

Thrombus Extremus: A Case of High-Risk Pulmonary Embolism, Acute Heart Failure in a Heart Transplant Recipient, and Phlegmasia Alba Dolens Requiring Systemic Thrombolysis, Mechanical Thrombectomy, and Fasciotomy

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Case Presentation:

55 year-old woman history of OHT and recent de novo donor specific antibodies

- Presented to ED with abdominal pain, dyspnea, and presyncope
- Noted to be tachycardic, tachypneic with increased work of breathing and RUQ tenderness
- Extremities were cool without notable swelling

Laboratory Findings:

- Lactic acidosis (lactate 4.2, ABG 7.25/ 25/92/12)
- AKI (Cr 1.6, baseline 1)
- Elevated transaminases
- Elevated cardiac biomarkers (BNP 4,857 and high sensitivity troponin to 75)

Imaging Findings:

- Point of care ultrasound revealed large RA thrombus in transit, RV dilation, severe RV depression, D shaped septum
- Duplex ultrasonography showed acute extensive thrombus in the L femoral-popliteal venous system
- CTA confirmed bilateral central PA emboli
- Formal TTE with biventricular dysfunction (and EF 25-30%)

Figure 1: Right Atrial Clot in Transit on POCUS

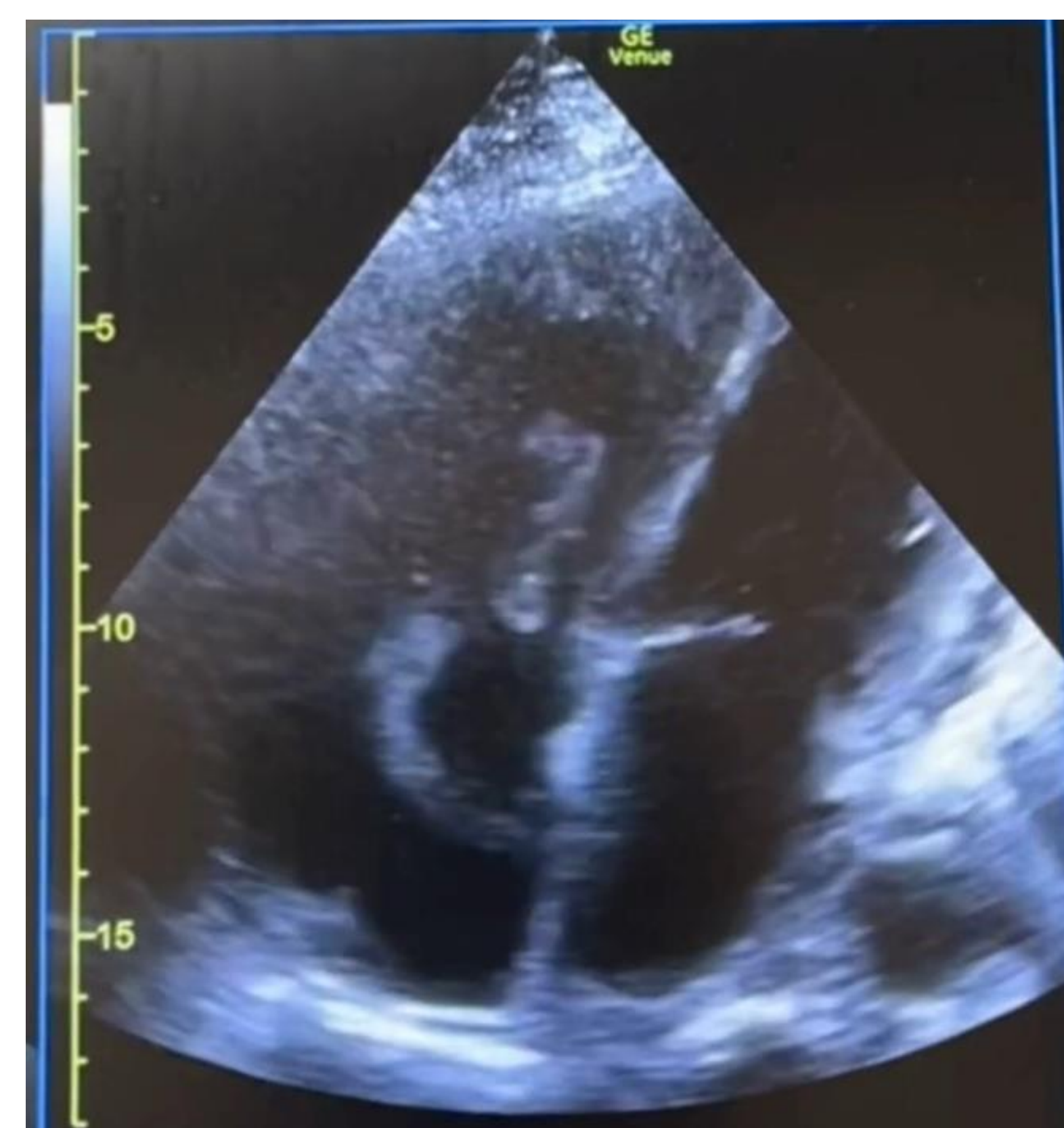
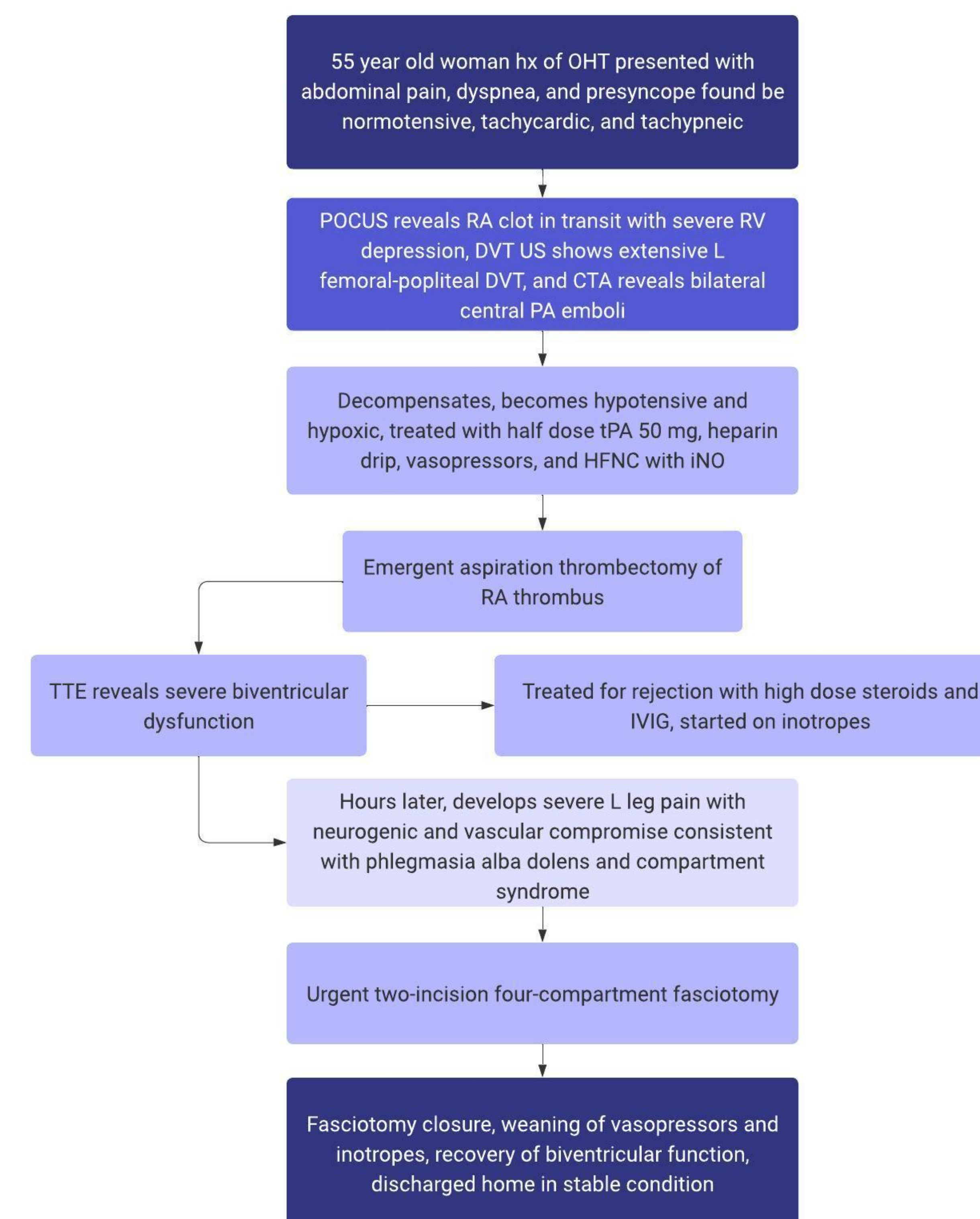


Figure 2: PE on CT Angio



Figure 3: Clinical Cascade of VTE Sequelae



Discussion:

- PERT team consulted early to coordinate complex care decisions for patient with multiple life-threatening complications of VTE and rejection at once
 - Obstructive shock from PE
 - Hypovolemic shock and limb ischemia from compartment syndrome
 - Cardiogenic shock from acute rejection
- Risk factors that put this patient at increased risk of VTE:
 - History of OHT (rates of VTE after OHT range from 12-24%)^{1,2}
 - More circulating inflammatory cytokines related to accelerated CAV³
 - Increased platelet activation⁴
 - Possible nidus from endovascular disruption related to frequent vascular access endomyocardial biopsies
- Early recognition of **phlegmasia alba dolens** (“painful white inflammation”), life-threatening complication of DVT when obstruction of deep veins limits outflow from superficial veins leading to overwhelming venous pressure and edema^{5,6}.
 - Typically presents with sudden onset unilateral pain out of proportion to degree of swelling and without cyanosis (bluish appearance) on exam. Once cyanosis is present, condition is called phlegmasia cerulea dolens, which can progress to venous gangrene.^{5,6}
 - Treated with systemic anticoagulation, limb elevation, and possible catheter-directed thrombolysis vs. percutaneous or surgical thrombectomy, however in this case patient was too unstable to undergo another procedure at time of recognition⁵

Conclusion:

Heart transplant recipients are at increased risk of VTE. Aggressive early recognition and multi-disciplinary management of the sequelae of VTE and hemodynamic support increase the chances of successful recovery.

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