

Multipolar electrode spline embolization



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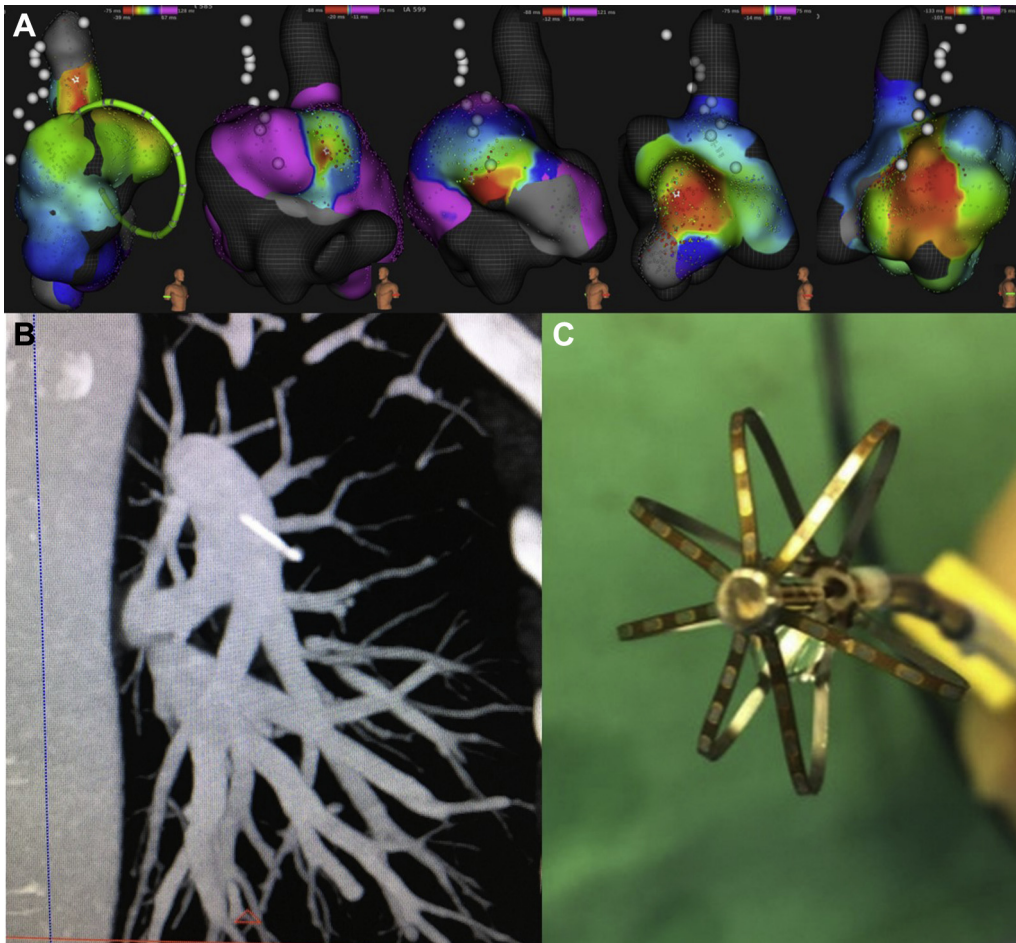


Figure 1 Multiple atrial tachycardias and spline embolization of the Orion catheter. **A:** Five focal atrial tachycardias were subsequently mapped, plus peritricuspidal flutter (not shown). **B:** Embolized spline in the left upper lung lobe. **C:** Orion catheter with a missing spline.

KEYWORDS Agilis; Atrial tachycardia; Catheter ablation; Embolization; Rhythmia; Spline
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Introduction

We present a case of multipolar electrode spline embolization in a 30-year-old woman with a history of palpitations and syncope.

Case report

A 30-year-old woman presented to our clinic with a history of palpitations and syncope since 4 years prior to her visit. Before presenting to our clinic she had 5 ablations for

KEY TEACHING POINTS

- Complex architecture of novel mapping catheters may be prone to failure.
- One should avoid entanglement of such catheters with other catheters when performing complex mapping.
- In anatomically difficult-to-approach locations, removing fragments displaced or embolized from catheter failure could result in further complications. Hence, close monitoring with imaging may be a preferred strategy.

inappropriate sinus tachycardia and for multiple atrial tachycardias (AT). The patient was still symptomatic and was taking flecainide, propafenone, and ivabridine. Pacemaker interrogation revealed multiple episodes of AT. No specific right atrial or right ventricular structural abnormality such as diverticulum or dilatation had been identified. The patient was hence admitted for AT ablation. Using the Rhythmia system, multiple ATs from different areas of the right atrium were mapped and sequentially ablated. The Orion catheter was navigated using an Agilis (St. Jude Medical, St. Paul, MN) sheath, which was inserted into the right atrium, followed by insertion of the Orion catheter through the sheath. Ablation was performed around the Orion catheter and it was not forced against the sheath. The catheter was not advanced through the tricuspid valve. During the procedure, it was noted that some electrograms went silent and visualization of 1 spline was lost in the map. The Orion catheter was immediately withdrawn without any resistance when

the Rhythmia system alarmed “missing electrode.” Upon withdrawal of the Orion catheter, 1 of the 8 splines was missing. Fluoroscopy showed the filament that was missing clearly visible in the left upper lung field adjacent to the left pulmonary artery, as shown in a computed tomography image in [Figure 1](#). Our center had performed 25 cases with the Rhythmia system prior to this case. The fluoroscopic images were obtained after the electrodes were confirmed to be missing upon retraction of the catheter.

The patient was asymptomatic for AT and symptoms of pulmonary or extrapulmonary embolism after the procedure, and she remains so at follow-up after 6 months. She was treated with anticoagulation. Serial chest computed tomographs have shown stable location of the spline without thrombus development.

Discussion

Iatrogenic foreign body from fragments of catheters, pacemaker electrodes, and stents have been reported in literature.^{1,2} Guidewires in great vessels and cardiac chambers have also been seen. The usual source of intrapulmonary foreign body is via the bronchial tree or embolization of catheter segments through peripheral veins. In this case, despite our taking all precautions, the proximity of the Orion catheter to the ablation sites could have led to ablation catheter entrapment on the spline and forced its attachments to break.

References

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