

IMAGES IN INTERVENTION

ELASTA-T

Electrosurgical Laceration of Tricuspid Edge-to-Edge Repair Enabling TTVR



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Tricuspid transcatheter-edge-to-edge-repair (T-TEER) is a treatment for symptomatic severe tricuspid regurgitation (TR). However, even after successful T-TEER, some patients develop recurrent TR. Transcatheter tricuspid valve replacement (TTVR), enabling complete TR abolition, has become available, with increasing use and clinical experience. TTVR for recurrent TR after T-TEER may be possible if devices sit deep into commissures. However, central devices impede straightforward TTVR. On the mitral side, electrosurgical laceration and stabilization of clip devices, enabling transcatheter mitral valve implantation, has been introduced, but no distinct technique exists for the tricuspid valve.¹

A 69-year-old woman presented with dyspnea at rest (NYHA functional class IV) and acute heart failure 1 year after T-TEER with 2 PASCAL Ace devices (Edwards Lifesciences). Recurrent severe TR (both devices in the anteroseptal commissure, one centrally) was diagnosed. A previously implanted surgical aortic valve and a transapically implanted mitral bioprosthesis functioned well. Given high symptomatic burden, we decided to perform electrosurgical laceration and stabilization of T-TEER, enabling TTVR despite non-commissural placement of 1 T-TEER device.

Two 8.5-F steerable Agilis sheaths (Abbott Vascular) were placed in the right atrium. Swan-Ganz balloon catheters assisted traversal of the anterior (between T-TEER devices) and central orifices. After

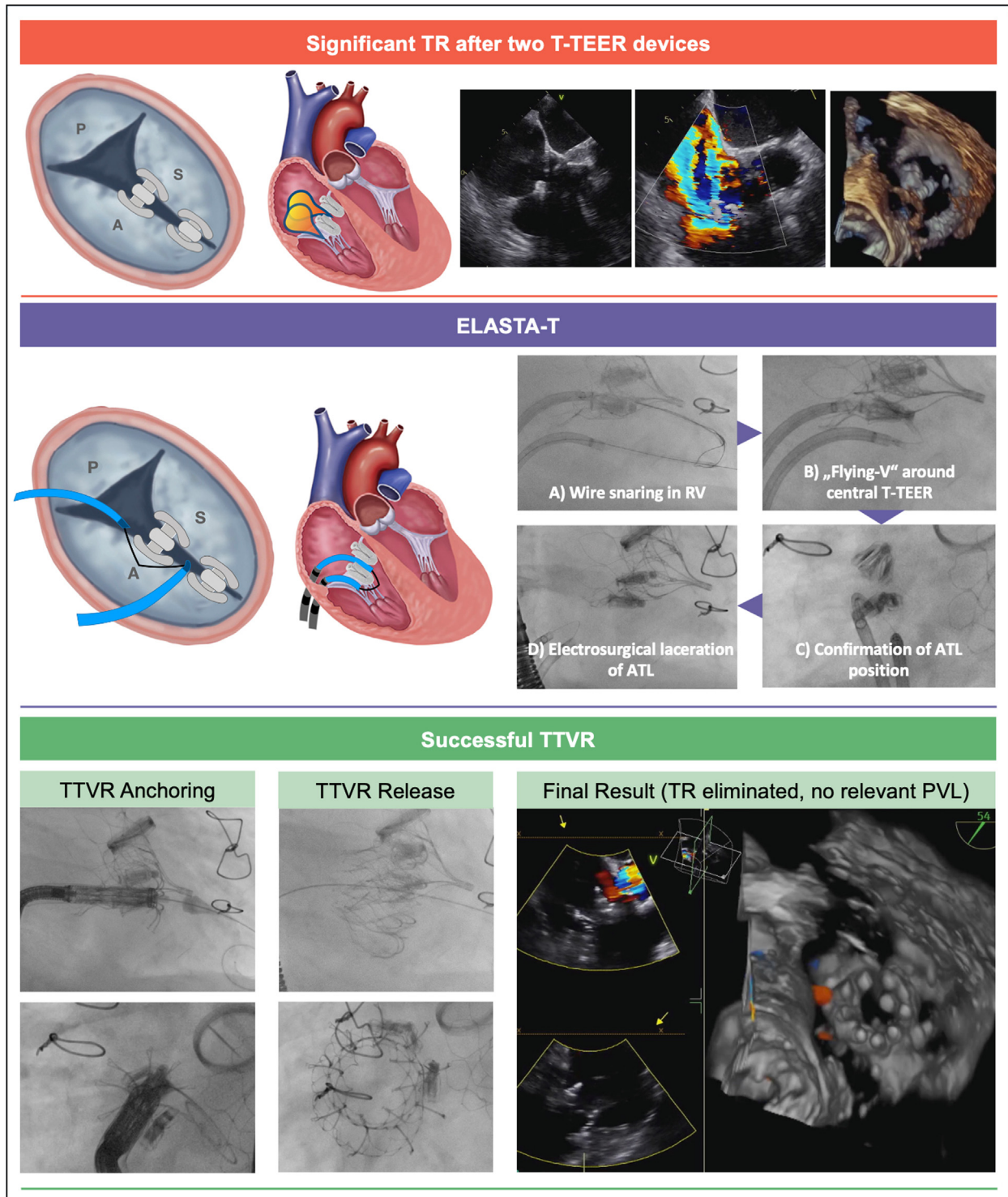
exchange for Judkins right 4 (anterior) and multi-purpose (central) catheters, a loop snare (preferred over a basket snare given dense subvalvular structures of the tricuspid valve) was advanced anteriorly and an Astato 0.014-inch guidewire (Asahi Intecc) centrally. Both catheters were brought into proximity to minimize snare and wire manipulation. The Astato guidewire was directed toward the snare at the midventricular position, bearing in mind increased trabeculation and complexity of chordae on the tricuspid side, potentially complicating snaring. After snaring, the wire was denuded and kinked into a “flying V” configuration. Pulling the Astato through the Agilis/multipurpose system, the flying V was placed under the central T-TEER device. Lateral positioning relative to the central device was confirmed on echocardiography and fluoroscopy, facilitating single-leaflet device attachment to the septal leaflet after laceration, essential for proper TTVR anchoring. Continuous current (70 W) was applied with light catheter traction. After laceration, TTVR using the EVOQUE (Edwards Lifesciences) was performed, stabilizing the lacerated central and deep commissural T-TEER devices. The T-TEER devices served as both positioning landmarks and anchor points for TTVR. Postprocedural echocardiography showed no relevant paravalvular leakage and elimination of TR (mean gradient 4.0 mm Hg) (**Figure 1**, **Video 1**).

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

Manuscript received April 23, 2025; accepted May 5, 2025.

FIGURE 1 ELASTA-T: Electrosurgical Laceration of a T-TEER Device and Subsequent TTVR



A = anterior; ATL = anterior tricuspid valve leaflet; ELASTA-T = electrosurgical laceration of a transcatheter tricuspid edge-to-edge repair device; P = posterior; PVL = paravalvular leak; RV = right ventricle; S = septal; TR = tricuspid regurgitation; T-TEER = transcatheter tricuspid edge-to-edge repair; TTVR = transcatheter tricuspid valve replacement.

Recurrent TR after T-TEER represents a challenging scenario with limited options. However, this case demonstrates that a fully transcatheter-based solution is feasible. With growing data and clinical experience, such techniques may soon form a cornerstone in interventional lifetime management of TR.

FUNDING SUPPORT AND AUTHOR DISCLOSURES

Dr Curio has received research grant support from Boston Scientific; has served on an advisory board for Medtronic; and has received travel support from Laralab and Cardiovalve. Dr Körber has received travel support and lecture fees from JenaValve, Edwards


Lifesciences, and Abbott. Dr Baldus has received lecture fees from JenaValve; and has received lecture and speaker fees from Edwards Lifesciences. Dr Adam has received consulting fees/honoraria from Abbott, Boston Scientific, Edwards Lifesciences, JenaValve Technology, Medtronic, and Meril. Dr Mehrkens has reported that he has no relationships relevant to the contents of this paper to disclose.

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KEY WORDS electrosurgery, repeat intervention, TR lifetime management, TR recurrence

 **APPENDIX** For a supplemental video, please see the online version of this paper.