

## Obstruction of a Glenn shunt with huge superficial thoracoabdominal collaterals

### *Devasa yüzeyel torakoabdominal kollateralleri olan bir Glenn şantının tıkanması*

Laya Zarrabi

Ahmad Yamini-Sharif

Behnam Hedayat

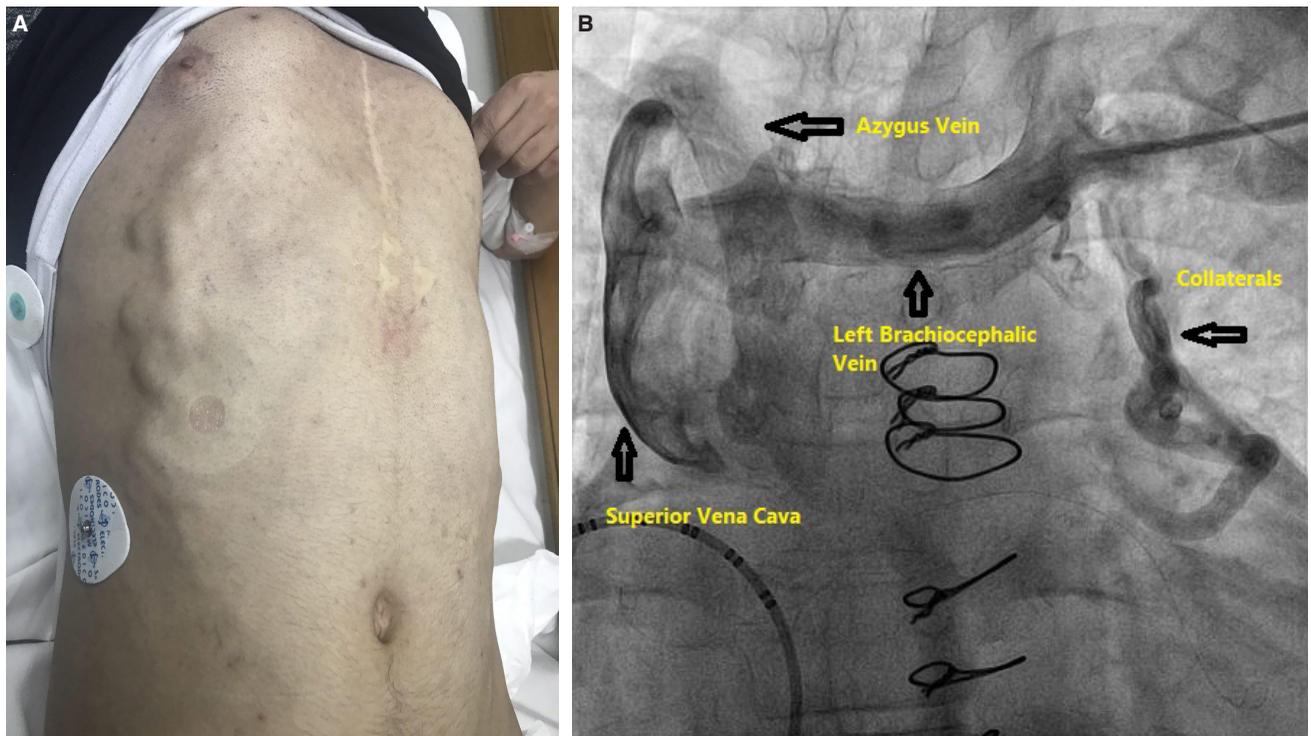
Ali Hosseinsabet

Department of Cardiology, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran

A 35-year-old man, a known case of double-outlet right ventricle (DORV), was referred to the ward for echocardiography. He had undergone a Glenn shunt operation 10 years previously. Over the years preceding the referral, the patient had gradually developed progressive dyspnea on exertion. A physical examination revealed

cyanosis, clubbing, and huge, subcutaneous veins on the right and left sides of the thoracoabdominal wall (Figure A). Transthoracic echocardiography demonstrated DORV; a large, subaortic ventricular septal defect; a large, secundum-type atrial septal defect; mod-

erate left ventricular systolic dysfunction; severe right ventricular enlargement with moderate-to-severe right ventricular systolic dysfunction; and severe valvular pulmonary stenosis. The Glenn shunt flow was not detected in a color Doppler study. An agitated saline injection to the left arm revealed bubbles in the distal part of the intrahepatic inferior vena cava after 16 cardiac cycles. The bubbles were brought into the right atrium by the blood flow, suggestive of obstruction of the Glenn shunt (Video 1\*). Selective venography of the left brachiocephalic vein demonstrated obstruction of the Glenn shunt, drainage of the superior vena cava through the azygos vein, and the presence of collateral veins (Figure B, Video 2\*). Attention to the appearance of subcutaneous collateral veins in patients with a Glenn shunt is necessary, in that it is an invaluable clue to obstruction of these shunts.



**Figures– (A)** Huge, superficial thoracoabdominal collaterals. **(B)** Selective venography of the left brachiocephalic vein showing the obstruction of the Glenn shunt, drainage of the superior vena cava through the azygos vein, and the presence of collateral veins.

\*Supplementary video files associated with this presentation can be found in the online version of the journal.