

First use of the Impella 5.5 in a patient with cardiogenic shock to bridge to heart transplantation in Poland

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A 46-year-old male with blood pressure (BP) 85/46 mmHg was admitted due to cardiogenic shock as a result of antero-lateral ST-segment elevation myocardial infarction treated by percutaneous coronary intervention of the left anterior descending artery in a remote hospital 2 days prior. Laboratory findings revealed N-terminal-proB-type natriuretic peptide 13,868 pg/mL, troponin I 338,068 pg/mL, and lactates 2.9 mmol/L. Echocardiography showed enlargement of both ventricles, a 10% of left ventricular (LV) ejection fraction, and LV thrombus, necessitating inotropic support with noradrenaline 4 mL/h, milrinone 9 mL/h, and vasopressin 1 mL/h (figure 1). The Shock Team decided to implement an intra-aortic balloon pump (IABP Teleflex), after which BP increased to 123/62 mmHg, and right heart catheterization revealed a mean pulmonary artery pressure of 36 mmHg, pulmonary capillary wedge pressure of 25 mmHg, cardiac index of 2.34 mL/min/1.73 m², cardiac power of 0.75 W, and pulmonary artery pressure index of 1.6. The control echocardiography did not show LV thrombus; thus, the IABP was replaced with the Impella CP (Abiomed).

Despite transitory improvement, hemolysis and thrombocytopenia were observed. As that time, the Impella 5.5 became available, and the Shock Team decided to upgrade the device to an axillary Impella 5.5, which was performed using a double device technique (Suppl. Video 1). Two days later, signs of hemolysis and thrombocytopenia ceased, and the patient's condition improved, gaining full mobilization. After 17 days on Impella 5.5 support, uneventful orthotopic HTx (*heart transplantation*) was performed. The postoperative course was uncomplicated. After 4 months the patient was doing well with full physical activity. The Impella 5.5 provides maximal hemodynamic support with reduced risk of complications and with minimally invasive implantation.

Article information

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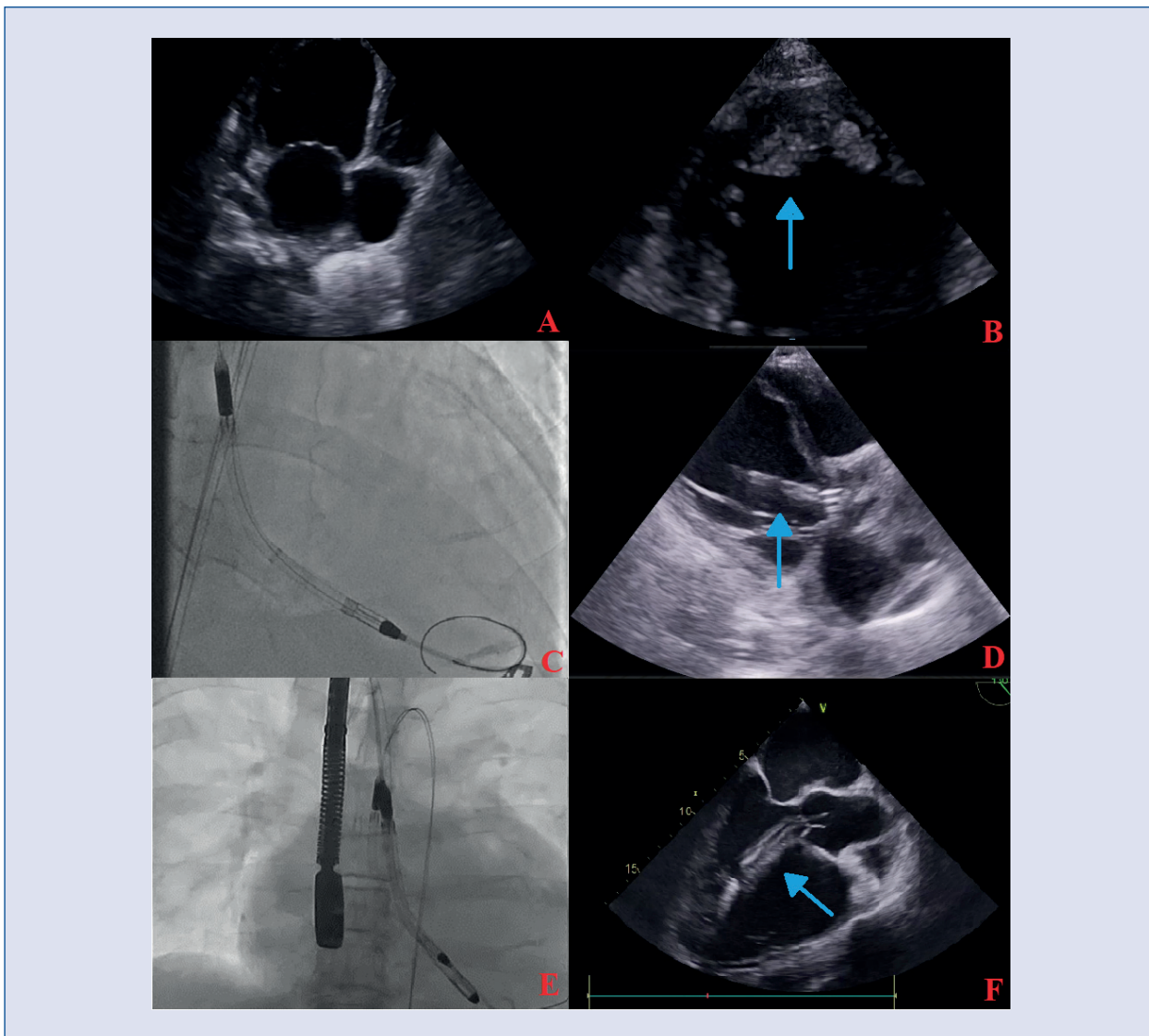


Figure 1. A. Transthoracic echocardiography, dilated left ventricle (diastolic diameter 72 mm); B. Clots in the apex of the left ventricle; C. Fluoroscopy, Impella CP implanted through right femoral access; D. Transthoracic echocardiography, Impella CP; E. Fluoroscopy, Impella 5.5 implanted through axillary access with Impella CP still in left ventricle (double device technique); F. Transthoracic echocardiography, Impella 5.5.