

## Amniotic Fluid Embolism During Labour, A Rare Occurrence with High Mortality: A Case Report

BC Oranye\*, B Chukwukelu, FA Faduyile, A Ogunmokun and N Oseni

Department of Obstetrics and Gynecology, Eko Hospital, Lagos, Nigeria

\*Corresponding Author: BC Oranye, Department of Obstetrics and Gynecology, Eko Hospital, Lagos, Nigeria.

Received: January 21, 2022

Published: February 24, 2022

© All rights are reserved by BC Oranye, et al.

### Abstract

Amniotic fluid embolism is a rapid, serious birth complication that occurs in pregnant women especially during labor following any manipulation/trauma that leads to leak of amniotic fluid and setting up a cascade of allergic-like reaction. It causes rapid cardiovascular collapse and usually affects both mother and fetus. Prompt detection and rapid management leads to reduction in morbidity and mortality.

**Keywords:** Amniotic Fluid Embolism, Cardiovascular Collapse, Fetal Death, Maternal Death, Artificial Rupture of Membrane

### Introduction

Amniotic fluid embolism (AFE) is a rare, complex, life-threatening obstetric emergency. It has an incidence of around 1 in 20,000 births, although its true incidence is unknown due to inaccurate diagnosis and inconsistent reporting of nonfatal cases and causes around 10% of maternal deaths [1,2]. AFE has two phases: the respiratory failure phase, which leads to cardiac arrest, and the hemorrhagic phase, which leads to disseminated intravascular coagulopathy [3]. It occurs either in late labor or shortly after delivery. The cause of AFE remains unknown and it remains unpreventable. Risk factors that may lead to AFE include induction of labor, operative deliveries, preeclampsia, polyhydramnios, use of misoprostol, placental implantation abnormalities, elective abortion, and advanced maternal age (>35 years) [3]. The clinical features of AFE include a sudden feeling of agitation, anxiety, confusion, nausea and vomiting, shortness of breath, cough, hypotension, cyanosis, fetal bradycardia, encephalopathy, acute pulmonary hypertension, and coagulopathy [3,4].

Complications that have been reported include disseminated intravascular coagulation, cardiopulmonary failure, coma, seizures,

and maternal and fetal death [5]. Treatment of AFE is supportive and involves resuscitation aimed at the symptoms and features of the disease, coexisting morbidity, and vascular complications [1]. Women that survive following resuscitation may suffer organ dysfunction, such as mild-to-severe brain or lung injury and may die at a later stage [6]; however, infant survival has been reported to be as high as 70% [4]. AFE is a diagnosis of exclusion and confirmed at autopsy. Studies of the UK medical register have reported that most women who suffer AFE survive [2,7]. However, of the majority of the women that survive have significant morbidities such as cardiac arrest, subglottic stenosis, neurological impairment and major surgical intervention such hysterectomy and repeat laparotomies. Management of AFE requires rapid, intense coordinated emergency response in a multidisciplinary setting involving a senior obstetrician, anesthesiologist, neonatologist, hematologist, and an experienced midwife as well as resuscitation drugs and equipment [8].

### Case Presentation

A 23-year-old female, gravida 2, para 1, had an expected date of delivery of 13/11/2017 and estimated gestational age of 39 weeks 2 days on 8/11/2017. She presented with a 7-h history of uterine

contractions in the active phase of labor. Antenatal care was uneventful, and the patient had no known chronic medical conditions. She had normal vital signs at presentation and artificial rupture of membrane (ARM) was performed in the labor ward. The ARM was done by passing an amniotic hook in between the examining fingers within the vaginal cavity which was used to scratch the amniotic membrane on the presenting part with a consequent gush of clear liquor from the vaginal cavity.

The patient suddenly developed difficulties breathing after letting out a scream within 20 min of ARM. The Pulses and vital signs of the woman were not recordable. Resuscitation was immediately commenced with chest compressions and airway suctioning, and 200 mg of intravenous hydrocortisone was administered. She was confirmed dead after about 40 min of resuscitation. The fetal heart rate was still present although faint at the time of resuscitation and the fetus was extracted by vacuum but was stillborn with a birth weight of 3.06 kg.

The autopsy finding of the dead mother was as follows. Lung sections showed intense edema and collapse of the alveoli with dilated and highly congested blood vessels. There were numerous acellular squames observed within the parenchyma of the lungs. Cut surfaces of the lung showed free-flowing frothy fluid. A conclusion of AFE was made by the pathologist.

**Figure 1:** Squames within the pulmonary artery.

Picture from [https://www.flickr.com/photos/pulmonary\\_pathology/7471758766](https://www.flickr.com/photos/pulmonary_pathology/7471758766).

## Discussion

AFE has a high fatality rate among pregnant women. Its onset is sudden, and it is essential to take extra precautions to look out for risk factors among women admitted into labor ward. The amniotic fluid production is probably derived from the maternal plasma at the early stage of gestation. However, as the foetus grows the amniotic fluid derives its composition through fetal defecation and urination. This can be a contributing factor for allergies as well as blood clots when entering the mother's circulation [9]. These triggers a cascade of rapid severe reactions causing cardiopulmonary collapse and coagulopathy in the mother.

Managing AFE requires a fast, well-coordinated, adequate resuscitation with the appropriate drugs is required to save the lives of mothers. Delivery should be rapid and via the fastest route to improve fetal survival and may involve a perimortem Cesarean section or instrumental vaginal delivery. Resuscitative drugs should be available in the labor suite and experienced senior health personnel should be available during labor to manage this condition.

## Conclusion

AFE is rare but has high mortality rate among pregnant women. Resuscitative drugs, prompt intervention by a senior obstetrician and anesthesiologist in the labor suite, rapid intervention, and resuscitation are required to save the life of the parturient, and perimortem Cesarean section may be necessary to prevent the death of the mother and/or unborn fetus.

## Bibliography

1. Stein P. "Pulmonary embolism". Chichester, West Sussex, UK Hoboken, NJ: John Wiley and Sons Inc. (2016).
2. Tuffnell D J. "United Kingdom amniotic fluid embolism register". *British Journal of Obstetrics and Gynaecology* 112 (2005): 1625-1629.
3. "What is amniotic fluid embolism?" (2018).
4. Kaur K., et al. "Amniotic fluid embolism". *Journal of Anaesthesiology Clinical Pharmacology* 32 (2016): 153-159.
5. "Amniotic Fluid Embolism: symptoms and causes" (2020).
6. Rudra A., et al. "Amniotic fluid embolism". *Indian Journal of Critical Care Medicine* 13 (2009): 129-135.

7. Fitzpatrick K E., *et al.* "Incidence, risk factors, management, and outcomes of amniotic-fluid embolism: a population-based cohort and nested case-control study". *British Journal of Obstetrics and Gynaecology* 123 (2016): 100-109.
8. McDonnell N., *et al.* "Amniotic fluid embolism: an Australian-New Zealand population-based study". *BMC Pregnancy and Childbirth* 24 (2015): 352.
9. Hegazy A. "Clinical embryology for medical students and post-graduate doctors". Lap Lambert Academic Publishing (2014).

#### Assets from publication with us

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

**Website:** [www.actascientific.com/](http://www.actascientific.com/)

**Submit Article:** [www.actascientific.com/submission.php](http://www.actascientific.com/submission.php)

**Email us:** [editor@actascientific.com](mailto:editor@actascientific.com)

**Contact us:** +91 9182824667