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Case Report

An interesting case of amniotic fluid embolism

Sejal Devendrakumar Surti*

Department of Obstetrics and Gynecology, Aster Hospital, Mankhool, Dubai, The United Arab Emirates

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***Correspondence:**
Dr. Sejal Devendrakumar Surti,
E-mail: sejal_dr@yahoo.com

ABSTRACT

Amniotic fluid embolism is a rare condition. It is one of the leading causes of maternal mortality, and the overall rate has been approximately 20%. However, even those who survive have a significant morbidity, including neurologic injury due to cerebral hypoxia. If it occurs before delivery, neonatal outcomes are poor. Prompt recognition facilitates rapid initiation of potentially lifesaving therapies. This case is presented to share awareness regarding early detection and treatment of this life-threatening condition, resulting in good outcomes of both mother and baby.

Keywords: Amniotic fluid embolism, Disseminated intravascular coagulation, Cardiorespiratory arrest

INTRODUCTION

Amniotic fluid embolism is a rare obstetric emergency leading to hypoxia, hypotension, and coagulopathy. The exact cause is unknown. According to recent research, the maternal immune system reacts to the amniotic fluid and fetal cells leading to this life-threatening event. Timely diagnosis and recognition of this condition is pivotal in improving the maternal and perinatal outcome.

CASE REPORT

A 34-year-old lady gravida 2 para 1 living 1, first full-term normal delivery 9 years back, 37 weeks pregnant with gestational hypertension on antihypertensive (tablet Labetalol) and hypothyroidism on levothyroxine was admitted for induction of labour. Labour was induced with Prostin tablet followed by Syntocinon augmentation. She had spontaneous rupture of membranes followed by sudden breathlessness and one episode of seizure. Vital signs checked, her heart rate was 74 beats per minute, blood pressure was 133/66 mmHg and oxygen saturation 74%. She was immediately shifted to the operation theatre. She was in post ictal state, not responding and her peripheral pulses were not felt.

Patient was intubated and proceeded for caesarean section and a live female baby was delivered, 2.77 kg with APGAR 2/4/7.

Intraoperatively she developed bradycardia (33 beats per minute) and was resuscitated. Her uterus was relaxing with excess blood loss, uterotonics were given and bilateral uterine artery ligation was done. Massive postpartum haemorrhage protocol was followed. Estimated blood loss was more than 2 litres. Findings were suggestive of amniotic fluid embolism with disseminated intravascular coagulation. Hemoglobin was 11.5 g/dl, thrombocytopenia 58×10^9/l, deranged prothrombin time (more than 100 seconds) and D dimer was 4.95 µg FEU/ml. She was managed by the team of obstetricians, anaesthesiologist and intensivists. Eight units of packed red blood cells and five units of fresh frozen plasma along with two units of platelets concentrate were transfused. She was shifted to intensive care unit where she was stabilised further. Her hemoglobin was 9 g/dl, and prothrombin time was 11.5 seconds, with international normalized ratio (INR) (1.01) and activated partial thromboplastin time (APTT) (35.8 seconds) within normal limits. Both mother and baby were discharged on seventh day in a stable condition.

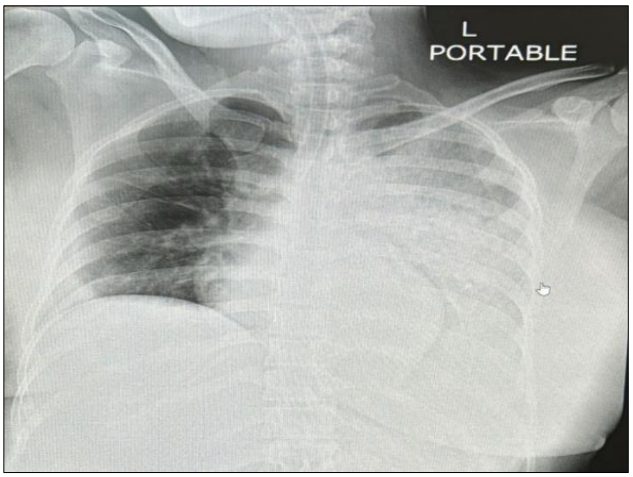

Figure 1: X-ray chest showing ground glass opacity in the left lung - mid and lower zones suggestive of non-cardiogenic pulmonary oedema.

DISCUSSION

Amniotic fluid embolism is the anaphylactoid syndrome of pregnancy, involving the initiation of cytokine storm due to the exposure to an unknown inciting antigen, marked by sudden cardiorespiratory collapse and disseminated intravascular coagulation (DIC).[1,3,11,12] This was first reported by Meyer in 1926, and the syndrome was first described by Steiner and Lushbaugh in 1941. The exact pathophysiology of this rare condition is still unknown.[2,8,9,10]

The society for maternal fetal medicine (SMFM) and amniotic fluid embolism foundation proposed a definition of amniotic fluid embolism (AFE) based on presence of four diagnostic criteria all of which must be present.[4]

Criteria for amniotic fluid embolism

Criteria includes: sudden onset of cardiorespiratory arrest or hypotension with evidence of respiratory compromise, documentation of overt disseminated intravascular coagulation, clinical onset during labor or within 30 minutes of placental delivery, and absence of fever during labor.

Risk factors with strong evidences proposed for amniotic fluid embolism are induction of labor by any means, assisted delivery, and caesarean delivery.[14] Other factors include maternal age above thirty five years, male fetus, multiple pregnancy, polyhydramnios, eclampsia, uterine rupture, cervical trauma, placenta previa or abruption, and ethnic minority.

The incidence of amniotic fluid embolism is rare 1.9-6.1 cases per 100,000 deliveries in a review of report from various countries.[5] It is hypothesized that entry of amniotic fluid into the maternal systemic circulation via a breach in maternal/fetal interface leads to abnormal activation of humoral and immunological processes and release of vasoactive and procoagulant substances, similar to systemic inflammatory response syndrome.[6,7]

The initial goal of managing patients of amniotic fluid embolism includes performing cardiopulmonary resuscitation, control haemorrhage and reverse coagulopathy, confirm the diagnosis of amniotic fluid embolism and deliver the fetus if the fetus is alive and beyond the gestational age of ex utero viability or if delivery will aid in maternal resuscitation. Rapid recognition, effective resuscitation, and anticipation of coagulopathy and severe postpartum hemorrhage are critical for patient survival.[13] The blood coagulation factor is depleted early by the anaphylactoid reaction, it is important to supply the coagulation factor by administering large amount of fresh frozen plasma from the early stage for DIC type amniotic fluid embolism.[6]

New management strategies, such as extracorporeal membrane oxygenation (ECMO), are being utilized and emphasize the need for a multidisciplinary approach.[13]

This case was promptly diagnosed and managed with a multidisciplinary team approach involving obstetrician, anaesthesiologist and intensivist.

CONCLUSION

Amniotic fluid embolism is a life-threatening condition and prompt diagnosis with multidisciplinary team approach is the key to the successful management with positive outcome of mother and fetus.

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