



Contents lists available at ScienceDirect

Journal of Cardiology Cases

journal homepage: www.elsevier.com/locate/jccase



Case Report

Pulmonary vein obstruction after catheter ablation in a patient with partial anomalous pulmonary vein connection

Tadashi Omoto (MD, PhD)^{a,*}, Atsushi Aoki (MD, PhD)^a, Kazuto Maruta (MD, PhD)^a,
Tomoaki Masuda (MD)^a, Taku Asano (MD, PhD)^b, Youichi Kobayashi (MD, PhD, FJCC)^b

^a Department of Cardiovascular Surgery, Showa University, Japan

^b Department of Cardiology, Showa University, Japan

ARTICLE INFO

Article history:

Received 19 February 2016

Received in revised form 14 April 2016

Accepted 15 April 2016

Keywords:

Catheter ablation

Pulmonary vein obstruction

Partial anomalous pulmonary vein connection

ABSTRACT

A 75-year-old man with symptomatic atrial fibrillation was referred to our hospital for catheter ablation. Preprocedural echocardiogram showed mild-moderate degree mitral regurgitation (MR) and mild tricuspid regurgitation (TR) with transvalvular peak gradient (TVPG) of 27 mmHg. The complete isolation of the pulmonary veins was performed by radiofrequency ablation, and the patient was kept in sinus rhythm after the procedure. However, the exertional dyspnea had gradually developed one year after the procedure. Echocardiogram showed severe TR with TVPG 60 mmHg. MDCT showed partial anomalous pulmonary vein connection (PAPVC) of the left upper pulmonary vein and the occlusion of left lower pulmonary vein ostium: pulmonary venous flow of the left upper lung was drained into the brachiocephalic vein. The patient underwent surgical correction of PAPVC and annuloplasty of the mitral and tricuspid valve. Although it is unclear whether there is direct causal relationship between PAPVC and PV obstruction, anatomical evaluation of PVs is important in patients undergoing catheter ablation.

<Learning objective: Partial anomalous pulmonary vein connection (PAPVC) is rare and often asymptomatic in adults. In the present case, pulmonary vein obstruction occurred after radiofrequency catheter ablation in a patient with PAPVC. Although pulmonary venous flow from only left upper lobe drained into the brachiocephalic vein before ablation, occlusion of the left lower pulmonary vein resulted in right heart failure one year after ablation.>

© 2016 Japanese College of Cardiology. Published by Elsevier Ltd. All rights reserved.

Introduction

Pulmonary vein (PV) stenosis has become a rare complication after catheter radiofrequency (RF) ablation under current technique, utilizing fusion of preprocedural 3D MDCT and actual electroanatomical mapping. A randomized multicenter study for incidence of PV stenosis after RF ablation guided by 3D mapping system had demonstrated that mild PV stenosis in 3.7% and moderate PV stenosis in 0.2% after catheter RF ablation and there was no case with severe PV stenosis or PV obstruction [1]. In the present case, total occlusion of the left PVs and severe tricuspid regurgitation (TR) occurred after RF catheter ablation.

Case report

A 75-year-old man with symptomatic atrial fibrillation was referred to our hospital for catheter ablation. Transthoracic echocardiogram showed normal-sized left atrium (39 mm), mild to moderate degree mitral regurgitation (MR) of Carpentier's functional classification type I, and mild tricuspid regurgitation (TR) with transvalvular peak gradient (TVPG) of 27 mmHg. Multidetector CT (MDCT) performed prior to catheter ablation identified all ostia of the PVs except for the left upper PV (Fig. 1a).

Mapping and RF ablation were performed using En Site Velocity (St. Jude Medical, Inc., St. Paul, MI) as a guide after integration of a three-dimensional model of the LA and PV anatomy fused with preprocedural MDCT (Fig. 2). Extensive encircling PV isolation was performed on the level of PV antrum using radiofrequency ablation catheter (Blue Sapphire, St. Jude Medical, Inc., St. Paul, MI) with radiofrequency power of 30–35 W, a maximal power of 40 W. Catheter manipulation was performed with steerable sheath (Agilis, St. Jude Medical, Inc., St. Paul, MI). Bidirectional block for

* Corresponding author at: Department of Cardiovascular Surgery, Showa University, Hatanodai 1-5-8, Shinagawa-ku, Tokyo 142-8666, Japan.

Tel.: +81 3 3784 8588; fax: +81 3 3784 8573.

E-mail address: tomoto@med.showa-u.ac.jp (T. Omoto).

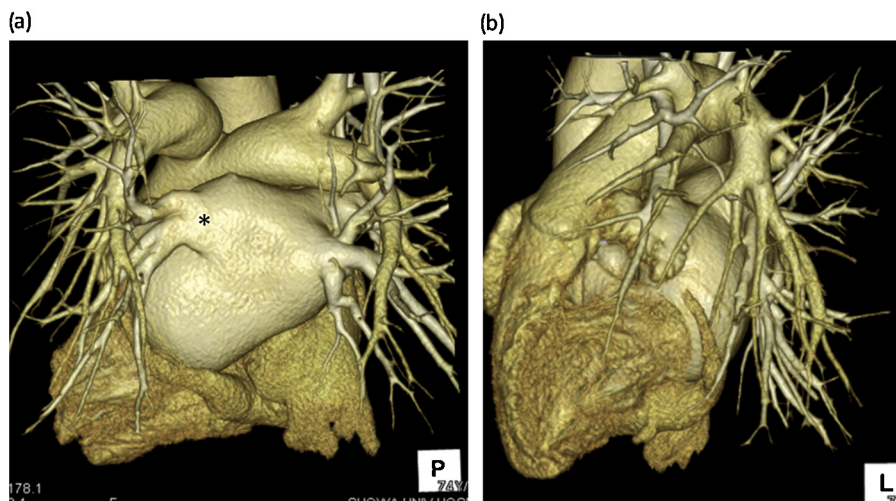


Fig. 1. (a) Preprocedural CT. Posterior (a) and lateral (b) view of the left atrium. *The left lower pulmonary vein.

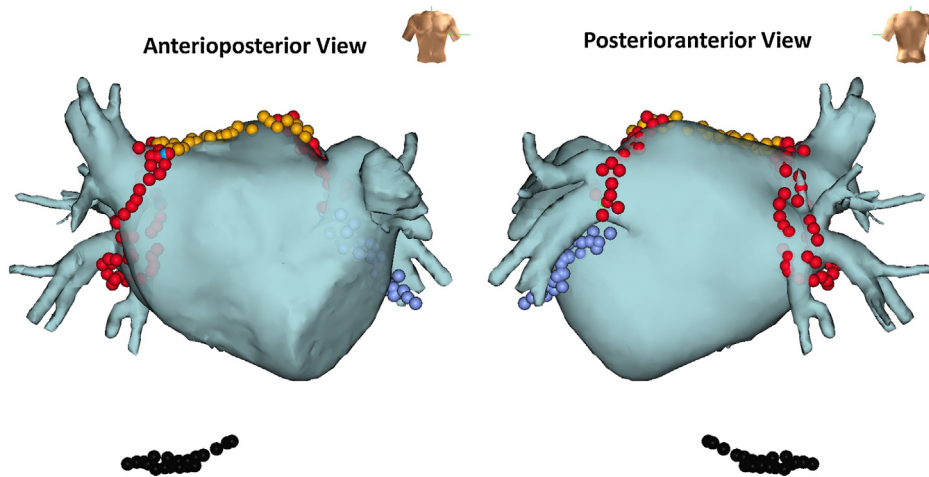


Fig. 2. (a) Anteriorposterior views of the left atrium. (b) Posterioranterior view of the left atrium.

the PV-encircling ablation was electrophysiologically confirmed, however, atrial fibrillation was induced by the stimulation protocol (burst pacing from the coronary sinus with 300 ms, 250 ms, and 200 ms for 10 s each). The patient underwent linear ablation including LA roof, mitral isthmus and cavotricuspid isthmus. Sinus rhythm was restored after cardioversion, and the procedure was ended after confirming atrial fibrillation was not induced by the stimulation protocol. Early postprocedural course was uneventful, and the patient had kept in normal sinus rhythm. Warfarin had been prescribed after ablation to prevent thromboembolic events.

One year after the procedure, the patient complained of exertional dyspnea during normal daily activity. Electrocardiogram showed normal sinus rhythm and atrial tachycardia was not detected by Holter electrocardiogram. Transthoracic echocardiogram showed mild-moderate MR and severe TR with TVPG 60 mmHg, which indicated significant right ventricular volume overload. MDCT revealed that the two ostia of the left lower PVs were completely occluded (Fig. 3a), and pulmonary venous flow from the left upper lung was drained into the brachiocephalic vein

via a vertical vein, i.e., partial anomalous pulmonary vein connection (PAPVC) of the left upper PV (Fig. 3b and c). We have mistakenly assumed that both the upper and lower PV drained into the LA, however, the two PVs which had been demonstrated by preprocedural MDCT were the lower PVs, and the upper left upper PV could not be evaluated by preprocedural MDCT.

The patient underwent surgical correction of PAPVC and annuloplasty of the mitral and tricuspid valve. The operation was performed via median sternotomy. The vertical vein was dissected up to the brachiocephalic vein and mobilized. The pericardium was opened above the phrenic nerve to make a large window for the anastomosis. The left atrial appendage was excised and anastomosis between the vertical vein and left atrial appendage was made with great care to avoid any rotation. Concomitant mitral annuloplasty and tricuspid annuloplasty were performed with prosthetic rings. Mitral valve was observed via traditional paraseptal left atriotomy, and two occluded ostium of left lower PVs were observed: two ostia were occluded by fibrous thickening of surrounding tissue of the LA. Postoperative course was uneventful with remarkable symptomatic improvement.

Download English Version:

<https://daneshyari.com/en/article/5614840>

Download Persian Version:

<https://daneshyari.com/article/5614840>

[Daneshyari.com](https://daneshyari.com)