

Amniotic fluid embolism (AFE)

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Key Amendments

Date	Amendments	Approved by

Introduction

The estimated frequency of amniotic fluid embolism (AFE) lies somewhere between 1.25/100 000 and 12.5/100 000 maternities, with the most recent UK data giving an incidence of 2/100 000 maternities. Survival rates seem to have improved significantly over time, from 14% in 1979 to around 30% in 2005 and 80% in 2010 although neurological morbidity in survivors is well recognised. The perinatal mortality rate in cases of AFE is 135/1000 total births.

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Clinical Presentation:

AFE presents as collapse either during or within 30 minutes of labour or delivery in the form of acute hypotension, respiratory distress and acute hypoxia. Seizures and cardiac arrest may occur.

There are different phases to disease progression. Initially pulmonary hypertension may develop secondary to vascular occlusion either by debris or by vasoconstriction. This often resolves and left ventricular dysfunction or failure develops. Coagulopathy often develops if the mother survives long enough, often given rise to massive PPH.

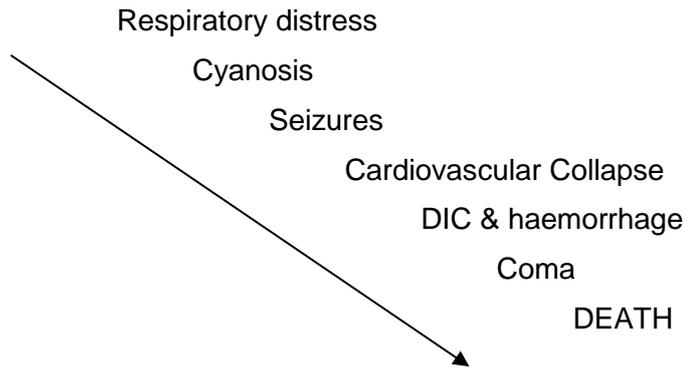
If AFE occurs prior to delivery, profound fetal distress develops acutely.

The pathophysiological process has been compared to anaphylaxis or severe sepsis.

Diagnosis is clinical: there is no accurate diagnostic test premortem.

Obstetric collapse resulting from AFE is manifested by:

- **Respiratory collapse** : cyanosis, dyspnoea, hypoxia, pulmonary oedema, respiratory arrest
- **Cardiovascular collapse** : Hypotension, tachycardia, cardiac arrest
- **Coagulopathy (DIC)** will usually develop within 30 minutes if patient survives
- **Other Symptoms** : fetal distress, convulsions, uterine atony, cough, shivering, sweating and anxiety



Treatment Strategy

The management of AFE is supportive rather than specific as there is no proven treatment.

Early involvement of senior experienced staff is essential, including obstetrician, anaesthetist, haematologist and ITU.

1. Be alert to the risk:
 - Avoid hyperstimulation of the uterus
 - Early diagnosis of obstructed labour (CEMD 2001)
2. Summon help immediately
 - 2222 Adult resuscitation team
 - Consultant Obstetrician with Obstetric Registrar and SHO
 - Consultant /Registrar Anaesthetist
 - Labour ward coordinator
 - Additional midwifery/ support staff

Aim to allocate specific tasks ideally with one person (does not have to be the consultant obstetrician) undertaking a “helicopter view” of the situation. Consider allocating a staff member for:

- Observations
- Scribing events, management decisions and timings
- Communication with outside agencies e.g. blood bank
- Runner for samples/ equipment
- Providing family support

3. Improve oxygenation with use of high flow O²– Cardio Pulmonary Resuscitation as appropriate.

4. Site 2 large bore cannula and send blood for:

- Cross match (6 units)
- FBC
- U&E/LFT/ glucose/ lactate
- Troponin I or T as a marker for myocardial infarction if the diagnosis is unclear
- Cultures and an arterial blood gas should also be obtained.

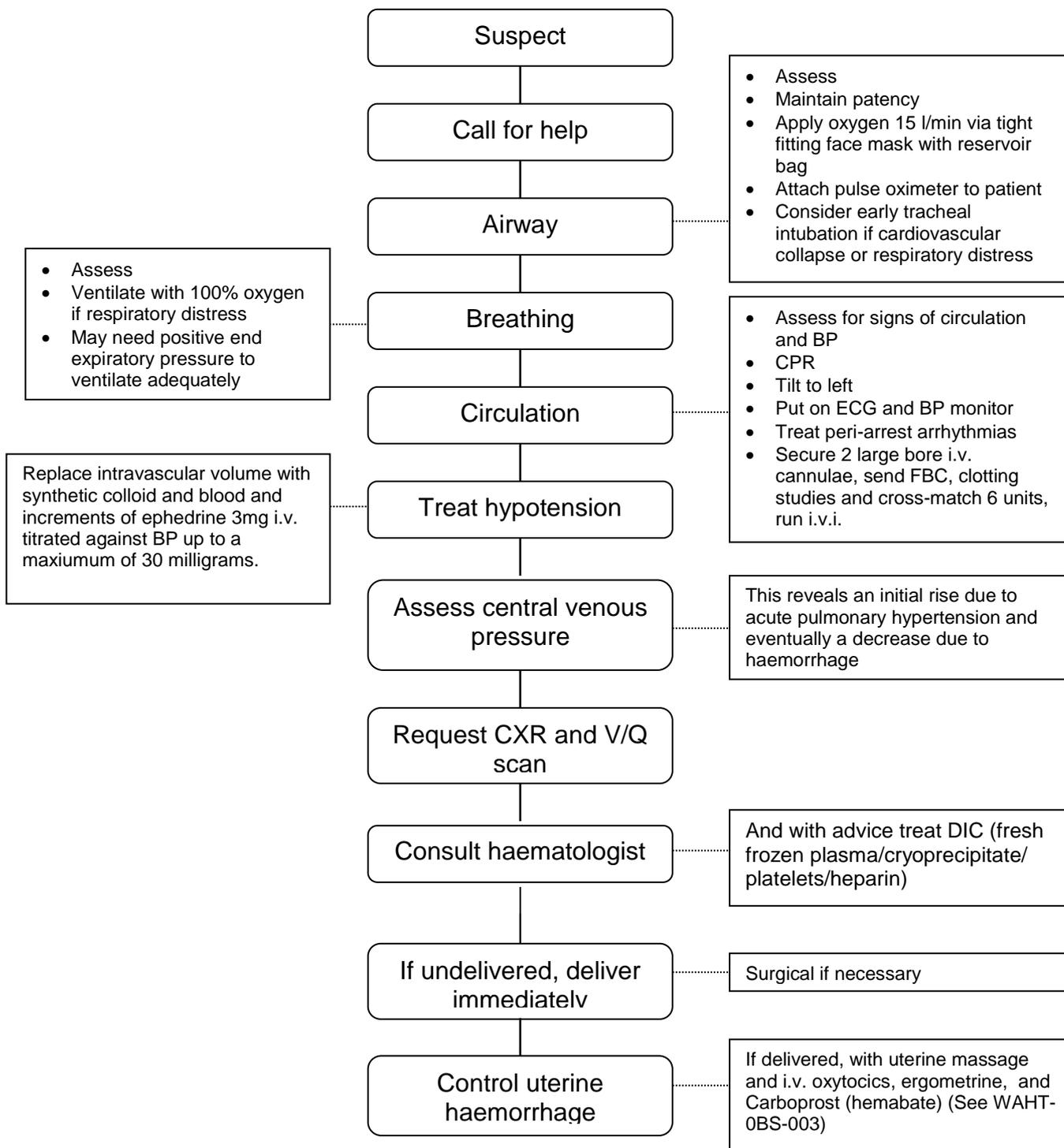
A chest X-ray and 12 lead ECG should also be obtained.

5. Consultant Obstetrician should liaise with Consultant Anaesthetist to develop plan of care:
 - If undelivered, she should be delivered immediately to reduce fetal compromise – ideally vaginally but otherwise via category 1 LSCS
 - Preparation should be made to manage major obstetric haemorrhage at the outset with the 2nd line oxytocics including carboprost and intrauterine tamponade balloon immediately available to control haemorrhage as DIC is corrected.

- Postnatal care plan should be decided between consultant obstetrician and anaesthetist but will generally involve inotropic support, invasive monitoring and ITU transfer
- 6. Anaesthetic involvement is vital throughout to ensure cardiac output and blood pressure are maintained with inotropic and vasomotor enhancing agents as needed and volume expansion as appropriate
- 7. Early involvement of Consultant Haematologist is vital to correct selflimiting DIC. It is not necessary to wait for blood results.
- 8. The woman and her family should be offered a full debrief both in the immediate postnatal period when she has capacity to retain this information and at an appropriate period in the future.

AMNIOTIC FLUID EMBOLISM

KEY POINTS ALGORITHM



Ref: MOET Provider Manual Final Version

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