Advocate Lutheran General Hospital

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# A COMPLEX CASE: HIGH-RISK PULMONARY EMBOLISM RESULTING IN CARDIAC ARREST DURING POSTPARTUM HEMORRHAGE

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Author Disclosures: None

## *Background*

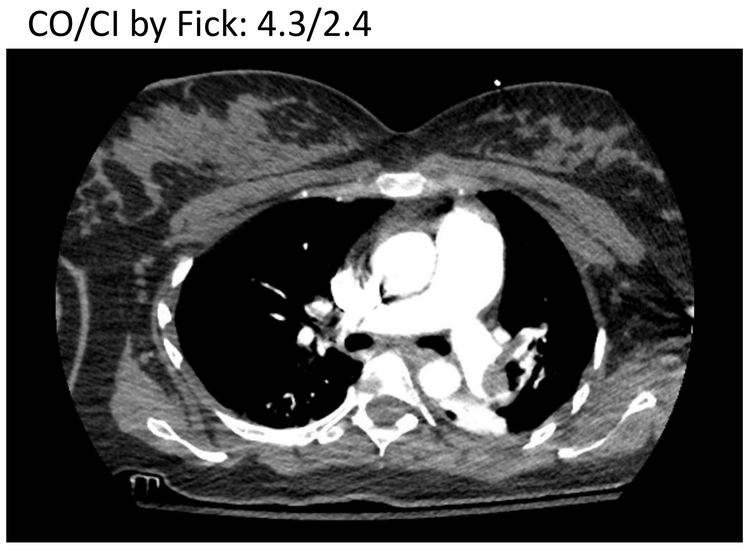
- **Massive PE Mortality:** In-hospital mortality rate > 25% [1]
- **Pregnancy-Related Deaths in the USA:** Pulmonary Embolism is a leading cause[2]

## Case *Summary*

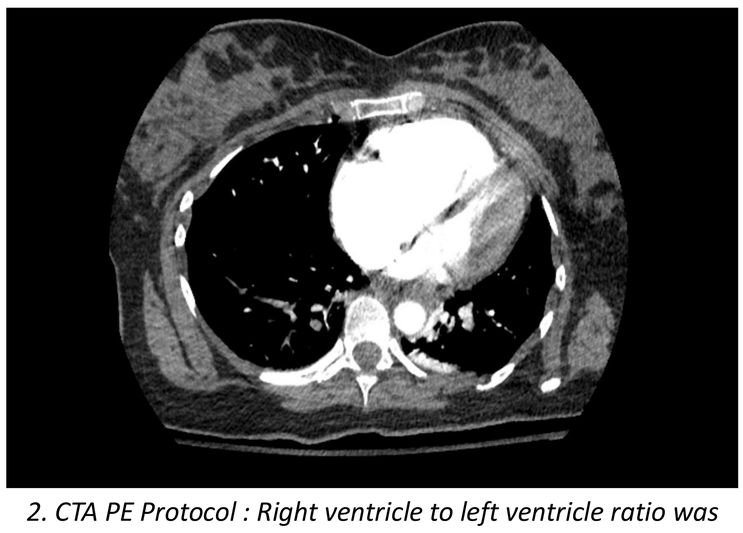
- **HPI:** 33-year-old female, 34 weeks pregnant (IVF)
- **Chief Complaint:** Mechanical Fall
- **Vitals:** Normal; fetal stable
- **ROS:** Abdominal trauma, left leg swelling/pain
- **Imaging:** Spiral fracture, left tibia/fibula
- **Action:** Urgent orthopedic surgery; continuous fetal monitoring

*Hospital Course*

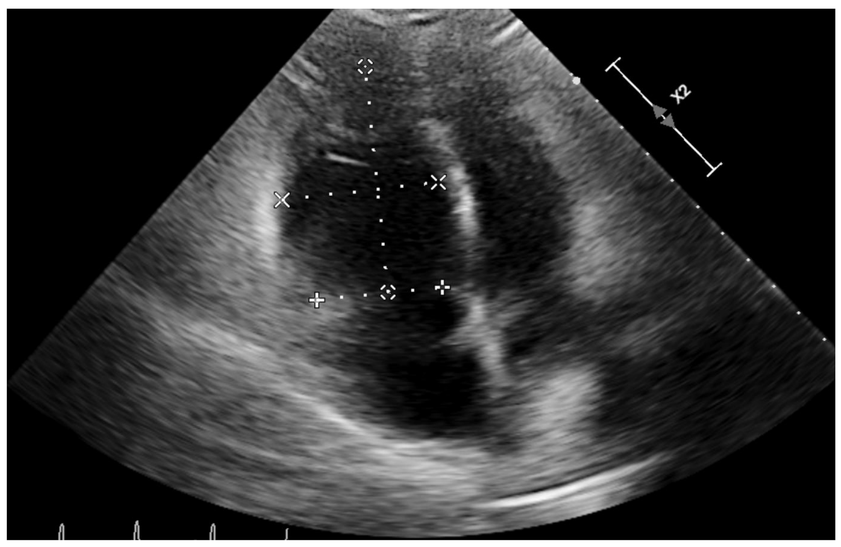
- **Pre-Operative Events:** Two vasovagal presyncope episodes
- **Emergency Intervention:** C-section for fetal bradycardia; Intubated for airway protection.
- **Post-Delivery Events:** PEA cardiac arrest; CPR and MTP for postpartum hemorrhage secondary to uterine atony; ROSC after 10 mins
- **ICU admission** : MV ; vasopressor support norepinephrine (up to 25 mcg/min), epinephrine (2.5 mcg/min), and nitric oxide (20 ppm).
- **Critical results :** High-sensitivity troponin: 2,597 ng/L; NT-proBNP: 29 pg/mL; Lactic acid: 5.1 mmol/L; ALT/AST: 1,198 U/L and 1,204 U/L.
- **RHC:** RA: 13 mmHg, RV: 46/6 mmHg, PA: 42/14/30 mmHg, PCWP: 7 mmHg, PAPi: 2.2, CO/CI by Fick: 4.3/2.4

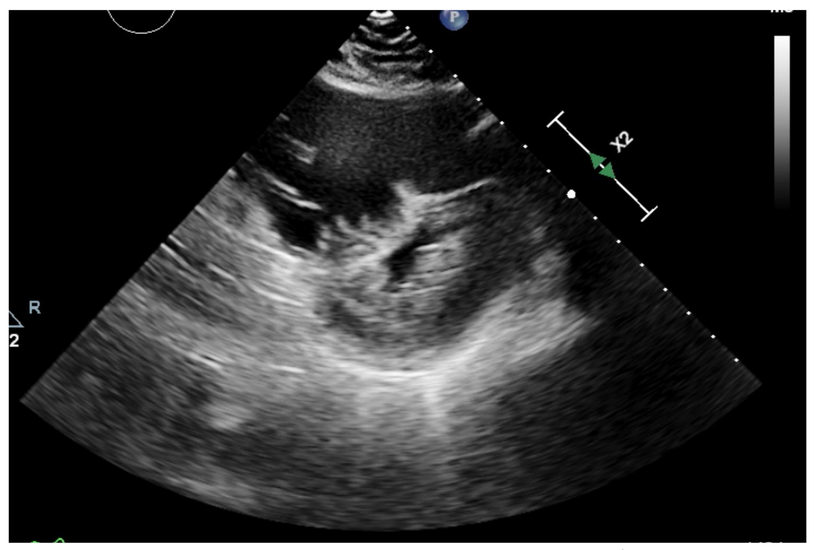


*1. CTA PE Protocol : Bilateral pulmonary embolism in the distal main, lobar, segmental, and subsegmental pulmonary artery*

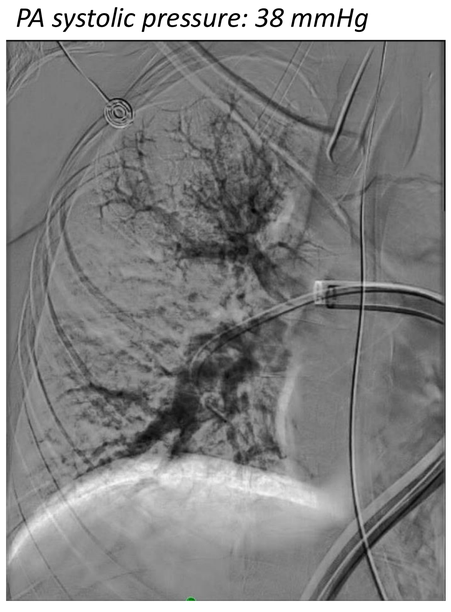


*2. CTA PE Protocol : Right ventricle to left ventricle ratio was measured as greater than 1.0*

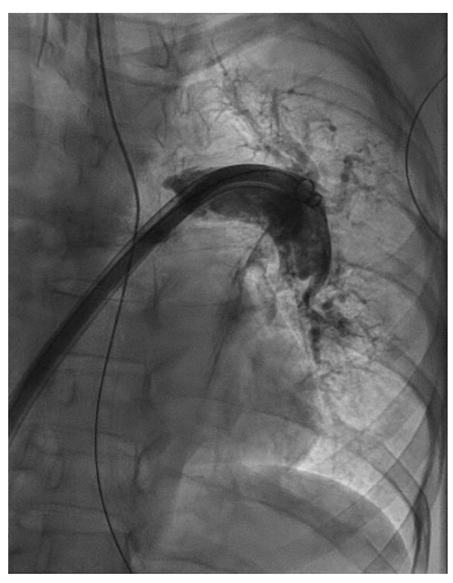




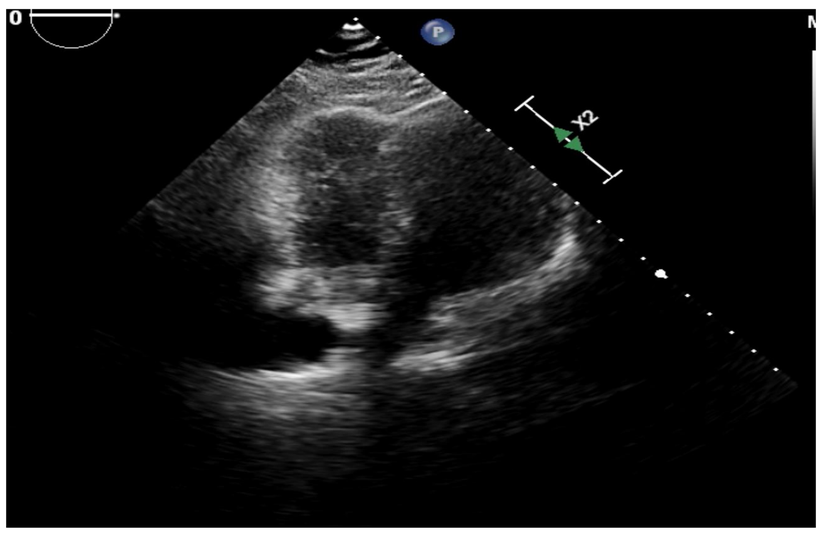
*3. TTE prior to intervention Severely dilated RV with severely reduced systolic function. Moderately to severely dilated RA. RV/LV ratio: 1.4.. PA systolic pressure: 38 mmHg*



*4. Pulmonary angiogram showing abrupt tapering of left distal main pulmonary artery and right segmental and subsegmental pulmonary arteries;*



*5. Bilateral EKOS placement for residual thrombi and high filling pressure*



*6. TTE 48 hrs post intervention: Normalized RV size, improved RV function, 10 mmHg drop in PA pressure*

## *Decision Making*

**Multidisciplinary Consensus:**

- Heparin drip; mechanical thrombectomy (Inari); catheter-directed thrombolysis (EKOS) with tPA infusion.

**Complications:**

- 7 hours post-tPA: Abdominal distention, 4 g/dL hbg drop.
- Stopped tPA, removed EKOS catheters, placed IVC filter. concerns of worsening subcapsular hematoma
- CT: worsening subcapsular hepatic hematoma
- Hepatic angiogram: No active bleeding.
- Heparin drip resume

**Outcome:** Full recovery; discharged 12 days post-C-section.

## *Discussion*

- **High-Risk PE Signs:** Presyncope, syncope, cardiac arrest[3]
- **Standard Treatment:** Systemic thrombolysis
- **Contraindication:** Active bleeding
- **Alternative:** Catheter-assisted thrombus removal (Inari FlowTriever)[4]

## *Conclusion*

- **Complex Cases:** Combining catheter-assisted thrombus removal and catheter-directed thrombolysis is promising.
- **Our Case:**
  - Inari : main PA thrombus
  - EKOS : segmental-subsegmental thrombi
- **48-Hour Outcome:** Resolution of RV systolic dysfunction and PA pressure

*Reference:*
1.-DOI: 10.1016/j.jscai.2022.100548; 2.-DOI: 10.1161/CIRCINTERVENTIONS.123.013406;3.- DOI: 10.1093/eurheartj/ehz405; 4.DOI: 10.1016/j.chest.2021.07.055