# Congenital *Plasmodium vivax* malaria in a non-endemic country, an unique case-report in the Netherlands

*TG Mank[1], SCM Clemens[2], MM Rutgers[2], MM Jager[1], JP de Winter[2], SC Sloot[2]*

*Regional Laboratory for Medical Microbiology and Public Health[1], Spaarne Gasthuis Hospital, dept. of Pediatrics[2], Haarlem, The Netherlands*

## Introduction

Upon presentation at the age of 20 days, an irritable newborn male was seen. The child had a temperature of 38.9 degrees Celcius with normal heart rate and respiratory frequency. Auscultation of heart and lungs showed no abnormalities. No enlarged liver or spleen was noticed. Due to the fact that at birth his mother was diagnosed with *P.vivax* malaria, a malaria screening was included besides a sepsis workup. Blood results revealed elevated infection parameters, mild anemia and thrombocytopenia. Malaria testing turned out to be positive for *P. vivax.* (see figures 1 and 2)

## Methods

Malaria screening comprised the microscopic examination of thick and thin blood smears, the Quantitative Blood Concentration test (QBC-malaria test) and the BinaxNow ICT malaria test.

Retrospectively *P. falciparum, P. vivax, P. ovale* and *P. malariae* PCR was performed on blood samples of the child at birth and mother after labour. Unfortunately umbilical cord blood was not available anymore by that time. In addition, malaria serology and PCR's were performed on the 12$^{th}$ week pregnancy serum.

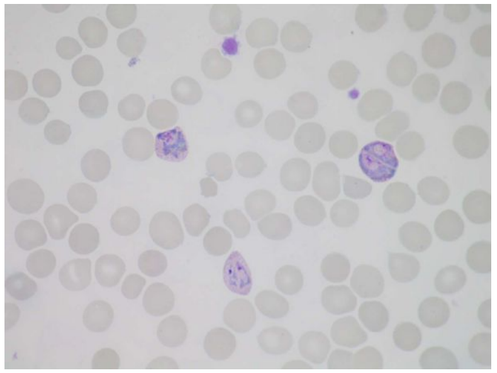

Figure 1 Giemsa stained thin blood smear Erythrocytes, thrombocytes and three (enlarged ) erythrocytes infected with trofozoites with morphology consistent with *P. vivax* (magnification x 1000)

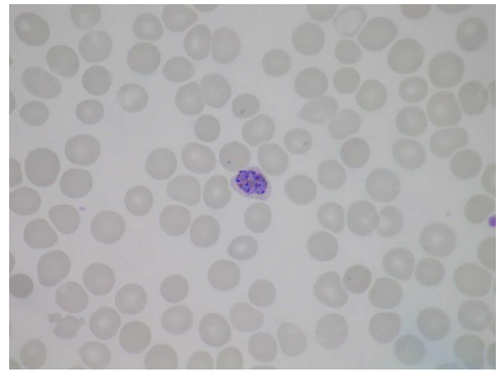

Figure 2 Giemsa stained thin blood smear Erythocytes and a *P. vivax* schizont with 10 merozoites (magnification x 1000).

## Results

The parents of the neonate immigrated from Eritrea ten months before his birth. In the year prior to her pregnancy the mother was treated for malaria (Plasmodium species unknown) with unknown medication in a refugee camp in Ethiopia. At our hospital in the Netherlands she gave birth to a healthy boy, with a birth weight in the 50$^{th}$ percentile. During labour however the mother developed fever; which appeared to be based on a *P. vivax* infection (PCR confirmed). Due to maternal infection the newborn was tested for malaria on the first day of life; malaria screening revealed no indications for infection (PCR confirmed). At follow up of the neonate one week post partum no symptoms of malaria infection were noticed; a malaria screening was not performed. After that, the child was discharged from outpatient monitoring.

## Discussion and conclusions

Since the Netherlands is a non-endemic country for malaria neonatal infection of the child presented here can be excluded. The presented case describes a newborn with a proven congenital infection with *P. vivax* in the Netherlands. Although the mother of the child appeared to be positive in malaria serology (PCR's negative), she developed an overt *P vivax* infection most probably caused by activation of the liver hypnozoites due to pregnancy and/or diminished immunity resulting from moving from an malaria endemic area to a malaria free country. Since malaria screening (including PCR) of the child at birth was negative, transmission of *P. vivax* erythrocytic stages probably occurred *durante partus*.

Consecutive malaria testing in the newborn child might have prevented clinical symptomatology due to the infection

**Regional Laboratory for Medical Microbiology and Public Health, Boerhaavelaan 26, 2035 RC Haarlem, The Netherlands**
**info: t.mank@streeklabhaarlem.nl**