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Some cases of congenital malaria in baptist medical centre, Eku, Delta state, Nigeria

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ABSTRACT

The occurrence of malaria fever in the newborn has always been thought to be rare. This belief has probably led to the low level of diagnosing this potentially grave disease and its few reports in Nigeria. We, therefore, decided to report these three cases that were diagnosed and treated at the Baptist Medical Centre, a Missionary Hospital located in Eku, Delta State, Nigeria. All the three cases were diagnosed in the month of November 2004, and all presented with fever, and one had feeding problems. Peripheral parasiteamia was present in the three babies and all of them were term babies. The children were treated with quinine and they responded well on the quinine medication. Thus, congenital malaria is a recognizable disease entity. Clinicians should therefore develop a high sense of suspicion for this disease and properly investigate babies presenting with fever.

Key words: Congenital malaria, baptist, Nigeria.

INTRODUCTION

There are documented evidences that in malaria endemic regions the incidence of congenital malaria is usually low, because available reports[1-2] indicate that neonates are protected against malaria attack. Nevertheless, symptomatic malaria is now known to occur frequently in neonates[3,4].

The various types of neonatal malaria are congenital (75%), acquired (12.5%), and transfusional (12.5%). The diagnosis and treatment of malaria in neonates is often difficult usually because of the non-specific and diverse features of the disease. Multiple drug resistant *Plasmodium falciparum* has created difficulties with case management. The increases in the cases of malaria and the emergence of drug resistant strains of the predominant strain of plasmodia have further heightened the problems of congenital malaria[5].

This report examines three congenital malaria cases treated in Baptist medial centre, Eku, Delta State, Nigeria, between the 12th and 21st of November, 2004.

Examination of cases

The Baptist Medical Centre, Eku Delta State has four units including the Paediatric Unit. All neonates admitted into the Peadiatrics Unit are

admitted into the Special Care Baby Unit (SCBU). The three cases being reported were admitted between the 12th and the 21st of November 2004.

Case 1

The first patient was a two day old male neonate who presented with an elevated temperature of 38.4°C and was subsequently admitted into SCBU and was thereafter investigated. Complete blood cells count was done and found to be within normal range. Cerebrospinal fluid (CSF) was analyzed and this too was found to be essentially normal. But the malaria parasite smear done was (+1) positive and the baby was then started on quinine infusion which he tolerated.

Case 2

The second baby was also a male child, aged four days old on admission. He presented with a history of high grade fever of 38.5°C. He was mildly jaundiced on admission and a working diagnosis of neonatal sepsis with neonatal jaundice and congenital malaria were made and he was thereafter admitted and investigated. Serum total bilirubin was 8.6mg%. The complete blood cells count was originally normal, with the calculated absolute neutrophile count (ANC) been normal. But a repeated count after 2 days gave a depressed ANC which necessitated that he completes the empherical antibiotic doses for five days. The malaria parasite smear was positive (+1) and he was started on oral quinine suspension which he tolerated and responded positively to. The urine analysis and microscopy which was collected by suprapubic puncture was normal.

Case 3

The third patient was a six day old female neonate that was delivered outside of our hospital and who presented with a four day history of fever and poor feeding. She had been found to be positive to malarial parasite smear from the referring hospital and was started on chloroquine there but to no avail. She was febrile on arrival to our facility and was also mildly jaundiced. Laboratory investigations which were ordered include CBC which was normal but for the calculated ANC that was low for age. This necessitated for the antibiotics that were started empherically to be continued for five days. A repeat CBC and the calculated ANC done on the fifth day of admission was subsequently found to be normal. The serum bilirubin on admission was 11.50mg% (total), and 0.3mg% (direct) and subsequent values showed a decreasing value until 8.40mg% (total), and 0.10mg% (direct) on the forth day of admission (10th day of life) was achieved and phototherapy was discontinued. The malaria parasite was also positive (+1) and she was started on oral quinine suspension which she responded to.

All three babies had regular blood glucose monitoring while they were on quinine therapy (6) due to the documented hypoglycemic effect of quinine therapy. None of them developed hypoglycemia.

RESULTS

Data obtained from investigation are in Tables 1 and 2

Table 1: Clinical features of the three cases of congenital malaria from Baptist Medical Centre, Eku

Feature Age onset	CASE 1	CASE 2	CASE 3
Age onset symptom (Days)	1	3	2
Symptoms	Fever	Fever	Fever, poor feeding
Physical examination	High grade fever	Splenomegally high grade fever jaundice	High grade fever, jaundice
Malaria parasite smear	+1	+1	+1
Treatment	Quinine	Quinine, i.v gentamycin, i.v. ampicilin	Quinine, 1.v.gentamycin, 1.v. ampicillin

Table 2: Laboratory results from the three investigated babies treated for congenital malaria

Laboratory Data	Case 1	Case 2	Case 3
Complete blood count			
Total	9600/mm^3	4,800/mm^3	3,700/mm^3
Neutrophile	22%	51%	30%
Lymphocyte	71%	46%	69%
Eosinophile	07%	0%	01%
Monocyte	0%	0.3%	0%
Heamatocrite	52%	54%	52%
Absolute neutrophil (ANC)	2112	2448	1100.
Repeat ANC (after…. Days)	-	1290*	8,200**
Cerebrospinal fluid analysis		Not	Not
Red blood cell	800/mm^3	performed	performed
White blood cell	05/mm^3		
Lymphocyte	100%		
Polymorphs	0%		
Protein	56mg%		
Sugar	17mg%		
Gram stain	No organism seen		
Culture and sensitivity	No organism seen		
Malaria parasite	+1	+1	+1
Urine analysis and microscopy	Normal	Not performed	Not performed
Bilirubin level	Not performed		
Total on admission		8.60mg%	11.50mg%
Direct on admission		0.70mg%	0.30mg%
Total on discharge		5.50mg%	8.40mg%
Direct on discharge		0.50mg%	0.10mg%

Values in parenthesis are data from repeated measurements: *the 2nd day ** the 5th day

DISCUSSION

Malaria is highly endemic in Nigeria and is one of the major causes of ill-health and death. The risk of malaria exists throughout the country but is greater in the rural areas. Malaria leads to about 10% of deaths in children under five years of age (7)

The Plasmodium species responsible for malaria in Nigeria are *Plasmodium falciparum*, *Plasmodium malariae* and *Plasmodium ovale*. More than 80 percent of malaria infections are caused by *Plasmodium falciparum*, while about 15% are caused by *Plasmodium malariae* and less than five percent are due to *Plasmodium ovale*[7,8].

Malaria remains one of the leading causes of morbidity and mortality in the tropics. In addition, it remains one of the most wide spread infectious disease in Africa. Over 90% of more than 450 million persons in Africa, south of the Sahara live in malarious areas. There are an estimated 300-500 million cases of malaria each year, resulting in one million deaths each year mainly in children under-five years in the African continent[9,10,11].
Severe malaria is usually confined to the first five years of life and becomes progressively less common with increasing age. Passive transfer of antibody across the placenta helps protect neonates for the first six months of life, until he starts to acquire his own antibody by the age of six months. Other factors aiding this passive transfer of maternal immunity commonly include the high hemoglobin F content of the infant's erythrocytes, which retards parasitic development[1].

Following the period of relative protection, children become increasingly susceptible to the more severe clinical manifestation of malaria. At this age, the children become increasingly mobile and active and thereby are more exposed to the bites of the infective female anopheles mosquitoes, which transmit the infection[12].

Vertical transmission of malaria parasite from the pregnant mother to the fetus is attributed to the failure of the barrier action of the placenta. It is diagnosed when parasitaemia is found in the neonate within seven days of birth[2].

The incidence of congenital malaria is extremely low in malaria endemic regions despite the high prevalence of placental infection[2]. This rarity of congenital malaria in the indigenous population of malaria endemic region has been attributed to several factors such as enhanced immunity of the endemic population, a relative high proportion of fetal hemoglobin containing erythrocyte which are less readily parasitized and the placental barrier itself[1].

In deed, most researchers agree that the placenta acts as a major barrier to the malaria parasites and that its efficacy in blocking transmission is dependent upon the mother's immune status. Malaria infection frequently potentates complications in pregnancy, which often results in abortion, prematurity, low-birth weight, and stillbirths and neonatal deaths[13].

Akindele, *et al.*[3], however have rejected the suggested rarity of congenital malaria with their findings at the University College Hospital, Ibadan. Their findings indicate that congenital malaria is not as uncommon as previously thought and they found that 23.70 percent of their study population of neonates had peripheral malaria parasiteamia[3].

Additionally, Quinn. *et al.*[4], reported four cases of congenital malaria essentially to highlight the need for proper diagnosis and treatment of malaria in the neonates. This is because, this diagnosis is often difficult due to the non-specific and diverse feature of the disease (4). Most cases of congenital malaria are initially misdiagnosed because of lack of awareness of the infrequent disease, and its non-specific clinical features. Frequently, the symptoms are misdiagnosed as a viral or bacterial illness (4).

Clinical features include fever, which all our three patients had, irritability, feeding problems, anemia, hepatosplenomegaly and jaundice[2,4]. Seizures may occur secondary to fever or because of cerebral malaria, which is a severe and often fatal complication[2,14,15].

In our reported cases, two of the patient had developed jaundice, while one had splenomegally and one had feeding problems. The three neonates were treated with quinine and they all responded very well with fever clearing quickly. One of the babies had been on chloroquine before arrival to our centre, without any noticeable responses. However, she became better on quinine therapy. This is probably a case of chloroquine resistance whereby a switch to quinine for five days is recommended[5]. Anti-malaria drugs constitute a fundamental component of malaria control. Unfortunately, this has been hampered by the development of drug resistant *Plasmodium falciparum* malaria. Resistance to chloroquine is the must unwholesome incidence of impediment as this has been documental in most countries with falciparum transmission[16,17,18].

Bearing in mind the hypoglyceamic inducing nature of quinine, regular blood glucose checks were done on the babies to monitor against hypoglycaemia which is a documented complication of quinine administration (6), and which is also a complication of the infecting malaria parasite biomass themselves[19,20]. Evidence derived from data showed no such contraindication among the three cases.

Congenital malaria is a recognizable disease entity, and it does occur. Attending clinicians therefore should develop a high sense of suspicion for this potentially fatal disease, and should properly investigate such babies to prevent any untoward results. Without doubt, more studies will be needed from other areas and institutions to confirm the reported increase in incidence of congenital malaria. The use of mosquito nets will decrease bites and inoculation of the anopheles mosquito and plasmodium falciparum respectively.

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