

# POCUS on the Clot: A Unique Case of Germ-Cell Tumor Masquerading as Clot-in-Transit Visualized via Real-Time TTE during Percutaneous Mechanical Thrombectomy

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## Background

- Clot-in-transit is a rare presentation of pulmonary embolism
- Mortality approaches 100% without therapy
- No guidelines directing the standard of care
- Mortality benefit with intervention over anticoagulation alone

## Case

- Healthy 20-year-old male with dyspnea, productive cough, back & shoulder pain, & night sweats
- 17 cm mediastinal mass with right-heart compression & extensive pulmonary lesions
- Filling defect in Superior vena cava (SVC) – right atrium read as thrombus with evidence of tumor vs. clot-in-transit confirmed on transthoracic echocardiography
- Arrived hypoxemic on 4 L/min supplemental oxygen, tachypneic, and unable to lay flat

## Results

### Impromptu PERT team:

- Concern for SVC & right-heart compression with hemodynamic compromise in the setting of induction and positive-pressure ventilation necessitated conscious procedure with local anesthesia and moderate sedation
- Concern for reduction in cardiac pre-load from partial inferior vena cava (IVC) obstruction by thrombectomy device required extracorporeal membrane oxygen (ECMO) sheaths to be placed prior to the procedure

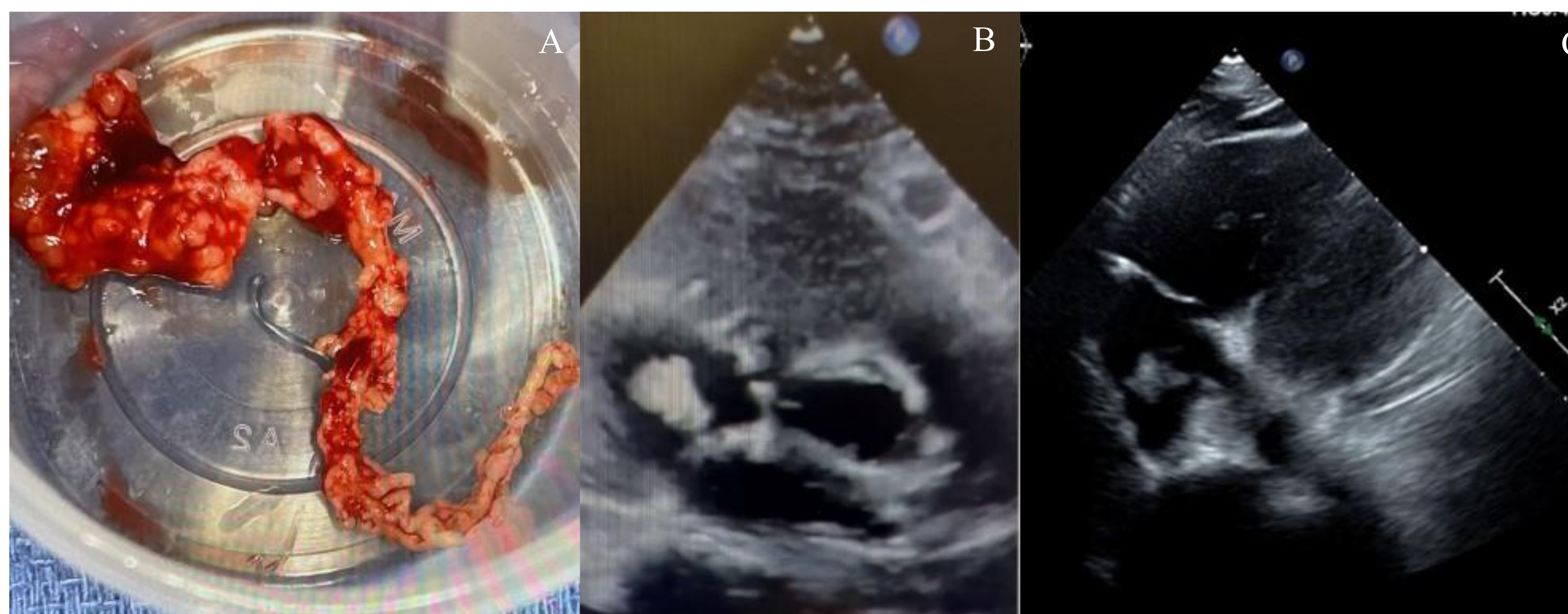


Figure A: Tumor recovered from aspiration device; Figure B: Point-of-care ultrasound (POCUS) displaying clot in right atrium on image left; Figure C: Formal transthoracic echocardiogram displaying apical four-chamber view of clot in the right atrium on image left.

### Final Pathologic Diagnosis

#### A. IR Thrombectomy:

- Metastatic mixed germ cell tumor consisting of seminoma and embryonal carcinoma in an intraluminal mass;
- The mass is mostly replaced by the tumor.
- The remaining tissue of the mass indicates that it could be an organizing thrombus or a myxoma extensively replaced by metastatic tumor.

- Successful aspiration thrombectomy via 24 French Flowtriever suction device under real-time TTE guidance
- Discharged on chemotherapy directed by pathology of tumor

## Conclusion

- Hemodynamic considerations regarding intubation, sedation, and imaging display the necessity for a multimodal and individualized approach.
- As minimally invasive catheter-directed options become more available, further studies are needed to assess mortality benefit of percutaneous mechanical thrombectomy.
- If unable to tolerate positioning for advanced imaging, real-time TTE should be considered.

## References

1. Rose PS, Punjabi NM, Pearse DB. Treatment of right heart thromboemboli. Chest. 2002 Mar; 121(3): 806-14.
2. Burgos LM, Costabel JP, Brito VG, Sigal A, Maymo D, Iribarren A, Trivi M. Floating right heart thrombi: A pooled analysis of cases reported over the past 10 years. Am J Emerg Med. 2018 Jun; 36(6): 911-915.
3. Athappan G, Sengodan P, Chacko P, Gandhi S. Comparative efficacy of different modalities for treatment of right heart thrombi in transit: A pooled analysis. Vasc Med. 2015;20(2):131-38