Congenital Malformation in a Resource Limited Setting

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Abstract
Congenital malformations like neural tube defects are significant sources of morbidity and mortality, and are responsible for a high psychological and economic cost worldwide. However, the impact of these diseases remain largely under-ascertained in low income countries.

This case report presents a fetal anencephaly in maternal toxoplasma and HIV co-infection in a resource limited setting, and the impact of the disease to the client and the healthcare provider.

Materials and Methods
The medical records of a client who had a baby with anencephaly was reviewed to obtain information from the moment of her first consultation to her discharge from hospital after delivery.

Results
A 39 year old black Cameroonian female, G2P1001 with a positive Toxoplasma and HIV serologic test diagnosed at 17 weeks of pregnancy, consulted at a hard to reach hospital. This client did not benefit from a fetal ultrasound due to accessibility constraints. Twenty weeks later, she returned to hospital in labor pains after losing liquor and the fetus presented with signs of distress. An emergency caesarian section was performed and three minutes later, a neonate with anencephaly was born weighing 1400g.

The parents of the baby were counseled and given psychological support. The client was discharged eight days later and followed-up as outpatient. She was encouraged to adhere to her ARV, and to consult a gynecologist-obstetrician.

Discussion and conclusion
More attention still has to be paid to ameliorate the healthcare in low income settings where accessibility to quality healthcare remains a challenge.

Keywords
Toxoplasma and HIV; Co-Infection; Anencephaly; Low Income; Case Report

Abbreviations
AIDS: Acquired immunodeficiency Syndrome;
ARV: Antiretroviral;
GP: Gravidity Parity;
HIV: Human Immunodeficiency Virus;
IgG: Immunoglobulin G;
mmHg: Millimeter Mercury;
NTDs: Neural Tube Defects
Introduction

Congenital anomalies are a significant source of morbidity and mortality and are responsible for a high psychological and economic cost worldwide [1]. Malformations like neural tube defects (NTDs) affect millions of persons worldwide, but unfortunately, their impact remain largely under-ascertained in middle and low income countries [2, 3]. Though the incidence of NTDs has fallen in many high income settings over recent decades, it still remains high in middle and low income areas [4].

Anencephaly which is one of the common forms of NTDs has been shown to have a multifactorial etiology among which are folic acid deficit, genetic variants in the folate pathway, and exposure to a variety of environmental and occupational toxins [5]. Infections like toxoplasmosis and HIV are also found to play a non-negligible role in the development of anencephaly [6, 7]. This disease can be detected early in pregnancy with the aid of a fetal ultrasound and other means, so as to ensure quality care [8-10] and reduce cost [1].

With these in mind, we sought to review the medical record of a client who bore a baby with anencephaly through a caesarian section to obtain information about the events surrounding her gestational period and delivery in a hard to reach district hospital in Cameroon.

Methods

A review of hard copies of clinical and para-clinical records of a client who delivered a baby with anencephaly was done to obtain information on her exposures from the moment of her first consultation with the pregnancy to her discharge from hospital after delivery. This was also accompanied by an interview of the lead physician of the health facility to get information that were not found in the client’s records. A narrative report was then presented after a review of literature.

Results

A 39 year old black Cameroonian female, G2P1001 whose first child was 15 years old consulted at a district hospital for her first antenatal visit in a hard to reach area in the South West Region of Cameroon. She was not sure of her last menstrual period, however, the gestational age was estimated to be about 17 weeks. Upon examination, she had a blood pressure of 118/78 mmHg and a uterine fundal height of 17 cm. She was requested to do some paraclinical exams among which were a fetal ultrasound, blood group, hemoglobin level, glycaemia, stool analysis, urinalysis, HIV, syphilis and toxoplasma serology. Most of these tests were done and found to be normal.

Unfortunately HIV test done with Determine and confirmed with OraQuick was positive alongside toxoplasma IgG serologic test done with Immunocomb® IgG. She also had a proteinuria of 70mg/dl and the blood group is O Rhesus positive. This client did not benefit from a morphologic fetal ultrasound partly because the hospital did not have a trained personnel to carry out the exam on site, but she was encouraged to go to the nearest referral hospital about 150 km away where the exam could be done by a radiologist though through a poorly accessible road.

She was put on a daily tablet of Tenofovir, Lamuvidin and Efavirenz combination therapy alongside 300mg of ferrous sulfate and 1mg of folic acid supplement daily. She also received anti tetanus vaccine and was offered a long acting insecticide treated bed net.

Unfortunately she was lost to follow-up until 20 weeks later when she returned to hospital with a notion of abundant loss of turbid liquor. Upon examination, she had a uterine fundal height of 30cm and was observed to be in the latent phase of labor with a fetal heart rate of 105 beats per minute taken with the aid of a manual foetoscope and a wrist watch. After she gave an informed consent for surgery, an emergency caesarian section was done but unfortunately after about 3 minutes from the onset of the intervention, a fresh dead male anencephalic baby was born.

Following the recovery of this patient from anesthesia, the precious awaited baby was rather a fresh dead neonate with anencephaly. The unhappy parents were counselled and given psychosocial support before the client was discharged from hospital eight days later. This patient continued to receive medical and psychosocial care from the hospital in which she was confined. She was advised to consult a gynecologist-obstetrician before her next pregnancy.

Discussion

A 39 year old female was diagnosed with toxoplasma and HIV infection at about 17 weeks of pregnancy, but could not do a morphologic ultrasound due to accessibility challenges. She was put on ARV alongside other recommended medications. About 20 weeks later, she was delivered through a caesarian section for a said acute fetal distress.

Congenital malformations like NTDs are caused
by a wide range of genetic and environmental factors among which are infections like toxoplasmosis and HIV [6, 7, 11]. Early diagnosis of NTDs like anencephaly can be done in utero with an ultrasound so as to ease quality care and reduce the cost of treatment for a neonate that is generally not viable [10].

The hospital in which this client was confined did not have a trained personnel to perform an early diagnosis of anencephaly and she was further limited by a poor road accessibility to consult a radiologist in the nearest referral hospital about 150 km away. These factors exposed her to care that was “too little, too late”. Due to lack of the means to identify that this fetus had an anomaly that is incompatible with life, this client could not receive a timely and adequate care and she was compelled to undergo a cesarean section to manage an acute fetal distress in a non-viable pregnancy. Following the limitations observed in this setting, this expectant mother was further exposed to care that was “too much, too soon” and suffered from a great physical, psychological and financial cost, a situation which was avoidable [8-10] if the available health service had the adequate environment or referral system to ensure a proper diagnosis and management. This challenge put both the client and the healthcare provider in great difficulty.

**Figure 1:** Photograph of Baby with Anencephaly Delivered through a Cesarean Section

**Conclusion**

This report presents an isolated observation of a pregnant woman who suffered from over-intervention at child birth due to lack of the means to benefit from a proper diagnosis using simple methods like an obstetric ultrasound. This situation could partly be explained by the lack of a trained staff to perform the examination on site and also due to further accessibility limitations in moving to the nearest referral hospital.

Similar situations can however be avoided in this resource limited setting if this health facility staff are trained to easily diagnose and manage fetal anomalies like anencephaly and if the referral system is improved upon such that every client in need of more specialized services can easily and safely be transported to the nearest hospital that can provide such care.

**Acknowledgment**

The authors thank the authority of the hospital in which this patient was confined for giving them access to the medical record of this client.

**Availability of data and material**

Data and materials supporting this report are available in the records of the District Hospital where this patient was managed and can be requested directly from the corresponding author to some extent, without revealing patient identity.

**Authors’ contributions**

NAA: Interpreted the patient data regarding the disease, designed the case report and contributed in writing the manuscript, MBA and NSN: contributed equally in writing the manuscript. All authors read and approved the final manuscript.

**Ethics approval and consent to participate**

Not applicable

**Consent for publication**

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**Declarations**

This case report is the initiative of the authors and aims to present the limitation in obtaining quality healthcare in a resource limited setting.

**References**


