

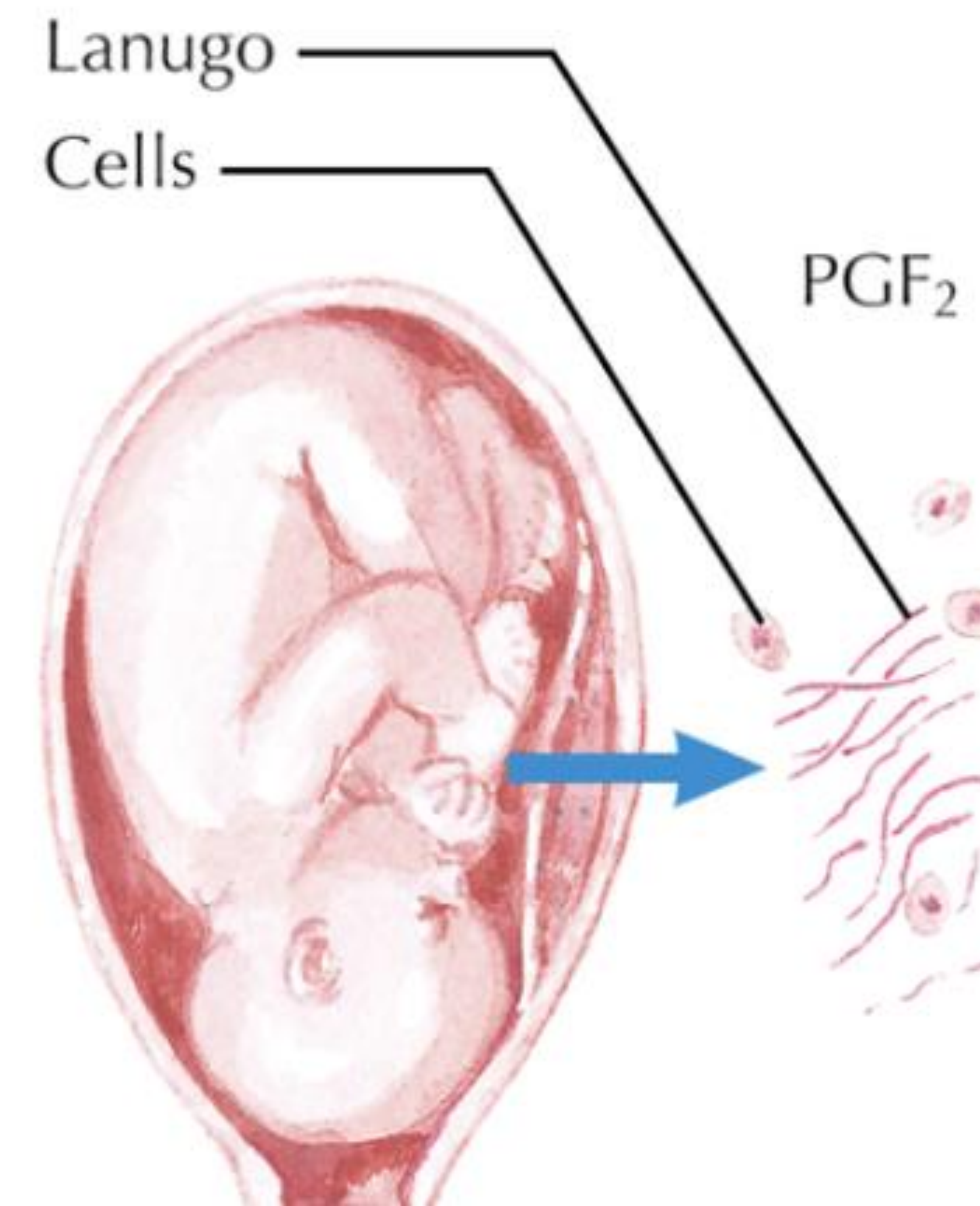
When Seconds Matter: Emergent ECMO Cannulation for Cardiac Arrest in the Setting of Life-Threatening Amniotic Fluid Embolism

George Washington University

Chelsea Holbrook, MD, Andrew Canonico, MD, Laura Roland, MD, Swapna Chaudhuri, MD, PhD

Background

- Amniotic fluid embolism (AFE) is an obstetric emergency arising from sudden entry of amniotic fluid or fetal cells into the maternal circulation, resulting in a severe systemic inflammatory response
- Triad of AFE: Hypoxia + Hypotension + DIC
- Incidence:
 - Varies greatly (1.9-2.5 per 100,000 deliveries)
- Maternal mortality 11-43%
- Neuro complications in 61%
 - 50% in infants



<https://www.clinicalkey.com/student/content/book/3-s2.0-B9780443107399002266?ckSource=search>



When Seconds Matter: Emergent ECMO Cannulation for Cardiac Arrest in the Setting of Life-Threatening Amniotic Fluid Embolism

George Washington University

Chelsea Holbrook, MD, Andrew Canonico, MD, Laura Roland, MD, Swapna Chaudhuri, MD, PhD

Case Report: 32yo (108kg) G3P1 at 39 weeks p/f repeat cesarean section

- **PMH:** Cryptogenic multifocal brain infarcts (MCA and occipital) w/ mild vision loss, protein S deficiency during pregnancy, remote hx of + lupus anticoagulant, HLD, OSA, GDMA1, migraines
- **PSH:** CS x1 for PEC and breech

1326

Spinal placed,
FHR 110's

1329

Fetal
bradycardia,
escalated to
stat C section

1340

Delivery,
APGARS 8/9

1341

Unresponsive,
fixed rightward
gaze, desat and
cyanosis, airway
secured

1347- 1404

CPR with
ROSC x3

1408

TEE - RV
dysfunction, RV
enlarged,
hypokinesis of RV
free wall, LV
underfilled,
relatively normal
systolic function

1426

Transport to
ICU for ECMO
cannulation

1602-1907

IR: SFA
stented, b/l
UAE

POD 2: Poor neuro exam → CTH w/ left frontal lobe infarct, pressors, abdominal compartment syndrome and febrile

POD 3: Transition to V-V ECMO

POD 5: Tracheostomy → Decannulated POD 36

POD 8: ECMO decannulation

POD 28: Transitioned to rehab unit

POD 52: Pt d/c home



When Seconds Matter: Emergent ECMO Cannulation for Cardiac Arrest in the Setting of Life-Threatening Amniotic Fluid Embolism

George Washington University

Chelsea Holbrook, MD, Andrew Canonico, MD, Laura Roland, MD, Swapna Chaudhuri, MD, PhD

Discussion

- Prompt and aggressive resuscitation is key to successful management of AFE
 - If cardiac arrest → CPR + LUD (with delivery of fetus)
 - If no cardiac arrest → LUD, supplemental O₂, prepare for airway management, invasive line placement, MTP, stop Mg/LA, supportive care, early CT surgery consult
- Many cases of AFE present with coagulopathy/DIC, however this should not be a contraindication to ECMO
- In patients with suspected AFE, the utilization of VA ECMO has been shown to confer up to a 70% survival rate; however, the literature is still sparse regarding use of ECMO in obstetric anesthesia

REFERENCES

1. Aissi JS, Klein T, Lebreton G, et al. Amniotic fluid embolism rescued by venoarterial extracorporeal membrane oxygenation. Crit Care. 2022;26(1):96. doi:10.1186/s13054-022-03969-3
2. Buda KG, Urbach J, Saxena R, Stanberry L, Benson G, Hryniewicz K. Veno-arterial extracorporeal membrane oxygenation for amniotic fluid embolism: a report from the Extracorporeal Life Support Organization registry. ASAIO J. 2024;70(1):e6-e8. doi:10.1097/MAT.0000000000002011
3. ClinicalKey. Amniotic fluid embolism. Accessed April 13, 2026. https://www.clinicalkey.com/#/content/clinical_overview/67-s2.0-19759c74-92c6-4251-81e7-210c3f4bb986

