



Hemoptysis post Radiofrequency Ablation of Atrial Fibrillation

Ana de Leon¹, Simon Hansom¹, Sanoj Chacko¹, Adrian Baranchuk¹, Andres Enriquez¹

¹ Division of Cardiology, Queen's University, Kingston, Canada.

Case Description

A 41-year-old female with symptomatic paroxysmal atrial fibrillation (AF), intolerant to antiarrhythmic drugs, was referred for catheter ablation. The patient had an elevated body mass index with no other significant comorbidities. She underwent an elective radiofrequency (RF) pulmonary vein isolation under general anesthesia. Intravenous unfractionated heparin was administered during the procedure. The procedure was well tolerated. Anticoagulation was partially reversed with protamine at the end and Apixaban was restarted 4 h after removal of sheaths. The patient was discharged the following morning.

Six days post-ablation, the patient presented with dyspnea on minimal activity, cough, and blood in her sputum. Computed tomography (CT) of the chest with contrast revealed multifocal groundglass opacities surrounding the perihilar pulmonary vasculature within the upper and lower lobes bilaterally, suggestive of alveolar hemorrhage (Figure, upper panel). The pulmonary arterial phase ruled out acute pulmonary embolism and there was no evidence of pulmonary vein stenosis. She was admitted to Intensive Cardiac Care for monitoring. Anticoagulation was temporarily discontinued. A complete rheumatology panel was negative. The hemoptysis gradually resolved within the next 24 h and she was discharged home after 3 days with only occasional dry cough. Anticoagulation was restarted 48 hours post discharge without recurrence of hemoptysis. A repeat CT scan, 3 weeks following initial imaging, revealed complete resolution of the pulmonary infiltrates (Figure, lower panel).

Hemoptysis is a rare complication of AF ablation. The differential diagnosis includes conditions such as pulmonary embolism or pulmonary vein stenosis, but the latter typically develops weeks to months post procedure¹. Hemoptysis has also been described post

cryoballoon ablation due to bronchial trauma or cryoinjury to the lung parenchyma². Only a few cases of alveolar hemorrhage related to RF ablation have been reported³. Possible etiologic factors that have been postulated include mechanical ventilation-induced lung injury, the effect of high-dose intraprocedural anticoagulation, idiosyncratic lung injury related to anesthetic agents, and negative pressure pulmonary hemorrhage due to acute upper respiratory obstruction during extubation.

References

1. Packer DL, Keelan P, Munger TM, et al. Clinical presentation, investigation, and management of pulmonary vein stenosis complicating ablation for atrial fibrillation. *Circulation*. 2005;111:546-54.
2. Aksu T, Ebru Golcuk S, Yalin K. Haemoptysis and pulmonary haemorrhage associated with cryoballoon ablation. *Europace*. 2015;17:1240.
3. Housley BC, Bhandary S, Hummel J, et al. Acute Pulmonary Hemorrhage Following Radiofrequency Ablation of Atrial Fibrillation. *J Cardiothorac Vasc Anesth*. 2017;31:1397-1400.

Key Words

Pulmonary Hemorrhage, Catheter Ablation, Atrial Fibrillation

Corresponding Author

Andres Enriquez
Division of Cardiology, Queen's University 76 Stuart Street, Kingston,
Ontario K7L 2V7

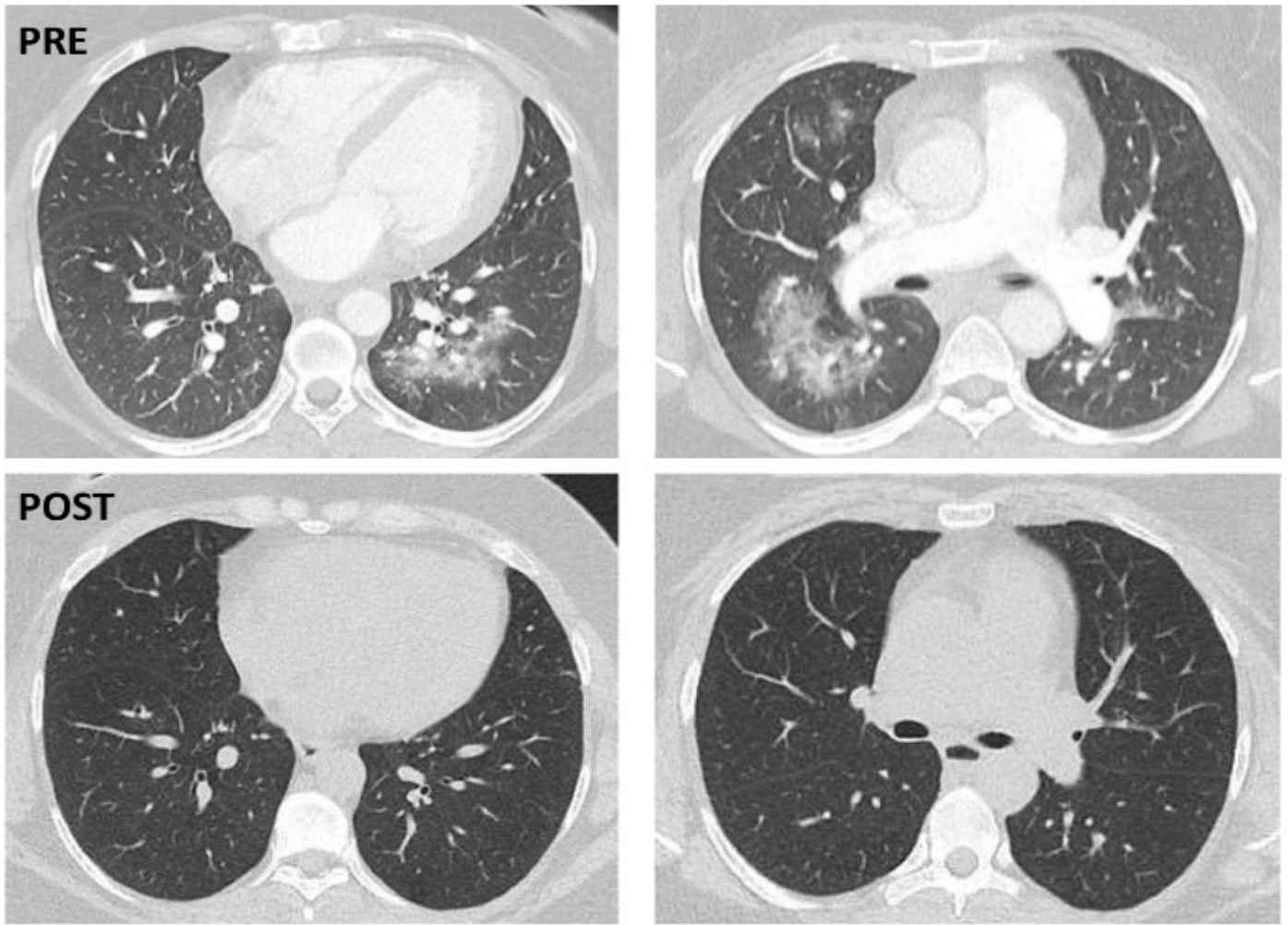


Figure 1:

Upper Panel, Lower Panel