

Usefulness of CorMatrix-based tricuspid valve repair in the treatment of infective endocarditis

Zastosowanie macierzy CorMatrix w leczeniu infekcyjnego zapalenia wsierdza z zajęciem zastawki trójdzielnej

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A 34-year-old man addicted to heroin and mephedrone was transported to the cardiac surgery unit from the Isolation Hospital due to infective endocarditis (IE) of the tricuspid valve (TV) with severe regurgitation. Blood cultures indicated an increase in *Staphylococcus aureus* MSSA — a targeted antibiotic treatment with cloxacillin 6×2 g IV was added. The echocardiography revealed a large vegetation on the anterior leaflet of the TV, 31×20 mm in size, right atrium enlargement, and severe TV regurgitation (Fig. 1). Until recently, the only treatment options for IE causing significant damage to the TV were replacement of the valve with a biological or mechanical implant or advanced valvuloplasty. These methods, however, carry a risk of reinfection, dysfunction of the artificial prosthesis, as well as the potential complications inherent to aggressive treatment with vitamin K antagonists (VKA). Employing a CorMatrix patch may present an alternative method for treating IE. CorMatrix is an extracted extracellular matrix to which growth factors, matricellular proteins, glycosaminoglycans, and adhesion factors were applied. After implantation into human tissue, CorMatrix functions as a scaffold onto which the body's own cells migrate, depending on the location of the implant. The material also promotes the migration of leukocytes — a crucial property when treating IE because it prevents further reinfection. Before opening the patient's chest, the surgeon crafts a tubular CorMatrix patch, using the dimensions of the TV established during the pre-surgery cardiac echo as a template (the tricuspid annular diameter and the distance from the annulus to the papillary muscles in diastole). After sternotomy and removing the native TV, the surgeon implants the newly crafted valve to the native annulus and the papillary muscles. A CorMatrix-reconstructed TV (15×7 cm patch) was implanted. The intraoperative transoesophageal echocardiogram indicated the proper functioning of the CorMatrix prosthesis with only an insignificant regurgitation (Fig. 2). The patient was discharged from the intensive care unit two days after the surgery. During the following days, a gradual normalisation of biochemical parameters was observed. In good overall condition, the patient was transferred to the Isolation Hospital to continue intravenous antibiotic treatment. Six months after the surgery, a follow-up cardiac echo showed no tricuspid regurgitation and no reinfection. Until now, IE of the TV carried a high risk of reinfection. Additionally, there are no valves dedicated specifically to the tricuspid configuration available. The long-term outcomes of the implantation of a CorMatrix valve shed a new light on the treatment of IE of the TV. An additional advantage of the method is that it does not require any anticoagulant treatment with all abbreviation should be spelled out VKA, which often has a great impact on the quality of life of young patients.

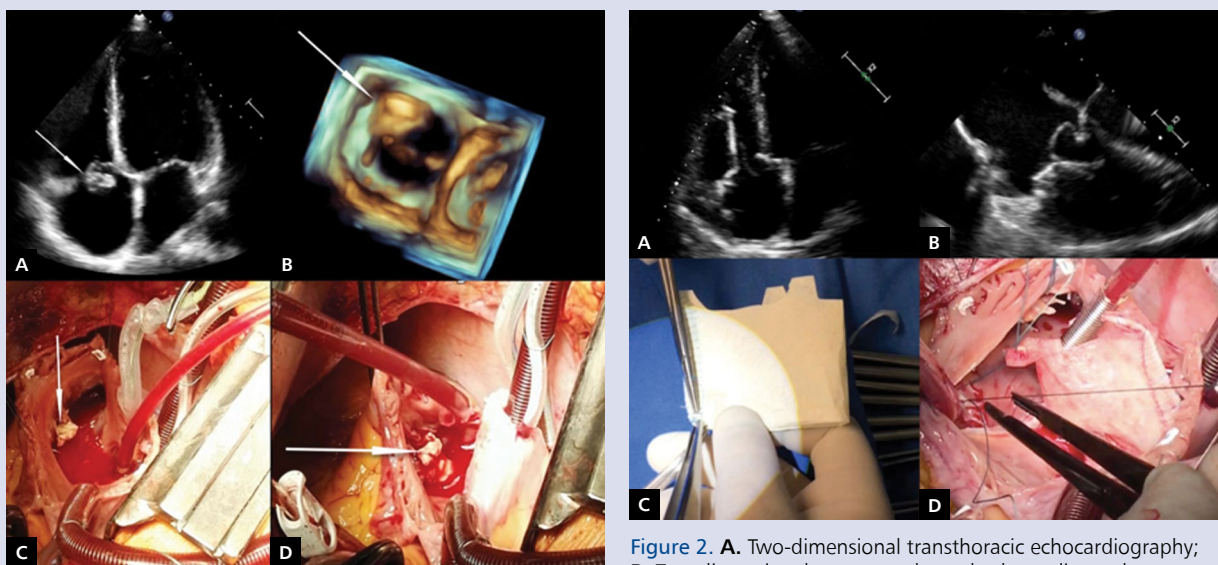


Figure 1. A. Two-dimensional echocardiography; B. Three-dimensional echocardiography; C, D. Intraoperative view. The arrows show the bacterial vegetation on the anterior leaflet of the tricuspid valve

Figure 2. A. Two-dimensional transthoracic echocardiography; B. Two-dimensional transoesophageal echocardiography; C. CorMatrix patch; D. Intraoperative view

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