

## IMAGES IN INTERVENTION

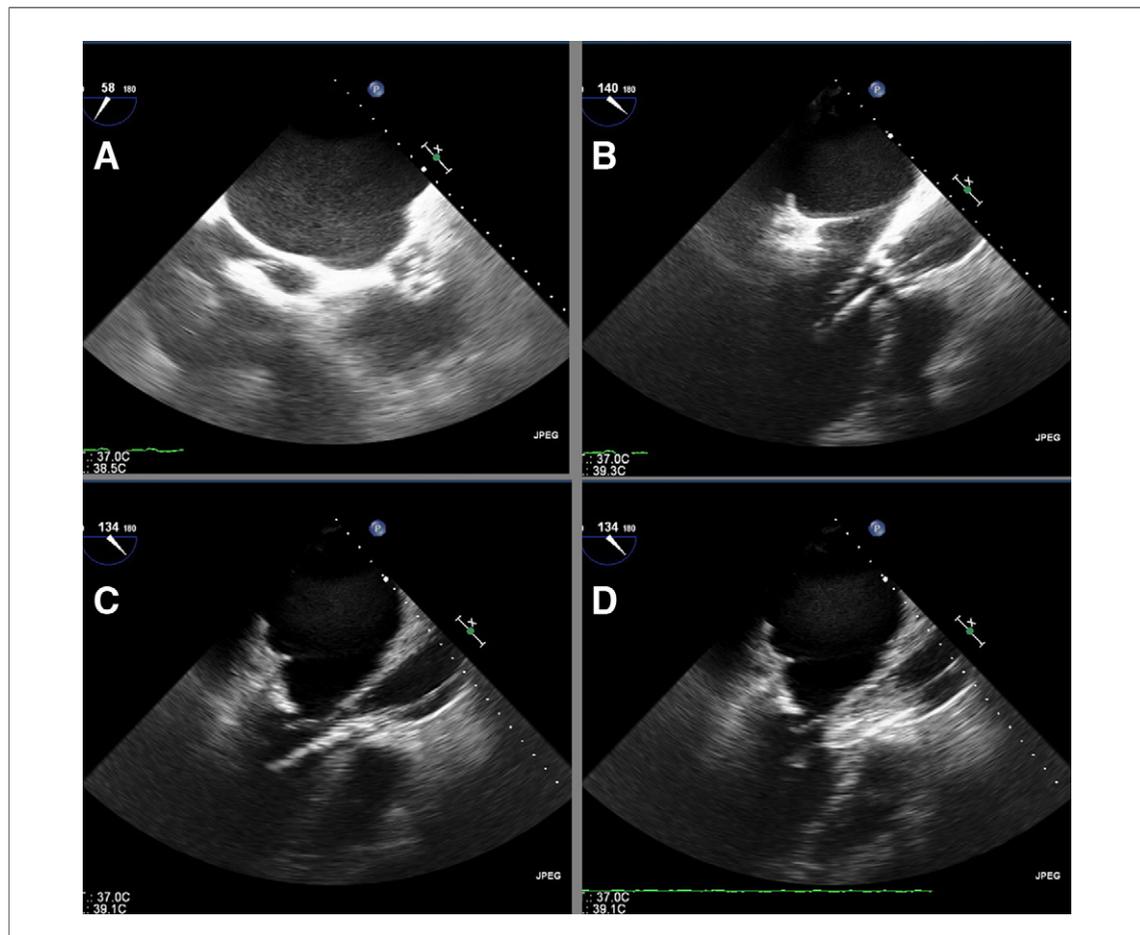
# Transesophageal Echocardiography-Guided, Bed-Side Bail-Out Aortic Valvuloplasty

Mathias C. Busch, MD, Sigrun Friesecke, MD, Klaus Empen, MD, Stephan B. Felix, MD

Greifswald, Germany

A 73-year-old man developed hemodynamic deterioration in the context of bilateral pneumonia,

despite treatment of septic shock according to guidelines. Transthoracic echocardiography was of



**Figure 1. Transesophageal Echocardiography**

(A) Heavily calcified, highly stenosed AV in cross-sectional TEE view. (B) TEE-guided wire placement. (C) TEE-guided placement of valvuloplasty balloon. (D) balloon inflation.

From the Universitätsmedizin Greifswald, Department of Cardiology and Pulmonology, Greifswald, Germany. The authors have reported that they have no relationships relevant to the contents of this paper to disclose. Manuscript received October 14, 2012, accepted November 8, 2012.

poor quality, due to obesity, but revealed severely reduced left ventricular (LV) function. Significant coronary heart disease had previously been ruled out angiographically. With hemodynamic status deteriorating further (intermittently requiring cardiopulmonary resuscitation), implantation of a per-

cutaneous LV assist device (Impella, ABIOMED, Danvers, Massachusetts) was planned. Because current circumstances made transfer to the catheterization laboratory impossible, transesophageal echocardiography (TEE)-guided implantation in the intensive care unit was initiated. The ultrasound image, however, revealed severe aortic valve (AV) stenosis (Fig. 1A), inaudible on auscultation. A transfemoral AL1 shaped 5-F catheter was placed in the ascending aorta. The AV was passed under TEE guidance with a straight-tip hydrophilic guidewire (Fig. 1B). After advancement of the catheter into the LV, pressure measurement with the intensive care unit monitor showed a peak-to-peak gradient of approximately 50 mm Hg. A J-tipped extra stiff guidewire was placed into the LV. A NuMed Nucleus (Hopkington, New York) 23-mm balloon was advanced across the AV with TEE guidance (Fig. 1C). Valvuloplasty was performed (Fig. 1D) without rapid ventricular pacing in the

setting of low-output cardiac failure, immediately leading to dramatic hemodynamic improvement. After further stabilization, transcatheter aortic valve implantation (CoreValve, Medtronic, Minneapolis, Minnesota) was performed several days later. Over the following days LV function recovered to ejection fraction 45%, and hemodynamic status stabilized without the need of vasopressors.

The images demonstrate the pitfalls of nondiagnostic imaging in an emergency situation and how an innovative strategy can help in an unexpected difficult situation.

---

**Reprint requests and correspondence:** Dr. Mathias C. Busch, Universitätsmedizin Greifswald, Department of Cardiology and Pulmonology, Ferdinand-Sauerbruch-Straße, 17475 Greifswald, Germany. E-mail: buschm@uni-greifswald.de.

---

**Key Words:** aortic stenosis ■ cardiogenic shock ■ intensive care medicine ■ valvuloplasty.