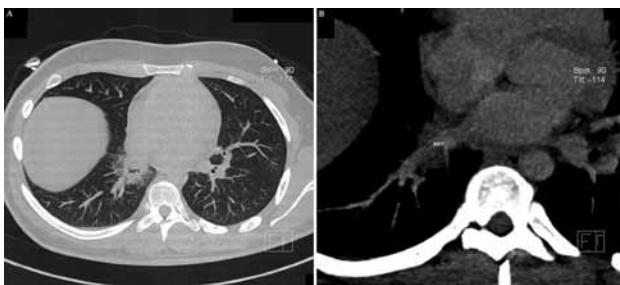


# Pulmonary vein perforation during ablation for atrial fibrillation

**Emmanouil Petrou,  
Anna Kostopoulou,  
Angelos Tsipis,  
Efthymios Livanis,  
Georgios Theodorakis**

Division of Cardiology, Onassis Cardiac  
Surgery Center, Athens, Greece

A 22 year-old man presented with chest pain, fever and transient haemoptysis. He had undergone pulmonary vein catheter ablation 10 days earlier for atrial fibrillation. Contrast-enhanced chest computed tomography (CT) revealed extravasation from the right inferior pulmonary vein into the corresponding lobe of the lung (Figure 1), suggesting perforation of the vessel, which is a rare complication of the procedure. Radiofrequency catheter ablation is the treatment of choice for symptomatic patients with atrial fibrillation unresponsive to medical treatment. It is a safe and efficient procedure in appropriately selected patients<sup>1</sup>. Pulmonary vein isolation has been established as an effective approach for confinement of the electrical impulse to that vein. The overall success rate of the procedure ranges from 51% to 92%<sup>2</sup>. Because of the relative complexity of the technique, complications may arise, with an overall rate reported as from 3.9% to 22%<sup>3</sup>. This patient was administered unfractionated heparin for 2 weeks after which a second CT scan (Figure 2) demonstrated residual right inferior pulmonary vein extravasation. He was discharged with instructions and medication.



**FIGURE 1.** Axial and coronal reformat chest CT images showing contrast in the pulmonary parenchyma, indicating perforation of the right inferior pulmonary vein (RIPV).



**FIGURE 2.** Repeat chest CT scan 2 weeks later clearly showing minor residual right inferior pulmonary vein (RIPV) extravasation.

## REFERENCES

1. Cappato R, Calkins H, Chen SA, et al. Worldwide survey on the methods, efficacy, and safety of catheter ablation for human atrial fibrillation. *Circulation* 2005; 111:1100-5.
2. Kanagaratnam L, Tomassoni G, Schweikert R, et al. Empirical pulmonary vein isolation in patients with chronic atrial fibrillation using a three-dimensional nonfluoroscopic mapping system: long-term follow-up. *Pacing Clin Electrophysiol* 2001; 24:1774-9.
3. Bertaglia E, Zoppo F, Tondo C, et al. Early complications of pulmonary vein catheter ablation for atrial fibrillation: a multicenter prospective registry on procedural safety. *Heart Rhythm* 2007; 4:1265-71.

## Correspondence:

Emmanouil Petrou, Division of Cardiology, Onassis  
Cardiac Surgery Center, Athens, Greece,  
e-mail: emmgpetrou@hotmail.com