

Anomalous Drainage of the Great Cardiac Vein Into the Left Atrium

Ena Yamamoto, MD; Akira Tamura, MD, PhD; Yoshiyuki Kawano, MD, PhD

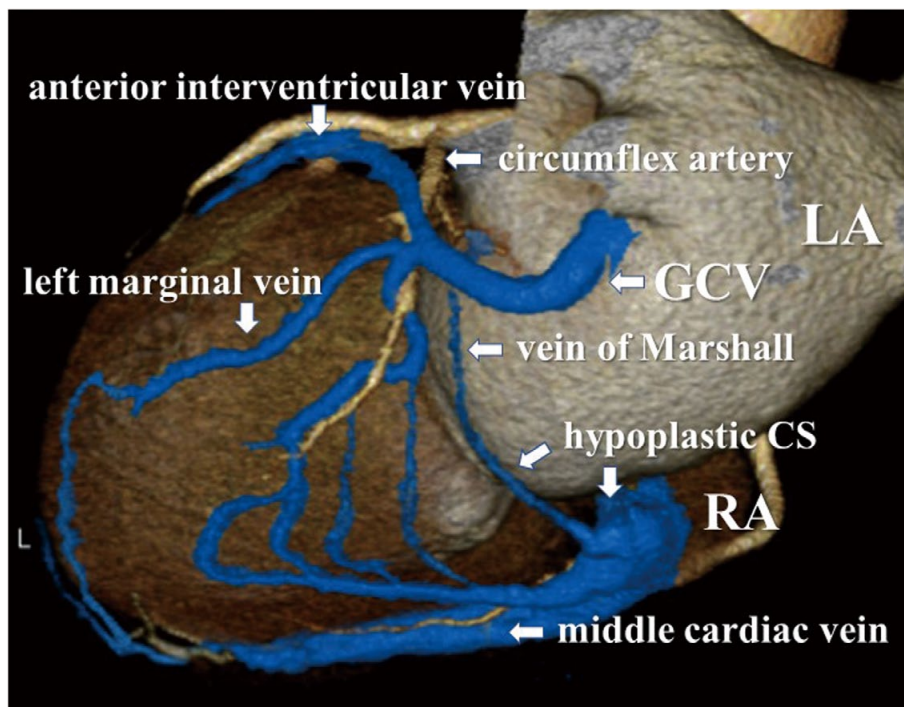


Figure. Volume-rendered computed tomography of the coronary veins (blue). CS, coronary sinus; GCV, great cardiac vein; LA, left atrium; RA, right atrium.

Anomaly of the coronary vein is rare. We herein report a case of anomalous drainage of the great cardiac vein (GCV) into the left atrium (LA), which was incidentally found on coronary tomography angiography (CCT). A 65-year-old man with hypertension and persistent atrial fibrillation (AF) who had been previously diagnosed with coronary spastic angina underwent CCT for the evaluation of coronary atherosclerosis. CCT indicated no significant coronary artery stenosis and did indicate anomalous drainage of the GCV into the LA (**Figure**). He had normal arterial oxygen saturation (SpO₂)

and no symptoms of heart failure. Echocardiography showed a normal left ventricular ejection fraction and LA dilation (LA dimension/aortic dimension, 51 mm/32 mm). No other anomalies were found. On careful evaluation of the coronary angiograms that had been taken at the other hospital, draining of the GCV into the LA was noted. To our knowledge, this is the third case report of anomalous drainage of the GCV into the LA. In the 2 cases previously reported, the rest of coronary veins drained into the right atrium (RA).¹ In the present case, the GCV was also connected to the middle cardiac vein through venous

Received May 17, 2019; revised manuscript received November 28, 2019; accepted December 7, 2019; J-STAGE Advance Publication released online December 20, 2019 Time for primary review: 80 days

Cardiology and Sleep Apnea Center, Tenshindo Hetsugi Hospital, Oita, Japan

Mailing address: Akira Tamura, MD, PhD, Cardiology and Sleep Apnea Center, Tenshindo Hetsugi Hospital, 5185-2 Nakahetsugi, Oita 879-7761, Japan. E-mail: akira@oita-u.ac.jp

ISSN-2434-0790 All rights are reserved to the Japanese Circulation Society. For permissions, please e-mail: cr@j-circ.or.jp

interconnection, and the hypoplastic coronary sinus (CS) without connection to the GCV was draining into the RA. The vein of Marshall and the CS are embryologically different from other coronary veins, and the GCV connects to the CS after the formation of the coronary veins. A connection failure of the GCV to the CS is thought to have led to this anomaly. It is possible that a volume overload caused by shunt flow from the GCV to the LA contributed to the development of the unknown-onset AF in the present case. Finally, this case reminds us that careful attention

should be paid to the coronary vein when evaluating coronary angiograms.

Disclosures

The authors declare no conflicts of interest.

Reference

1. Akkaya S, Ardali S, Balci S. Left atrial drainage of the great cardiac vein. *J Cardiovasc Comput Tomogr* 2015; **9**: 225–226.