

# Rescue balloon aortic valvuloplasty in a patient with cardiogenic shock followed by transcatheter aortic valve implantation

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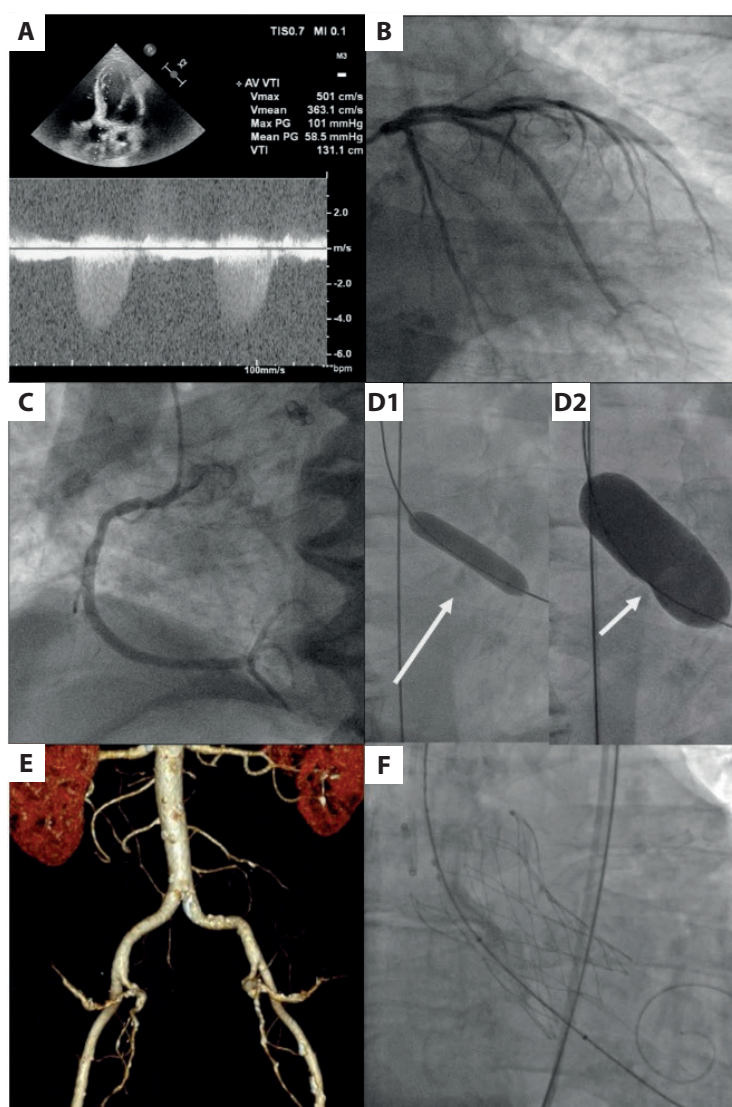
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Balloon aortic valvuloplasty (BAV) is a technique for the treatment of severe aortic valve stenosis (AS) which is used less frequently in contemporary practice; however, according to the current ESC guidelines, it still may be considered a bridge to further therapy in decompensated patients [1, 2]. Recently published data suggest that over half of the procedures may be performed as a bailout strategy [3].

A 71-year-old male with a history of arterial hypertension, chronic obstructive pulmonary disease, and paroxysmal atrial fibrillation was admitted for evaluation of his AS. Moreover, he was diagnosed with advanced coxarthrosis and required walking assistance. The patient was symptomatic, in class II/III according to the New York Heart Association (NYHA) classification; however, no signs of decompensation were present on admission. Transthoracic echocardiography (Figure 1A) confirmed severe AS with mean gradient of 58 mm Hg and aortic valve area (AVA) of 0.3 cm<sup>2</sup> with mildly reduced left ventricular ejection fraction (40%). Immediately after non-invasive testing on the same day, the patient developed severe dyspnea, hypotonia, and finally, cardiogenic shock within several minutes. Due to pulmonary edema with low blood pressure, the patient was intubated and mechanically ventilated. An urgent remote Heart Team assessment was performed, and the patient was qualified for coronary angiography with concomitant

rescue BAV. The coronary angiogram revealed no significant coronary lesions (Figures 1B and 1C). Due to severe calcifications of leaflets, a 22 mm Osypka VACS II (Osypka, Rheinfelden, Germany) balloon was unable to cross the aortic valve so additional predilatation with 8.0 × 50 mm and 9.0 × 50 mm (Figure 1D1) peripheral balloon catheters was performed. Eventually, a 22 × 50 mm balloon catheter was successfully introduced and BAV was performed (Figure 1D2). Periprocedural echocardiography confirmed a decrease in mean gradient to 38 mm Hg with AVA of 1.0 cm<sup>2</sup>. Pre-transcatheter aortic valve implantation (TAVI) was abandoned at the time due to unknown neurological status of the patient. The patient was hospitalized in the intensive care unit for 2 days. After his recovery, additional imaging with computed tomography, according to the TAVI workup, was performed to assess the valve and vascular access (Figure 1E). Within a week, a TAVI procedure was performed (Figure 1F) using a self-expanding Navitor 25 valve (Abbott, Chicago, IL, US). Post-procedural echocardiography showed 9/5 mmHg gradient and mild perivalvular leak. The patient was successfully discharged home after 16 days of in-hospital treatment. He attended the 30-day follow-up appointment alone, with almost no signs of physical and mental decline.

Symptomatic severe AS is still a life-threatening condition. Balloon aortic valvuloplasty



**Figure 1.** A. Baseline transthoracic echocardiography showing severe aortic valve stenosis. B. Coronary angiography of the left coronary system with no significant lesions. C. Coronary angiography of the right coronary artery with a moderate lesion in its proximal segment. D1. A 9.0 × 50 mm peripheral angioplasty balloon that passed across the stenosed valve. D2. The final 22 × 50 mm valvuloplasty balloon (white arrows — calcifications). E. Computed tomography angiography assessment showing optimal femoral access. F. Self-expanding aortic valve implantation

remains a feasible method that can be used as a bridge-to-therapy as well as a bailout strategy in critical cases and followed by definite treatment [4].

### Article information

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