A 56-year-old man with locally advanced gastric carcinoma underwent echocardiography prior to commencing chemotherapy to assess the left ventricular systolic function. Echocardiography disclosed a severely dilated right heart, with preserved right ventricular systolic function and a normal predicted pulmonary artery systolic pressure. The inter-atrial septum was intact and no other structural cardiac abnormality was found.

A review of the staging CT (Siemens Definition AS 64-slice scanner) scan showed no left pulmonary veins connected to the left atrium. Reformating of the images showed anomalous left pulmonary venous drainage. The superior and inferior pulmonary veins on the left formed a common left pulmonary vein which then drained via the left innominate vein into the superior vena cava and right atrium. Two normal right pulmonary veins were seen connected to the left atrium.

(Panel A and B and Supplementary data online, video clip. IV, innominate vein; MPA, main pulmonary artery; SVC, superior vena cava; CLPV, common left pulmonary vein; RPV, right pulmonary vein; Ao, ascending aorta).

A diagnosis of partial anomalous pulmonary venous drainage was made, and as he was asymptomatic, surgical correction was considered following treatment of his cancer.

This case highlights the role of contrast-enhanced chest MDCT with volume-rendered reconstructions in providing accurate information of pulmonary vein anatomy and intra-cardiac shunts in patients with right ventricular enlargement. CT is widely accessible, and with its wide field of view and high spatial resolution, clearly depicts the great vessels and any abnormal connections.

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