

AMNIOTIC FLUID EMBOLISM

(Last updated 01/22/2020; Authors: Zhigang Chang, MD; Sarah Chalmers, MD)

PRESENTING COMPLAINT: sudden shortness of breath, seizure, or cardiorespiratory arrest

FINDINGS

- **A** Check airway, cough
- **B** Hypoxia
- **C** ↓ BP (mother), ↑HR (fetus)
- **D** Variable altered (V,P,U,D)*
- **E** Headache, seizure, sweating, cyanosis,
- **U_{PC}** Fetal distress
- **L_{PC}** DIC

***V** (verbal), **P** (pain), **U** (unconsciousness), **D** (delirious)

U_{PC} (point of care ultrasound) **L_{PC}** (point of care labs)

- **Signs & Symptoms:** AFE predominantly occurs during labor. The classic clinical picture of AFE involves acute development of severe hypoxia, cardiovascular collapse, hypotension, cardiopulmonary arrest, and DIC. Other feature may include sweating, shivering, dyspnea, pulmonary edema or ARDS, cyanosis, bronchospasm, and fetal compromise (bradycardia), seizure, atony, cough, headache, chest pain et al.
- **Predisposing Conditions:** C-section, induction of labor; instrumental delivery; placenta praevia, accrete, and abruptio placentae; preeclampsia and eclampsia.
- **Differential Diagnosis:** pulmonary embolism/ air embolism, anaphylaxis, pulmonary aspiration, septic shock, myocardial infarction and acute left ventricular failure. AFE is a diagnosis of exclusion based of the dramatic acute classical presentation of cardiorespiratory compromise and associated coagulopathy.

2) DIAGNOSTIC INTERVENTIONS

• Laboratory

- Initial laboratory data should include: a complete blood count, arterial blood gas, electrolytes, a 12-lead ECG, cardiac enzymes, and a coagulation profile

• Imaging

- Chest radiography, transesophageal echocardiography (severe RV dilation and low filling of LV)

- **Diagnostic Criteria:**

- Acute hypotension or cardiorespiratory arrest
- Disseminated intravascular coagulation Onset of the above during labor, cesarean section, dilatation and evacuation, or within 30 min postpartum
- Absence of any other significant confounding condition or potential explanation for the signs and symptoms observed

3) THERAPEUTIC INTERVENTIONS

- As AFE presents predominantly intra-partum or early post-partum, most patients will be assessed and managed initially in the deliver suite or operating theatre by the obstetric and anesthetic teams in attendance but early involvement of critical care staff will required.
- **Stabilize the patient's cardiorespiratory status.**
 - BLS/ALS algorithms and resuscitation for cardiac arrest in pregnancy. www.resus.org.uk
 - Early recognition and prompt resuscitation. Consider intubation. Airway management considerations in pregnancy include, decreased functional residual capacity (worse in supine position) and increased risk of aspiration due to gravid uterus, increased oxygen demand,
 - Consider early intubation.
 - Large bore intravenous access or intraosseous access if needed.
 - Left lateral decubitus position to prevent IVC compression (compression leads to poor venous return).
 - Vasopressor agents that may be used in the management of AFE include: dopamine, norepinephrine, ephedrine, digoxin, hydrocortisone sodium succinate
 - Blood products as needed for management of DIC
 - If AFE presents antenatally, following initial maternal stabilization, emergency delivery should be considered.
- **Other treatment methods:**
 - Uterine artery embolism and recombinant factor VII have been used in cases of severe coagulopathy resistant to conventional blood and product replacement.
 - In cases with refractory postpartum vaginal bleeding, hysterectomy may be necessary.
 - Other case reports have described the use of continuous hemodiafiltration, extracorporeal membrane oxygenation, and intra-aortic balloon counterpulsation in cases of AFE.

4) REFERENCES & ACKNOWLEDGMENT

Acknowledgment: *Hajrunisa Cubro, MD*

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