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Foetal Alcohol Syndrome in a Nigerian Infant:

A Case Report

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Abstract

Foetal Alcohol Syndrome (FAS) is the most severe form of foetal alcohol spectrum disorder (FASD). Alcohol and its metabolite, acetaldehyde, interfere with foetal development by disrupting cellular differentiation and growth, DNA and protein synthesis, and inhibiting cell migration. The diagnosis is based on the history of maternal alcohol consumption, characteristic facial anomalies, growth retardation, and central nervous system (CNS) involvement.

The syndrome is a leading cause of intellectual disability in the United States, but no such data is available in Nigeria. This is a report of a case of a term female neonate, delivered at approximately 38 weeks gestation through emergency Caesarean section. The mother consumed several bottles of 250ml of alcohol (local gin) from the second week of pregnancy to the tenth week to terminate the undesired pregnancy. At birth, the infant had short palpebral fissures, low-lying ears, a smooth philtrum, a flattened nasal bridge, a very thin upper lip, and a high-arched palate. The birth weight was 2.48kg, the occipitofrontal circumference was 33cm, and the length was 48cm. The infant was discharged seven days after admission with a weight of 2.35kg and was followed up at the outpatient clinic. Two weeks after discharge, despite adequate feeding through exclusive breastfeeding and supplemental expressed breast milk, the infant's body weight further dropped to 2.2kg.

Keywords: Dysmorphism, Facial malformations, Foetal Alcohol Syndrome, Maternal alcohol consumption, Teratogenicity.

Introduction

Foetal Alcohol Syndrome (FAS) is a clinical condition observed in newborn babies with prenatal alcohol exposure. It is associated with a variable spectrum of effects referred to as foetal alcohol spectrum disorders (FASD), with foetal alcohol syndrome as the most severe end of that spectrum.^[1] Other components of the spectrum include partial foetal alcohol syndrome, alcohol-related neuronal disorders, and alcohol-related

birth defects.^[1,2] FAS is associated with a pattern of malformations first described by Lemoine et al. in France in 1968 and then by Jones and Smith in the United States in 1973.^[3] The diagnostic criteria for FAS include confirmed maternal alcohol exposure; characteristic facial pattern including short palpebral fissure and premaxillary zone abnormalities; growth retardation, which may be represented by low birth weight for gestational age, decelerating weight over time not due to any identifiable

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cause; and evidence of central nervous system (CNS) abnormalities such as small cranial size at birth and structural brain abnormalities. [4,5]

There are several factors contributing to the complex phenotype of alcohol-induced disorders, such as genetic susceptibility, drinking pattern, timing of drinking, amount of alcohol, as well as maternal metabolism and tolerance for alcohol. [6-9] Studies have shown that the craniofacial features of FAS are due to teratogenic exposure during gastrulation, which occurs during the third week of human development. The observed facial features are a direct consequence of deficiencies in median forebrain derivatives caused by exposure to ethanol. This exposure leads to losing midline territory in the embryonic disc while leaving neural crest-dependent laterally derived structures such as the visceral arches relatively unaffected. [9]

FAS is the most common reason for mental sub-normality in the United States. The estimated prevalence of FASD ranges from 3% to 5% in Europe and North America to over 10% in South Africa. [10] In Nigeria, many women consume alcohol during pregnancy. [11] The prevalence of alcohol consumption was as high as 22.6% in southeast Nigeria. [11] Despite this data on alcohol consumption, no study has been done to determine the prevalence of FAS in Nigeria. The objective of this report is to create awareness about FAS as cause of severe birth defects in children.

Case Report

A term female newborn infant was delivered at the Wesley Guild Hospital, Ilesha, Nigeria and was admitted from birth on account of poor cry with an APGAR score of 2, 4 and 6 at the first, fifth and tenth minutes, respectively. She was duly resuscitated but was admitted into the Special Care Baby Unit for further management according to the unit protocol for the

management of perinatal asphyxia. The infant was delivered via emergency Caesarean section on account of antepartum haemorrhage secondary to *placenta praevia* at a gestational age of 38 weeks. Mother was a 36-year-old Para 3 woman with all three children alive. The pregnancy was not desired, so the mother confirmed taking about two bottles of 250 ml of alcohol (local gin) per week in the first trimester in an attempt to terminate the pregnancy. She denied alcohol intake before pregnancy and after the first trimester. She received antenatal care in a maternity centre. The pregnancy was not eventful until the day of delivery when she started bleeding *par vaginam* and was referred to our facility. The father is a 51-year-old private secondary school teacher who drinks alcohol regularly.



Figure 1: The face showing the short palpebral fissure and smooth philtrum

On examination, a female neonate with characteristic facial features, including short palpebral fissure, low-lying ears, smooth philtrum, flattened nasal bridge, and very thin upper lip (Figure 1-3). She has a high-arched palate. The birth weight was 2.48kg, the head circumference was 33cm, and the length was 38cm. The examination of other systems was

normal. She had a normal full blood count; the packed cell volume was 52%. The serum electrolyte, urea, and creatinine levels were essentially normal.



Figure 2: The face showing the flat nasal bridge and very thin upper lip



Figure 3: The face showing the high-arched palate

The baby was discharged home seven days after admission on account of a maternal request. The body weight was 2.35kg at the point of discharge despite adequate feeding with both direct sucking and expressed breast milk. The baby's weight at the clinic two weeks after discharge was 2.2kg,

the mother was lactating well, and the baby was sucking well.

Discussion

This report presents the term female neonate with facial features and characteristics of FAS. She was delivered to a woman who was persistently taking alcohol in the first trimester of the pregnancy. The birth weight was abnormally low, as were the head circumference and the length. This baby has not been gaining weight despite adequate feeding.

Studies have shown that babies who were exposed to alcohol in utero can have a spectrum of symptoms, with FAS being the most severe form. ^[1] This baby has features in every section of the diagnostic criteria, including the face, growth, and the central nervous system. Consumption of alcohol during pregnancy is a public health issue because FAS is the leading cause of mental retardation; FAS is well known to cause physical and neurodevelopmental abnormalities. ^[12,13]

Conclusion

Prenatal exposure to alcohol leads to permanent brain damage and behavioural, intellectual, neurological, and mental health difficulties, which manifest as reduced head size at birth and other CNS involvement leading to FAS. It is essential to raise awareness about FAS because the only way to prevent it is for women planning on conception to avoid alcohol consumption.

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