A 37-year-old man was referred for recurrent atrial fibrillation. Surface and transesophageal echocardiography (TEE) showed his heart to be structurally within normal limits. He underwent electrophysiological testing with multisite atrial mapping, which revealed a focal trigger for atrial fibrillation within the left upper pulmonary vein (LUPV). Radiofrequency catheter ablation was performed. Several weeks later, he developed dyspnea and cough while jogging despite maintenance of sinus rhythm.

Repeat TEE revealed high-velocity flow within the left atrium (LA) emanating from the LUPV, with peak velocities more than twice that of the right upper pulmonary vein (RUPV) (see Figure). This suggests a pressure gradient (PG) within the LUPV that is 5-fold higher than normal, consistent with high-grade stenosis. After 3 minutes of moderate hand-crank exercise, this gradient increased to 24 mm Hg in the LUPV and only to 6 mm Hg in the RUPV (see Figure). Localized pulmonary venous hypertension of this degree may be sufficient to cause exertional symptoms.
TEE color flow Doppler (CFD) and continuous-wave Doppler (CWD) of flow signal from RUPV (top panels) and LUPV (bottom panels) in LA. Flow from RUPV (top left) is laminar, whereas flow from LUPV (bottom left) is aliased. Center panels show that aliased flow signal is associated with higher flow velocity (V) and pressure, suggesting stenosis of LUPV. Hand-crank exercise for 3 minutes (right panels) further accentuated difference between normal and obstructed flow. Values for peak velocities and pressures under each panel correspond to location of manually positioned cursor. Note, velocity scales differ among flow tracings.
Left Upper Pulmonary Vein Stenosis 2 Months After Radiofrequency Catheter Ablation of Atrial Fibrillation
Richard H. Sohn and Nelson B. Schiller

Circulation. 2000;101:e154-e155
doi: 10.1161/01.CIR.101.13.e154

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/101/13/e154

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org/subscriptions/