

From CODE Blue to Surgical Thrombectomy to Surgical Pericardial Hematoma Evacuation to Walking out the Hospital:

Valuable Lessons from a Massive Pulmonary Embolism

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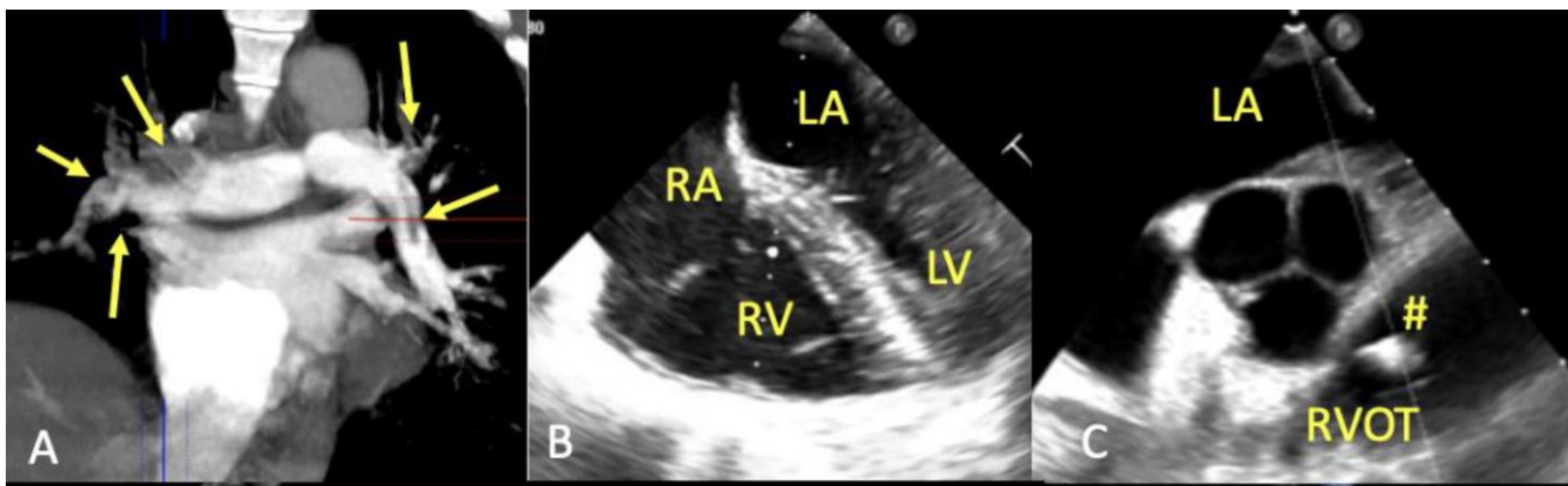


INTRODUCTION

- Massive pulmonary embolism (PE) can be a lethal condition, in which the spectrum of management can range from anticoagulation, to systemic thrombolytics, to catheter-based therapies, to surgical embolectomy.
- In-hospital all-cause mortality for high-risk PE averages 28.3%, in-hospital bleeding 13.8%, and intracranial hemorrhage 3.6%.¹

CASE

- A 45-year-old woman with recent in-vitro fertilization treatments presented with acute dyspnea and syncope.
- CT revealed large emboli within the right and left main pulmonary artery (PA) and lobar arteries of all lung lobes, with a right ventricular to left ventricular diameter ratio of 2:1, and bedside echocardiogram revealed a clot-in-transit between the right atrium (RA) and right ventricle (RV).



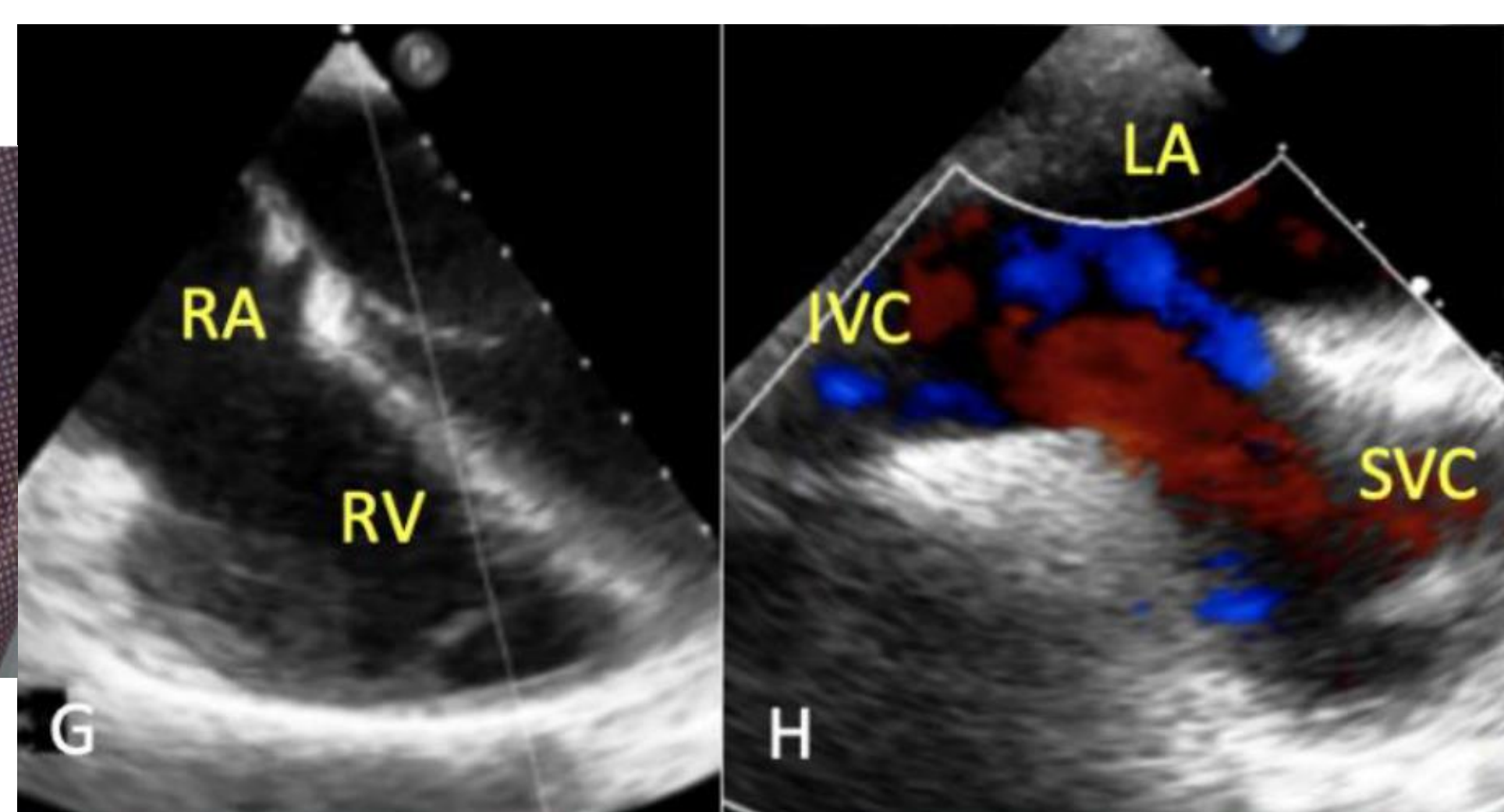
- Patient subsequently went into cardiac arrest twice and achieved ROSC after four rounds of advanced cardiac life support (ACLS).
- Prior to the first arrest (asystole), full dose recombinant tissue plasminogen activator (rtPA) was initiated as an infusion, which was then bolused during the code.
- Given the grave acuity of the patient, decision was made to proceed with surgical pulmonary embolectomy.
- On route to the operating room, patient arrested for a third time and ROSC was achieved

HOSPITAL COURSE

- Bilateral main PA emboli were evacuated, and removal of cardiopulmonary bypass required support of VA-ECMO which was unable to be weaned in the subsequent day, despite normalization of RV size post thrombectomy.
- Transesophageal echocardiogram revealed a large pericardial hematoma, compressing the SVC, IVC, both atria, and RV.

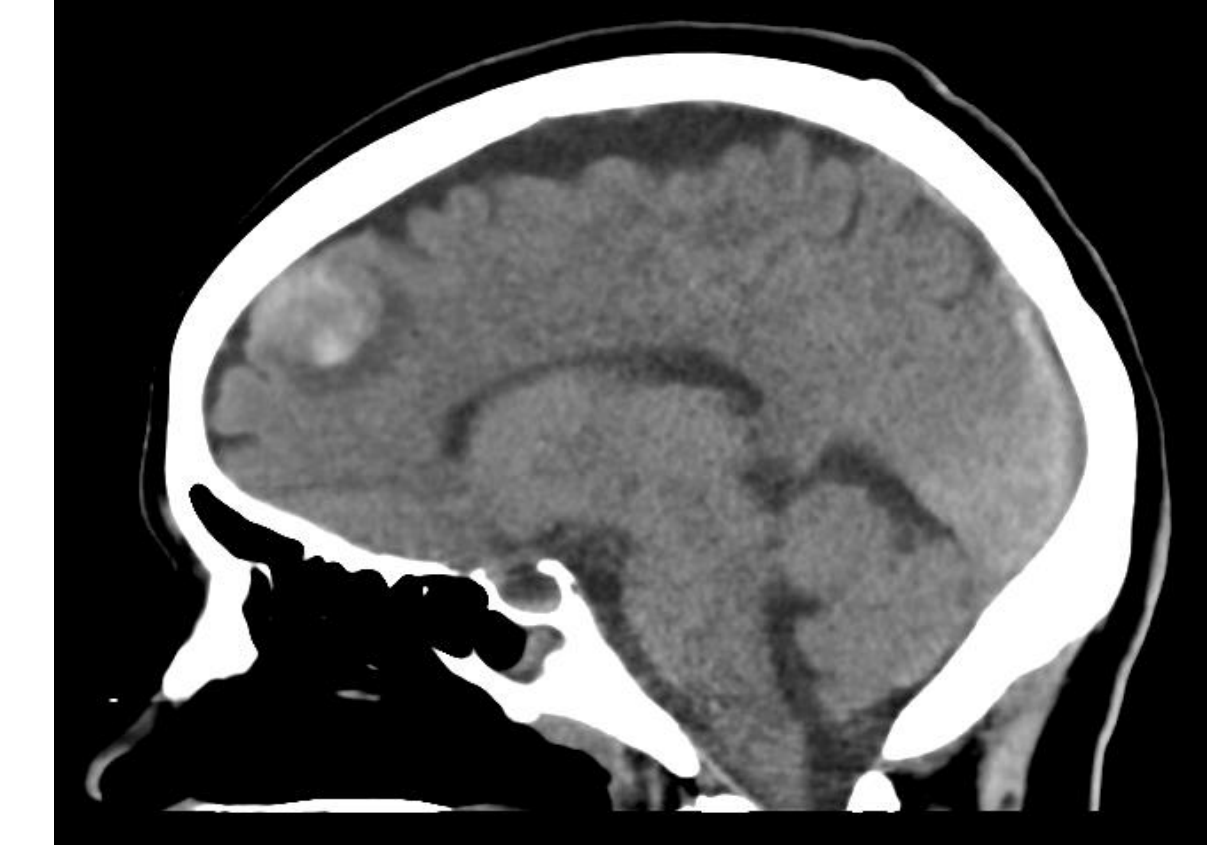
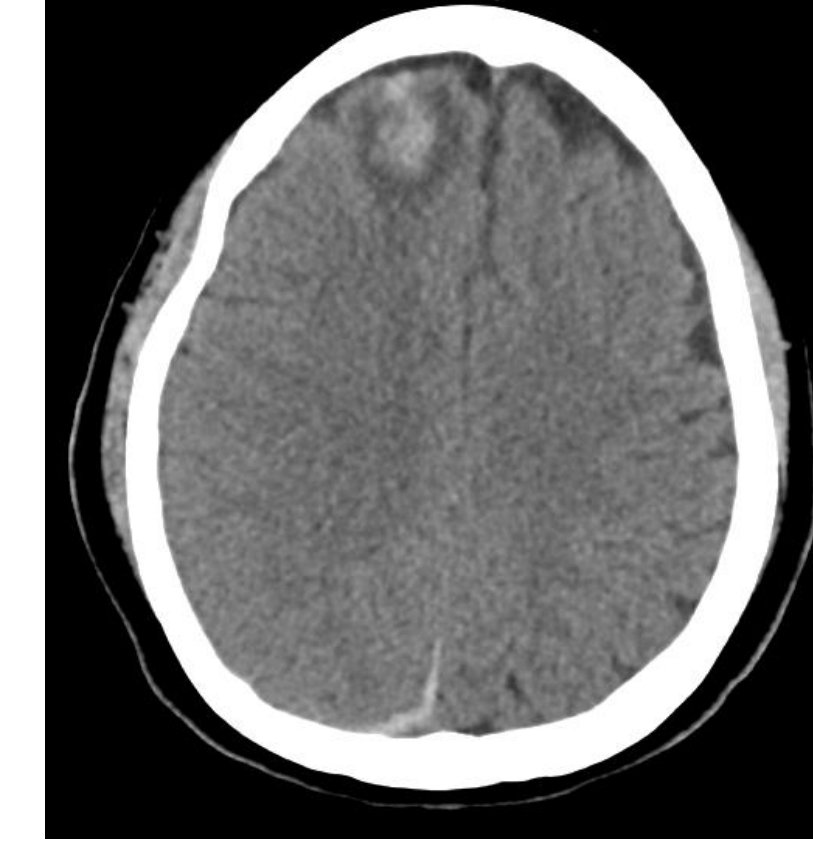


- Decision was made to pursue repeat open-heart surgery to evacuate the hematoma, resulting in prompt recovery of RV function.



HOSPITAL COURSE, CONTINUED

- 2 days later, patient was weaned off ECMO. Patient was found to have an asymptomatic intracranial hemorrhage that did not require intervention, and anticoagulation was paused for 54 hours.



- 4 weeks later, patient was discharged home with Home PT and on hemodialysis.

DISCUSSION

- Pericardial or mediastinal hematoma is a rare but known complication of thrombolytic use for pulmonary embolism.^{2,3} This is the third reported case of pericardial/mediastinal hematoma in a patient who received thrombolytics for a high-risk PE.
- In a patient who was hemodynamically worsening or not improving, prompt identification of pericardial hematoma that was compressing the right heart and subsequent surgical evacuation was crucial in a case report³ as well as this case.
- This case is unique in existing literature, because she not only received thrombolytics but also underwent a surgical thrombectomy with ECMO, which put her at higher risk of bleeding complications. Difficulty weaning off ECMO was what prompted the identification of the pericardial hematoma. She also suffered an intracranial hemorrhage, which was identified incidentally as part of infectious work-up, in which timely pause in anticoagulation allowed for stabilization, rehabilitation, and eventual discharge from hospital.

High Risk Unstable PE

If administering thrombolytics, be prepared to transfer to facility with CTS/VA ECMO capabilities

Consider baseline CT head

If presence of bleed, risk/benefit decision; be wary of length of pause of AC

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