A case of three pulmonary vein stenoses

Kamil Muhyieddeen1*, Farshad Forouzandeh1, Jeffrey Dela Cruz2, and Su Min Chang2

1Department of Internal Medicine, The Methodist Hospital, 6565 Fannin Street, SM 677, Houston, TX 77030, USA and 2Section of Cardiovascular Imaging, Department of Cardiology, The Methodist DeBakey Heart and Vascular Center, Houston, TX, USA

*Corresponding author. Tel: +1 713 441 4333; fax: +1 713 790 3023, Email: kmmuhyieddeen@tmhs.org

A 32-year-old male patient was referred to our institution for evaluation of chest pain 3 months after being managed in an outside institution for atrial fibrillation (AF) by radiofrequency ablation (RFA). Transoesophageal Doppler echocardiogram showed turbulent flow in the left upper pulmonary vein (PV) and right upper PV (Figures 1 and 2; see Supplementary data online, Videos S1 and S2). Continuous-wave Doppler evaluation revealed a high antegrade flow velocity (around 2 m/s) in the left PVs and right upper PV, and the absence of retrograde flow, normally seen during atrial contraction, findings suggestive of PV stenosis (Figure 3). A retrospective review of transthoracic Doppler echocardiogram showed turbulent flow in the left atrium in the apical four-chamber view (Figure 4; see Supplementary data online, Video S4). The diagnosis was confirmed by computed tomography (CT), which showed stenosis involving the left upper, left inferior, and right upper PVs, while the right inferior PV was patent (Figures 5–9). The patient was referred for angioplasty. PV stenosis occurs in 1–3% of the patients after catheter ablation for AF. Cases of PV stenosis after ablation therapy have been reported in the literature. However, the complexity of stenosis involving three PVs in this case seems to be unique. The follow-up on patients undergoing RFA for AF is critically important in detecting pulmonary stenosis. CT in addition to echocardiography can play an important role in detection of PV stenosis. Patients with symptomatic severe PV stenosis are referred for intervention with balloon angioplasty with or without stenting.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.