

## IMAGE

# Transconduit puncture without per-procedural echocardiography in nonfenestrated extracardiac Fontan using a simplified approach guided by electroanatomic mapping

Mikael Laredo, MD, Gilles Soulat, MD, Magalie Ladouceur, MD, PhD, Alexandre Zhao, MD

*From the Adult Congenital Heart Disease Unit, Cardiology Department, European Hospital Georges Pompidou, Paris, France.*

A 36-year-old man with double-inlet left ventricle, previous nonfenestrated extracardiac Fontan surgery (Gore-Tex conduit), and epicardial dual-chamber pacemaker was referred for catheter ablation of symptomatic atrial tachycardia. Because the arrhythmia was paroxysmal, general anesthesia, which may limit inducibility, was avoided. Transesophageal echocardiography was also avoided because of the patient's history of chest radiotherapy. Computed tomography (CT) with 3-dimensional (3D) reconstruction showed the position of the extracardiac conduit (EC) along the lateral

wall of the right atrium (Supplemental Figure 1, cinematic rendering). First, the EC volume, which was acquired by a Pentaray catheter (Biosense Webster, Diamond Bar, CA), was merged with the 3D CT reconstruction of the heart (CARTO 3, Biosense Webster). Then, the ablation catheter (4-mm SmartTouch SF, Biosense Webster) was positioned at the optimal site for transconduit puncture (Figure 1A). A Brockenbrough needle (BRK-XS, St. Jude Medical, Minnetonka, MN) was positioned at the exact location of the ablation catheter tip under fluoroscopic guidance

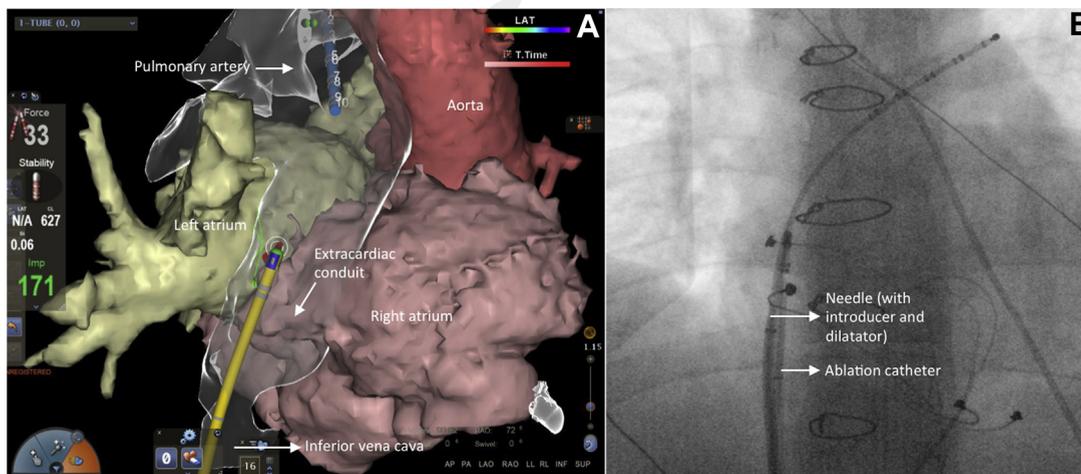


Figure 1

**KEYWORDS** Atrial arrhythmia; CARTO; Catheter ablation; Congenital heart disease; Extracardiac conduit; Univentricular heart (Heart Rhythm 2017; ■ :1-2)

All authors have reported that they have no relationships relevant to this paper to disclose. **Address reprint requests and correspondence:** Dr. Mikael Laredo, Adult Congenital Heart Disease Unit, Cardiology Department, European Hospital Georges Pompidou, 75015 Paris, France. E-mail address: [mik.laredo@gmail.com](mailto:mik.laredo@gmail.com).

(Figure 1B and Supplemental Video 1). Correct positioning was confirmed by biplane fluoroscopy. The transconduit puncture was successfully achieved with contrast medium injection and pressure guidance without the use of transesophageal or intracardiac echocardiography (Supplemental Figure 2). Activation mapping and local electrograms were consistent with an automatic focus on the right atrial roof,

137 and ablation at this site was successful. The patient was  
138 discharged home without complication.

139 Despite limited experience, catheter ablation is efficient for  
140 treating atrial arrhythmias in patients with extracardiac Fontan  
141 palliation.<sup>1</sup> The transconduit approach, which provides the  
142 most stable access, is preferred.<sup>2</sup> Here, the transconduit puncture  
143 was performed without the use of transesophageal or intra-  
144 cardiac echocardiography by merging the CT volume of the  
145 heart with the EC volume acquired by the CARTO system.  
146 This simplified method does not require general anesthesia  
147 and provides a minimally invasive option for definitive treat-  
148 ment of highly symptomatic and often life-threatening atrial  
149 arrhythmias in patients with extracardiac Fontan palliation.  
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## Appendix

### Supplementary data

Supplementary data associated with this article can be found  
in the online version at <https://doi.org/10.1016/j.hrthm.2017.11.023>.

## References

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2. Dave AS, Aboulhossn J, Child JS, Shivkumar K. Transconduit puncture for catheter ablation of atrial tachycardia in a patient with extracardiac Fontan palliation. *Heart Rhythm* 2010;7:413–416.

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