



“What is causing this patient’s ascites?”

Mahmoud A. Sharaf, MD, FRCPC; and Amin S. Mulji, MD, FRCPC

John, 66, presents with ascites and peripheral edema of two weeks duration. There was no:

- associated chest pain,
- shortness of breath,
- cough, or
- productive sputum.

He denied fever, weight change or malaise. There was no history of IV drug use, blood transfusions, multiple sexual partners or frequent alcohol intake.

Medical history

John’s medical history reveals the following:

- cardiac surgery with aortic tissue valve replacement three months earlier,
- epicardial pacemaker following surgery,
- aortic valve endocarditis,
- no history of MI or congestive heart failure,
- hypertension for which he is on enalapril,
- splenectomy in childhood and
- sciatica.

Clinical investigations

Clinical investigations show:

- hemoglobin 130 g/L,
- white blood cell count 10.8×10^9 cells/L,
- platelet count 180×10^9 cells/L,
- normal electrolytes, urea and serum creatinine,
- conjugated bilirubin elevated at $20 \mu\text{mol/L}$
- remaining liver function tests, INR and partial thromboplastin time as being within normal limits.

A chest X-ray (Figure 1) and a CT scan of the chest (Figure 2) and abdomen were arranged.



Figure 1. Chest x-ray showing double left heart shadow. Left pleural effusion and epicardial pacemaker are also noted.



Figure 2. CT scan of chest showing densely thickened pericardium and bilateral pleural effusions.

What's your diagnosis?

- a) Liver cirrhosis
- b) Abdominal malignancy
- c) Constrictive pericarditis
- d) Inferior vena cava thrombosis

Answer: C *Constrictive pericarditis*

What is constrictive pericarditis?

Constrictive pericarditis is caused by a thickening, fibrosis and (often) calcification of the pericardium. Impaired diastolic filling of the heart results in elevated right-sided pressures.

Presentation

Constrictive pericarditis can present in five different ways:

1. Effort intolerance
2. Fatigue
3. Congestive heart failure
4. Atrial arrhythmias
5. Frank liver disease

Physical exam findings

On physical exam, the commonly encountered findings are:

- Elevated jugular venous pressure (in 90% of cases)
- Peripheral edema (in 70% of cases)
- Hepatomegaly (in 50% to 70% of cases)
- Ascites (in 35% to 60% of cases)
- Pleural effusion (in 35% of cases)
- Pulsus paradoxus (in 19% of cases)
- Pericardial rub (in 16% of cases)

Dr. Sharaf is a Cardiology Fellow, McMaster University and Division of Cardiology, Hamilton General Hospital, Hamilton, Ontario.

Dr. Mulji is an Associate Clinical Professor, McMaster University, Hamilton, Ontario.

A history of prior cardiac surgery, pericarditis or chest irradiation, in addition to elevated jugular venous pressure, clear lung fields, ascites and peripheral edema, should prompt investigation for constrictive pericarditis.

Etiology

The most common causes of constrictive pericarditis are:

- idiopathic (34%),
- post cardiac surgery (18%),
- post pericarditis (16%),
- following chest irradiation (13%) and
- with TB (6%).

Without intervention, mortality from constriction is 14% and 35% at five and 10 years time, respectively.

Without intervention, mortality from constriction is 14% and 35% at five and 10 years time, respectively.

Treatment

The definitive treatment for constrictive pericarditis is surgical pericardiectomy. The procedure is associated with between 6% and 19% operative mortality. Surgery allows for complete relief in up to 50% of patients and symptomatic improvement in a further 40%. 