port of the Impella device.

To the best of our knowledge, this is the first case of hemolysis caused by swinging motion of the Impella device.

Disclosures
The authors declare no conflicts of interest.

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Supplementary Files

Supplementary Movie 1. Fluoroscopy showing the giant swing motion before repositioning.

Supplementary Movie 2. Fluoroscopy showing the decrease of the pendulum motion after repositioning.