

When Heart Failure has to do with Past Abdominal Surgery

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Abstract

A 70-year-old woman, with a past medical history of permanent atrial fibrillation, cholecystectomy for symptomatic gallstones and obesity (54 kg/m² body mass index), was admitted to the hospital for rapidly increasing dyspnea (NYHA class III). At admission, heart rate was 110 beats per minute (bpm) and blood pressure was 125/73 mmHg. Physical examination revealed clinical signs of right heart failure including major peripheral oedema, hepatomegaly, bilateral pleural effusion, and ascites with no signs of portal hypertension or hepatocellular insufficiency.

Keywords: Heart failure; High cardiac output; Porto systemic shunt; Pulmonary hypertension

Case Report

A 70-year-old woman, with a past medical history of permanent atrial fibrillation, cholecystectomy for symptomatic gallstones and obesity (54 kg/m² body mass index), was admitted to the hospital for rapidly increasing dyspnea (NYHA class III). At admission, heart rate was 110 beats per minute (bpm) and blood pressure was 125/73 mmHg. Physical examination revealed clinical signs of right heart failure including major peripheral oedema, hepatomegaly, bilateral pleural effusion, and ascites with no signs of portal hypertension or hepatocellular insufficiency.

On the first transthoracic echocardiogram, preserved left ventricular ejection fraction with normal diastolic function was noticed. Interestingly, a major dilatation of the right ventricle, the right atrium, and the inferior vena cava (45 mm) were observed. Systolic pulmonary artery pressures were estimated as high as 60 mmHg with the tricuspid regurgitation, and cardiac index was increased, reaching 4.8 L/min/m². Pulmonary assessment on the six-minute walk test was satisfying at 255 meters, and a small restrictive impairment was documented on a pulmonary function test (assigned to obesity). Finally, no perfusion defect was found on the ventilation/perfusion lung scan.

After a rapid but major relief of congestive symptoms using high doses of diuretics, our patient lost about 50 kg of weight. Then, she underwent a right heart catheterization revealing high right-sided pressures: mean pulmonary artery pressure of 28 mm Hg, systolic pulmonary artery pressure of 41 mmHg and mean pulmonary capillary wedge pressure of 12 mmHg. Cardiac output was high at 8 L/min (5.2 L/min/m² for cardiac index using Fick method). Successive oxygen saturations analysis revealed no intra-cardiac shunt.

Thyroid function and haemoglobin were in physiological ranges, and therefore helped excluding differential diagnoses of congestive heart failure with high cardiac output. Hepatic cirrhosis was excluded as well. A chest, abdomen and pelvis computed tomography found a large porto-systemic shunt between the right side of the portal vein

and the right sub-hepatic vein (Figure 1), a major dilatation of the inferior vena cava and the right atrium with no anomalous pulmonary venous return. A mesenteric angiography was subsequently performed and confirmed the porto-systemic shunt (Figure 2) which was successfully embolized with amplatzer plugs (Figure 3). During a 2 year-follow-up period, our patient did not experience any other episode of congestive heart failure. Furthermore, the echocardiogram confirmed the normalization of pulmonary artery pressures and right-sided cavities dimensions.

The most common etiologies of high cardiac output and increased pulmonary pressure include anemia, renal disease, cirrhosis, hyperthyroidism, arteriovenous fistulae and intracardiac shunts [1]. Intrahepatic portosystemic venous shunts without portal hypertension or abdominal trauma are extremely rare in adults [2] (20 patients have been reported so far). Usually, porto-systemic shunt is revealed by hepatic encephalopathy, glycoregulation disorders or liver failure but exceptionally by high cardiac output with pulmonary hypertension (only 2 cases described [3,4]). Several etiologies are possible (congenital or acquired).

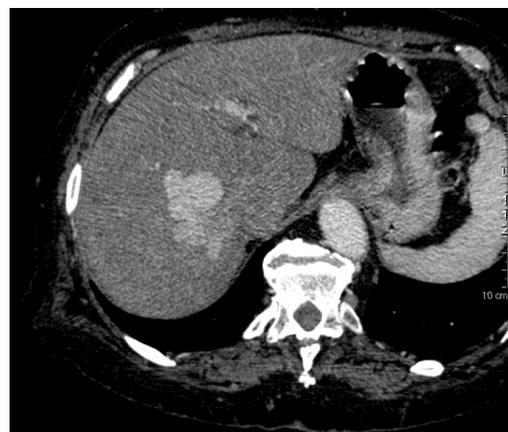


Figure 1: Abdomen computed tomography.



Figure 2: Mesenteric angiography.

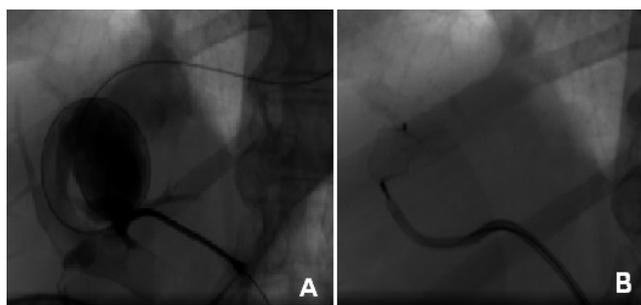


Figure 3: Successful embolization with amplatzer plugs.

In our patient, the porto-systemic shunt was probably secondary to the past cholecystectomy and it highlights that congenital intrahepatic portosystemic venous shunts are an extremely rare etiology of high output heart failure but still a curable one.

References

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