

“Doctor, am I dying?”

By Wladyslaw Wojcik, MD, FRCPC; and Jerzy Pawlak, MD, MSc, PhD

Grace, a 77-year-old non-smoker, non-drinker with a medical history of phlebitis, varicose vein stripping, and cholecystectomy, presents to the emergency department with shortness of breath, weakness, and history of syncope. Her shortness of breath and weakness are preceded by pain in the right calf. She had fainted when walking up the stairs and was found by ambulance technicians to be hypotensive. She was resuscitated with fluids and transported to the hospital.

On examination, she is in distress due to shortness of breath. Her vital signs and the results of both the physical and laboratory examinations are shown in Tables 1 and 2. An echocardiogram (ECHO) was also done (Figures 1 and 2).

What's your diagnosis?

- a) Pneumothorax
- b) Myocardial infarction
- c) Deep venous thrombosis (DVT) with pulmonary emboli
- d) Aortic dissection

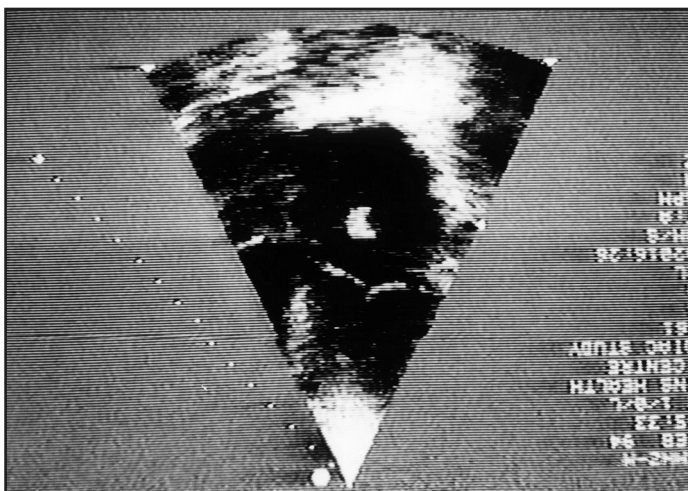


Figure 1. Echocardiogram.

Table 1

Vital signs and physical examination results

- Blood pressure: 105/80 mmHg
- Pulse: 100 beats per minute
- Chest air entry: Equal bilaterally
- Occasional crepitation
- Heart sounds: Normal
- No murmurs, gallop rhythms, bruits, or peripheral edema
- Peripheral pulses palpable
- Abdomen: Soft; no masses or organomegaly; mild epigastric tenderness
- Musculoskeletal osteoarthritis
- Neurologic exam: Within normal limits

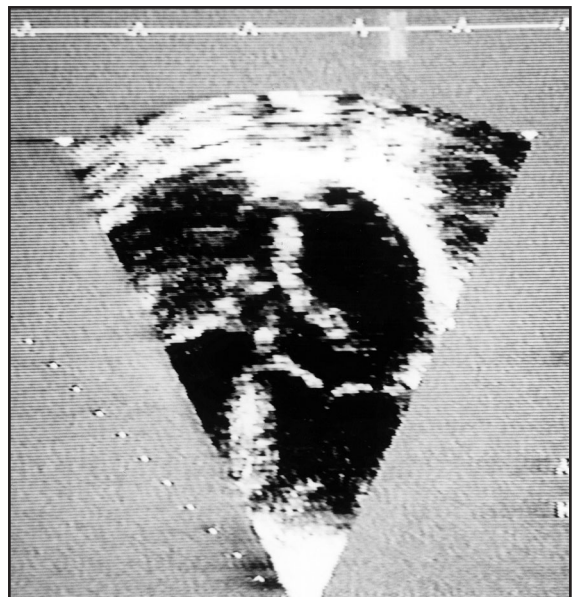


Figure 2. Echocardiogram.

Answer: DVT with pulmonary emboli

Table 2

Laboratory examination results

ECG

- Sinus rhythm
- ST-T changes
- Left axis deviation
- Left anterior hemi-block

Chest X-ray

- Lung fields: Clear
- No underlying hydropneumothorax seen
- Mediastinum not widened
- Heart not significantly enlarged

Urinalysis

- | | |
|---|-------------------------------------|
| • Protein: 0.3 g/L | • LDH: 471 U/L |
| • White blood cells: $16.8 \times 10^9/L$ | • Potassium: 4.1 mmol/L |
| • Hemoglobin: 127 mmol/L | • Creatinine: 101 $\mu\text{mol/L}$ |
| • MCV: 78 femtolitres | • Calcium: 2.1 mmol/L |
| • Platelets: $217 \times 10^9/L$ | • AST: 211 U/L |
| • Sedimentation rate: 3 mm/h | • ALP: 76 U/L |
| • Sodium: 135 mmol/L | • ATT: 178 $\mu\text{mol/L}$ |
| • Phosphate: 1.55 mmol/L | • Bilirubin: 16 $\mu\text{mol/L}$ |
| • Uric acid: 310 mmol/L | • Albumin: 31 g/L |

ECG: Electrocardiogram
LDH: Lactate dehydrogenase
MCV: Mean cell volume
AST: Aspartate aminotransferase
ALP: Alkaline phosphatase
ATT: Arginine tolerance test

A computed tomography (CT) scan of the lungs showed several bilateral subsegmental perfusions. Ventilation mismatches were seen scattered over both the lung fields. The ECHO findings show an echogenic mass in the right atrium, however, the mass is not attached to any wall and, thus, is very mobile. This suggests thrombus in the right arm. Also, the right ventricle seems to be slightly enlarged.

Cont'd on page 48



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See page 44

What's Your Diagnosis ?

What is the proper treatment for Grace?

Grace is treated with intravenous streptokinase for 24 hours, after which the streptokinase is replaced by heparin. However, two days after admission to hospital, she develops subdural hematoma. After reversing the heparin, emergency surgery is performed and the subdural hematoma evacuated. Grace tolerates the procedure reasonably well.

Two days after surgery, she is again started on heparin. Later, she is given warfarin, an anti-coagulant. The followup lung scan shows that the previously described perfusion deficits have almost completely improved. No new defects are seen to suggest recurrent episodes of pulmonary embolism. Further, the followup CT without contrast shows that the previously

described right subdural hematoma has been evacuated. Only a very thin rim of subdural hematoma persists over the right hemisphere convexity, with mild localized mass effects.

The followup ECHO shows no thrombosis on the right side of the heart, right ventricular enlargement, decreased contractility, and right atrium enlargement. There is also evidence of moderate tricuspid regurgitation, aortic sclerosis, marked left ventricular hypokinesis, and left ventricular diastolic dysfunction.

Grace is offered an inferior vena cava filter to prevent recurrent pulmonary emboli. Her chest X-ray shows the filter projecting over L2. The lung fields are clear and there are no effusions. Grace is discharged on warfarin, with recommendations that international normalized ratio be kept between 2.5 and 3.5.

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More on thrombophlebitis

Thrombophlebitis refers to venous thrombosis with or without accompanying inflammation of the venous wall. It is a common disorder, although more common in women than in men. The incidence of disease increases with advancing age. About half the patients with thrombophlebitis are asymptomatic. The first manifestation of the disorder may be the occurrence of a pulmonary embolism. Pain in the region of the thrombosed veins at rest, or during exercise, and edema distal to the obstructed veins are the usual symptoms of thrombophlebitis. 

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