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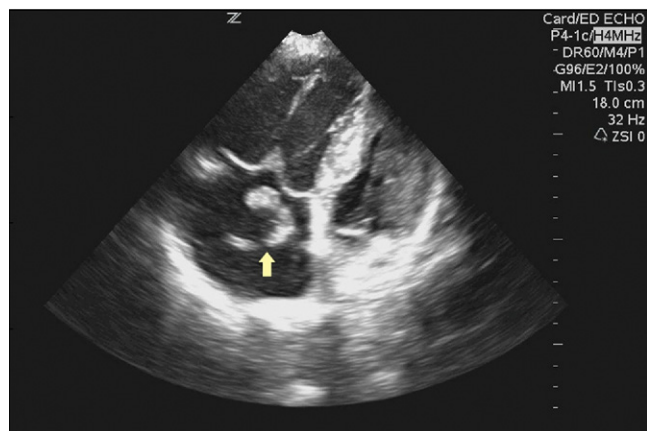


Figure 1. Echodense structure visualized in the right atrium on apical 4-chamber view.

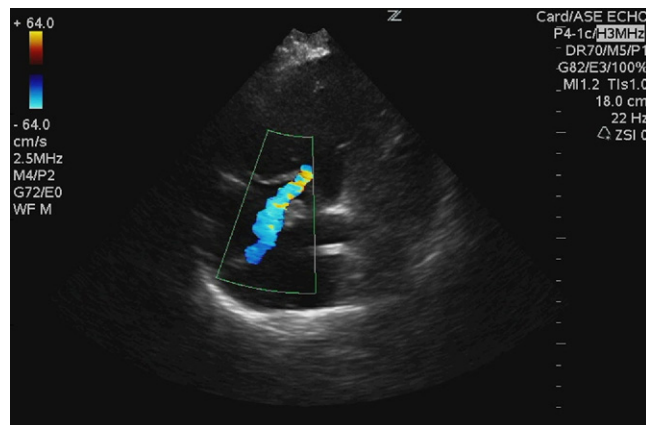


Figure 2. Tricuspid regurgitation jet observed with color flow Doppler. Used with permission of James Q. Hwang, MD, Department of Emergency Medicine, Brigham & Women's Hospital, Boston, MA.

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An 88-year-old woman with a history of pulmonary hypertension, colon cancer, and recent humerus fracture presented after a syncopal episode at home. The patient experienced an abrupt onset of diaphoresis and shortly thereafter collapsed. On presentation to the emergency department (ED), vital signs were pulse 117 beats/min, blood pressure 97/66 mm Hg, respirations 32 breaths/min, oxygen saturation 100% on a nonrebreather mask, and temperature 35.6°C (96.0°F). She was alert and oriented; heart was regular, with no murmurs appreciated; lungs were clear, although use of accessory muscles was observed; and she had no lower extremity edema. ECG showed sinus tachycardia with known right bundle branch block. Chest radiograph showed no infiltrate or effusion. The patient's blood pressure subsequently decreased to 60/40 mm Hg. Because she had been diagnosed with a urinary tract infection the day before, the initial ED team began empiric therapy for urosepsis and septic shock. At change of shift, the patient was reevaluated with bedside ultrasonography, and echocardiographic images were obtained (Figures 1 and 2). Supplementary videos can be viewed at <http://www.annemergmed.com>.

For the diagnosis and teaching points, see page 115.

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- state and local governments enact legislation requiring universal helmet use
- community coalitions be developed to promote bicycle safety training, including helmet use
- the popular media depict helmet use among all bicyclists

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DIAGNOSIS:

Venous thromboembolism “in transit.” Bedside echocardiography visualized a highly mobile, serpiginous linear echodensity in the right atrium on the apical 4–chamber view. This finding was consistent with an embolized peripheral venous thrombus in transit to the pulmonary circulation. A subsequent computed tomography scan revealed a large pulmonary embolism in the right main pulmonary artery, as well as several left–sided pulmonary emboli in the lobar pulmonary arteries. Given the patient’s hemodynamic compromise, an infusion of tissue plasminogen activator was administered, and she was admitted to the cardiac care unit.

Echocardiographic visualization of embolized venous thrombus in the right atrium or ventricle in transit to the pulmonary vasculature is well described in acute pulmonary embolism and may be considered direct evidence of the diagnosis.^{1–4} Also referred to as mobile clot or free-floating thrombus, venous thromboembolism in transit has a characteristic highly mobile, serpiginous or wormlike appearance that is distinct from mural thrombus, which forms in situ in the heart. Although infrequent, with a reported incidence from 3% to 18% in acute pulmonary embolism, its presence is associated with more severe manifestations of pulmonary embolism and relatively high mortality (27% in one meta-analysis).^{3–5} Aggressive management with thrombolysis or surgical embolectomy is generally recommended for patients who have free-floating thrombi in the right heart.

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