

## CLINICAL VIGNETTE

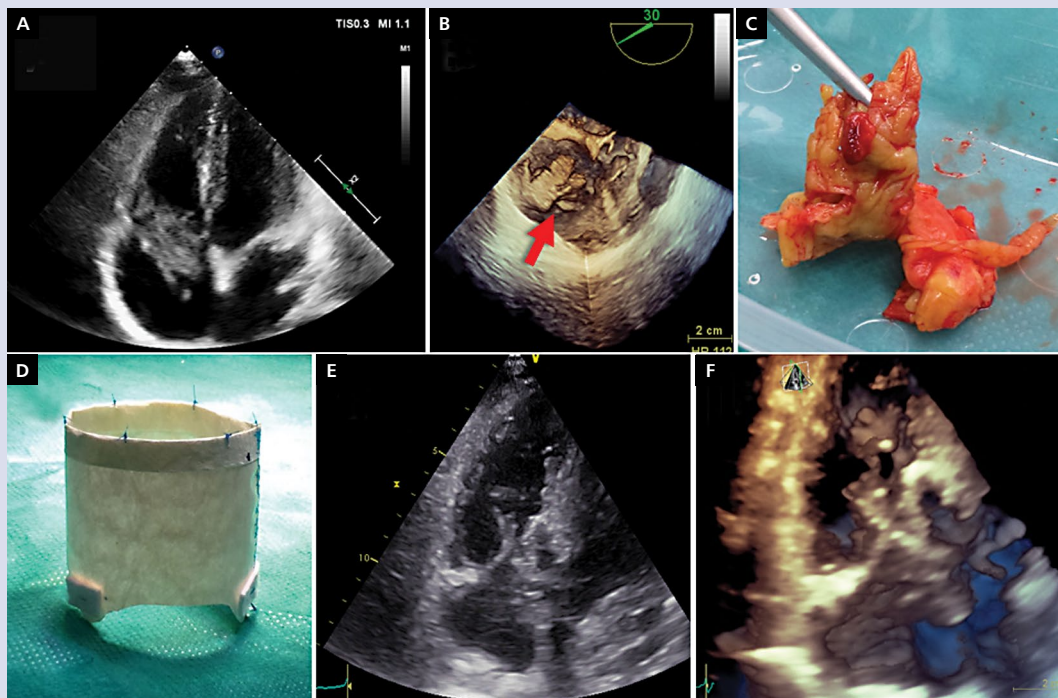
# Use of three-dimensional echocardiography for monitoring of tricuspid valve endocarditis treatment with a novel extracellular matrix cylinder reconstruction

Ewa Szymczyk<sup>1</sup>, Tomasz Kaszczyński<sup>2</sup>, Grzegorz Religa<sup>2</sup>, Piotr Lipiec<sup>1</sup>, Jarosław D. Kasprzak<sup>1</sup>

<sup>1</sup>Department of Cardiology, Medical University of Lodz, Lodz, Poland

<sup>2</sup>Department of Cardiac Surgery, Bieganski Hospital, Lodz, Poland

A 36-year-old woman, HIV, HBV and HCV infected, with long term intravenous drug addict and chronic kidney disease was admitted with symptoms of respiratory tract infection and 40°C fever. Blood cultures identified methicillin-sensitive *Staphylococcus aureus* bacteremia. Transthoracic echocardiography revealed a large (9 × 3 cm size), mobile, polycyclic vegetation on tricuspid valve with severe valve regurgitation (Fig. 1A). Critically ill patient was qualified for urgent, life-saving surgical tricuspid valve replacement with novel technique. Based on preoperative three-dimensional (3D) echocardiographic measurements (Fig. 1B), 32-mm cylinder was formed from a single sheet of commercially available extracellular matrix (CorMatrix™) to create a custom tricuspid valve prosthesis which was sewn to the tricuspid annulus and tacked with pledgeted suture to the right ventricular free wall, anterior and posterior papillary muscles (Fig. 1C, D). Intraoperative transoesophageal echocardiography showed normal antegrade flow without tricuspid regurgitation and normal postoperative right ventricular function (Fig. 1E, F). Current commercially available valve prostheses are suboptimal for tricuspid position due to thrombotic risk and in case of our patient with drug addiction — specific reinfection and anticoagulant compliance problems. The use of CorMatrix™ — acellular bioscaffold with potential for native valve tissue regeneration, as a material for tricuspid valve repair allows creating a fully functional valve and represents a promising approach for treatment of right heart endocarditis, and 3D echocardiography is optimal for procedural planning and monitoring.



**Figure 1.** **A.** Preoperative two-dimensional (2D) transthoracic echocardiography indicating huge vegetation with destroyed tricuspid valve; **B.** Tricuspid vegetation (arrow) seen from the right ventricle in preoperative three-dimensional (3D) echocardiogram; **C.** Excised tricuspid valve vegetation; **D.** Custom-made 32-mm extracellular matrix (CorMatrix™) cylinder valve; **E.** Postoperative transthoracic 2D; **F.** 3D echocardiography showing competent CorMatrix™ cylinder valve in tricuspid position

**Address for correspondence:**

Ewa Szymczyk, MD, PhD, Department of Cardiology, Bieganski Hospital, Medical University of Lodz, ul. Kniaziewiczza 1/5, 91-347 Łódź, Poland, tel/fax: +48 42 251 6015, e-mail: eszymczyk@ptkardio.pl

**Conflict of interest:** none declared

Kardiologia Polska Copyright © Polish Cardiac Society 2018