

Caught in Traffic: Clot in Transit

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CASE PRESENTATION

An 80-year-old man with a past medical history of type 2 diabetes mellitus presented with progressive weakness and significant weight loss. His hospital course was complicated by persistent hypoglycemia. He also had two brief episodes of presyncope in the setting of sinus bradycardia to nadir

Image 1. Transthoracic Echocardiogram Apical View Demonstrating Clot-in-Transit

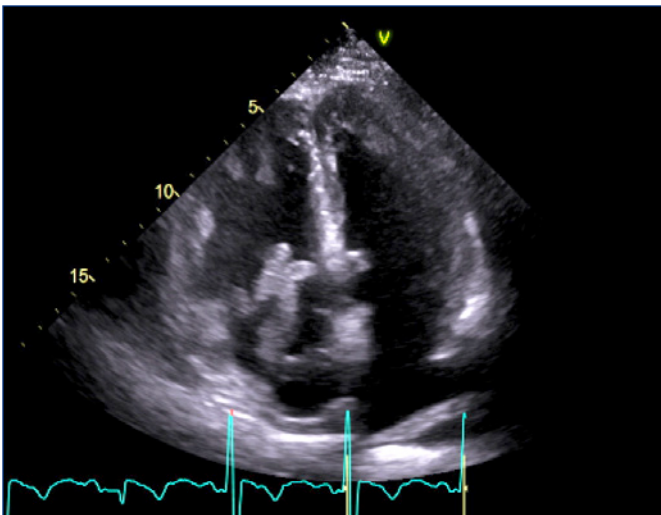
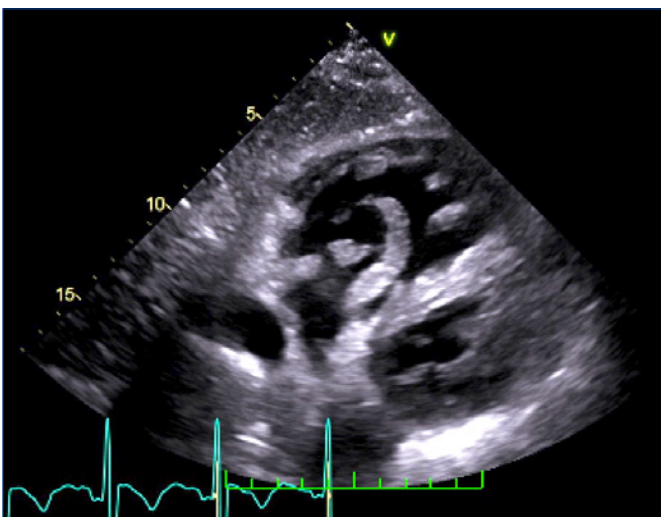
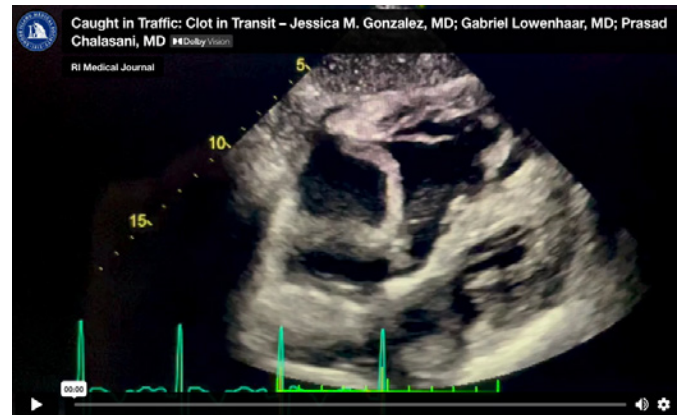


Image 2. Transthoracic Echocardiogram Subxiphoid View Demonstrating Clot-in-Transit



Video. Serpentine Thrombus Oscillating Across the Tricuspid Valve Between the Right Atrium and Right Ventricle

<https://vimeo.com/926903083>



heart rate of 30bpm and hypotension. Labs were remarkable for a mild troponin elevation to 0.26 ng/ml which increased to 1.6 ng/ml. Notably, the patient never experienced any chest pain, his troponins trended to peak, and his hypotension resolved after fluid resuscitation. Given the bradycardia episodes and the initially rising troponins, a transthoracic echocardiogram was performed which showed a pedunculated, mobile mass. A transesophageal echocardiogram was subsequently performed to further detail the mass and to rule out an atrial myxoma. The mass was found to be greater than 5 cm in diameter, lobulated and freely mobile without attachment to the septum within the right atrium most consistent with a clot-in-transit (**Image 1 and 2, and Video**). Intravenous heparin was initiated. He remained hemodynamically stable as he underwent workup for a potential underlying malignancy.

BACKGROUND

A clot-in-transit (CIT) or a thrombus-in-transit (TIT) is a serpiginous, mobile mass that embolized from a deep vein and is found in the right-side chambers of the heart.¹ This thrombus can then embolize to the pulmonary vasculature or cross the heart through a patent foramen ovale.² Their prevalence in patients with pulmonary embolisms (PE) is estimated to be approximately 5% and in patients with

massive PE as high as 18%.¹ Mortality rates are 21% in 14 days and almost 30% within 3 months.^{3,4} If left untreated CIT can have a mortality rate as high as 91%.⁵ This high mortality rate signifies making a timely diagnosis is critical.

DISCUSSION

CITs are diagnosed through a variety of imaging techniques: transthoracic echocardiography (TTE), transesophageal echocardiography (TEE), CTA, and CT.¹ Detection of CITs has high sensitivity through these modalities (TTE 95%, CT 81%, and CTA 100%). TTE is commonly used to assess CITs; however, when a better image cannot be obtained a TEE may be used. When performing a thrombectomy a TEE may also be used to monitor the clot during atrial entry.³

Treatment options for CITs include anticoagulation alone, systemic thrombolysis, surgical embolectomy, and endovascular catheter-based therapies.¹ Therapy with only anticoagulation may not be sufficient for hemodynamically unstable patients.^{4,5,6} In patients with concomitant PE or in those with anatomical abnormalities the preferred therapy is surgical thrombectomy.³ Meanwhile catheter-based thrombectomy is superior for patients with isolated CIT.³

More research needs to be conducted to determine the optimal therapeutic approach as currently there are no randomized control trials on this condition and the general approach for management has been chosen on a case-by-case basis.³ Patients should be stratified based on their comorbid conditions, hemodynamic stability, and bleeding risks.^{3,4}

References

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Disclosures/conflicts of interest

The authors have no conflicts of interest to disclose.

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