

IMAGES IN INTERVENTION

Successful TriCinch-in-TriCinch Transcatheter Tricuspid Valve Repair



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The TriCinch System (4Tech Cardio Ltd., Galway, Ireland) is designed to percutaneously treat functional tricuspid regurgitation (TR) by reducing septolateral dimensions and thereby remodeling the anteroposterior annulus. While previous reports (1,2) have proven feasibility of single device implantation, we demonstrate feasibility of a double device implantation in 1 single intervention.

A 77-year-old female patient was referred because of symptomatic severe functional TR (Figure 1). The underlying pathology was annular dilatation resulting in severe distortion of the right ventricular geometry and lacking leaflet coaptation. Left ventricular systolic function was preserved with minimal mitral regurgitation. There was no pulmonary hypertension.

Treatment with the TriCinch device under compassionate use was deemed the best therapeutic option for this patient. Pre-procedural cardiac computed tomography defined the midline between the midanterior annulus and anteroposterior commissure as the target anchoring area. The procedure was performed under general anesthesia with transesophageal intracardiac echocardiographic and fluoroscopic guidance. The implantation of the first device significantly reduced the septoanterior

diameter, but severe TR was persisting. A second device was implanted anterior to the first device, in order to achieve more efficient annular remodeling (Figures 2A to 2C). This led to a total reduction in septolateral dimensions from 51 to 47 mm. The 43-mm anchoring stent of the second device was deployed in the inferior vena cava within the stent of the first device (Figure 2D). No right coronary artery obstruction was seen (Figure 2E). The procedure was completed successfully in 210 min and the patient discharged 5 days later without any adverse event. Although TR was only mildly reduced based on post-operative color Doppler, in the follow-up examination after 1 month, several clinical signs of significant functional TR, including hepatojugular reflux and jugular venous distension, were no longer present and brain natriuretic peptides declined from 489 to 198 pg/ml.

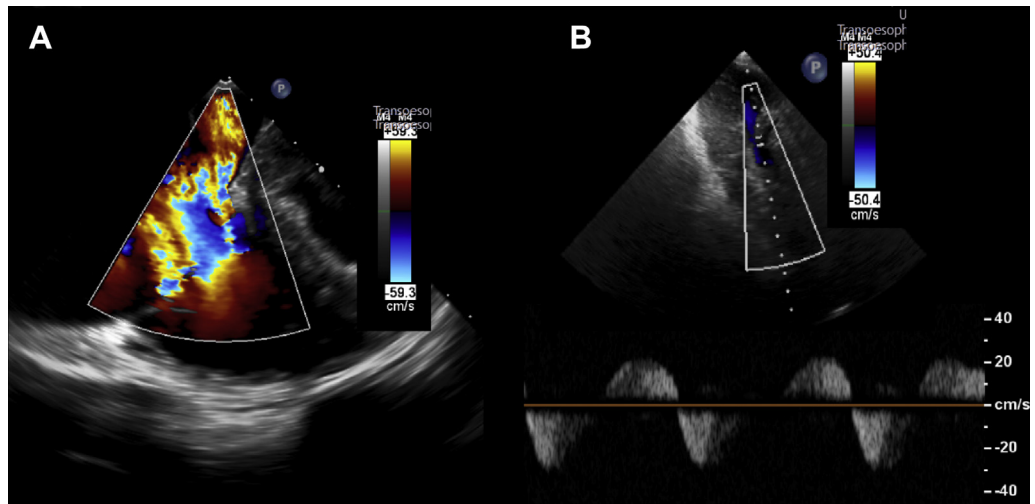
This case demonstrates that a double TriCinch implantation within a single procedure is feasible and safe, with possibility to enhance improved valvular remodeling in severely dilated anatomies.

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From the Heart Valve Clinic, University Hospital Zurich, Zurich, Switzerland. Dr. Taramasso and Mr. Guidotti have served as consultants for 4Tech. Dr. Nietlispach has served as a consultant for Edwards Lifesciences, Medtronic, Abbott Vascular, and 4Tech. Dr. Maisano is co-founder of 4Tech. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

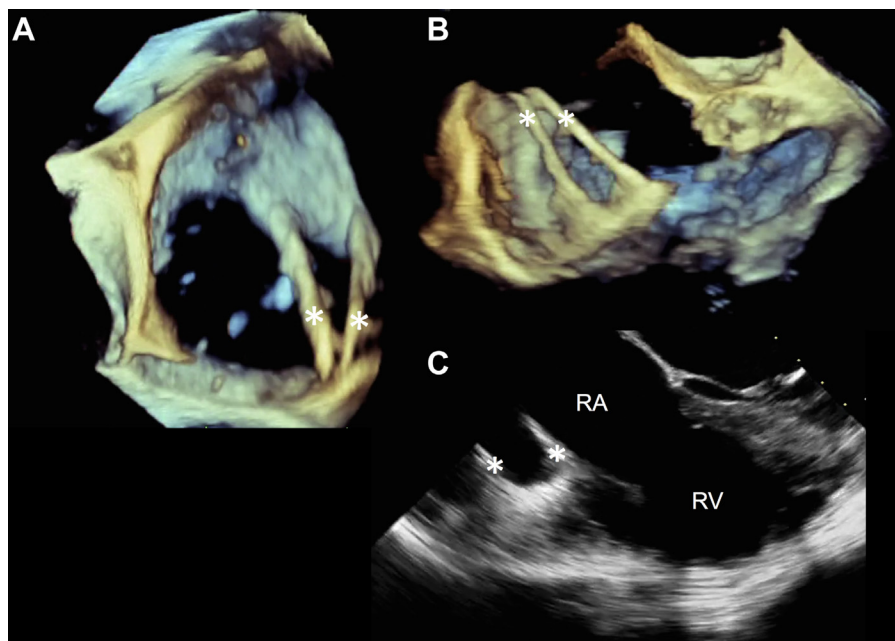
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FIGURE 1 Baseline Transesophageal Echocardiography Findings



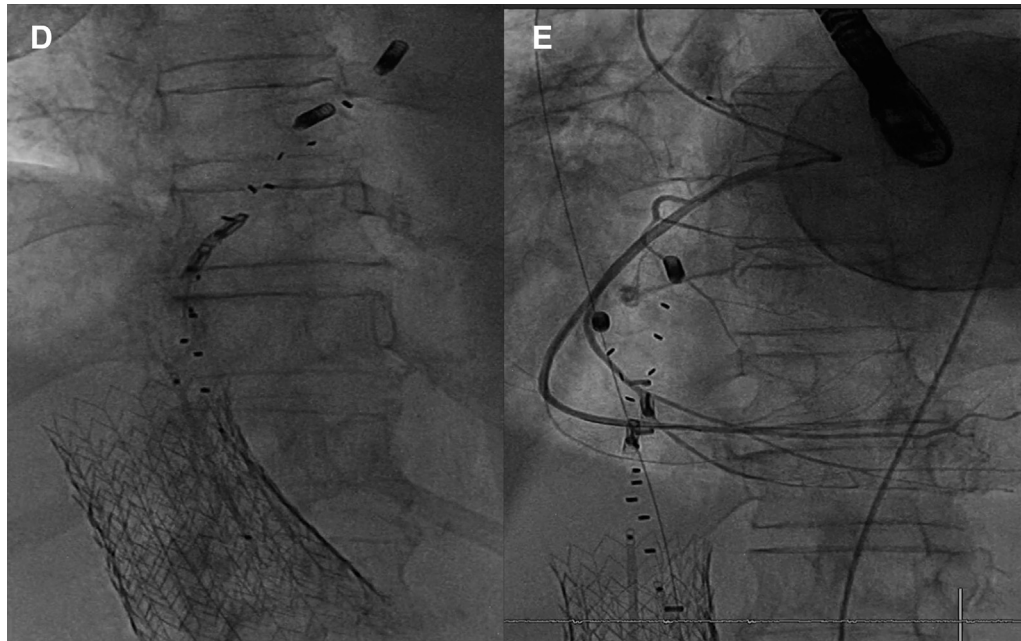
Severe tricuspid regurgitation (4+) upon (A) transesophageal echocardiography before the intervention with (B) holystolic hepatic venous flow reversal.

FIGURE 2 Implant's Pictures on Fluoroscopy and Echocardiography



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FIGURE 2 Continued



Representation of the devices (**asterisks**) placed in the anterior annulus in (**A, B**) 3-dimensional and (**C**) 2-dimensional transesophageal echocardiography. (**D**) Successfully implanted double TriCinch devices (4Tech Cardio Ltd., Galway, Ireland) in caudal right anterior oblique view. (**E**) Nonimpacted coronary artery from cranial left anterior oblique perspective. RA = right atrium; RV = right ventricle.

REFERENCES

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