



ELSEVIER

<http://intl.elsevierhealth.com/journals/ijid>

## LETTER TO THE EDITOR

### Late recrudescence of *Plasmodium falciparum* malaria in a pregnant woman: a case report

More than 90% of imported *Plasmodium falciparum* malaria infections are diagnosed within five weeks after returning from an endemic area.<sup>1,2</sup> Here a case of *P. falciparum* malaria in a pregnant woman is reported, diagnosed four years after her last stay in an endemic area.

A pregnant 29-year-old Ghanaian woman having lived in Italy for eight years was seen in November 2001. Her last visit to Ghana had been in summer 1997 and she had not taken anti-malarial prophylaxis and remained apyrexial during the following months. In August 2001 she developed fever, headache and vomiting, initially interpreted as gravidic hyperemesis. The thick and thin blood films showed trophozoites and gametocytes of *P. falciparum* (PF) (5350 trophozoites  $\times 10^6/L$ ). A PCR was not carried out, but a rapid antigen detection test (Binax NOW<sup>®</sup> ICT Pf/Pv test) and the anti-PF antibody test (IFAT, BioMérieux) were positive ( $>1/1280$  versus  $1/20$  normal). The microscopy was confirmed by two referral centres in Italy and by the Prince Leopold Institute of Tropical Medicine in Antwerp, Belgium.

The patient was treated intravenously with quinine for six days after which the symptoms rapidly disappeared and she was discharged in good conditions. The pregnancy progressed normally.

The normal incubation of *P. falciparum* malaria is 7–15 days<sup>3</sup> and recrudescence is possible within a few weeks to one year after an untreated or incompletely treated infection. However, cases of late *P. falciparum* infection have been reported.<sup>2,4–8</sup> The present patient had never used intravenous drugs nor received any blood transfusion or parenteral treatment.

Potential vectors of *Plasmodium vivax* are still present in some rural areas of central and southern Italy,<sup>9</sup> however, this patient lived in an urban area of northern Italy. She had not travelled by air since

1997 so airport malaria and “baggage” malaria were also excluded.

The patient used to receive packages from Ghana, which could have evaded regular health controls,<sup>10</sup> but the last one had arrived before her last journey to Africa. The most likely hypothesis is that the patient was infected during her last stay in Ghana in 1997. The infection was sub-clinical because of premunition. By impairing the pre-existing immune equilibrium,<sup>11</sup> pregnancy could have acted as a trigger of an extremely late recrudescence of *P. falciparum* malaria.

This case highlights the problem of malaria transmitted by blood transfusion, which represents a rare but serious complication of blood transfusion in the United States (estimated incidence lower than 0.3 cases per million transfused blood units).<sup>12</sup> The correct application of guidelines from the Food and Drug Administration and the American Association of Blood Banks (donors who are residents of non-malarious countries are deferred for one year after return from travel to a malarious area or for three years if they have had malaria, while immigrants from malarious areas are deferred for three years after leaving such areas) can prevent most but not all cases of transfusion-transmitted malaria.<sup>12,13</sup> This patient would have escaped this screening.

Is this case exceptional or are “healthy” long-term carriers of *P. falciparum* infection less rare than one can imagine among semi-immune immigrants? Could rapid tests for Plasmodium antigens and/or PCR help answer this question?

## Acknowledgments

We thank Hilde De Bie (Prince Leopold Institute of Tropical Medicine of Antwerp, Belgium) for her microscopic confirmation of the diagnosis.

*Conflict of interest:* No conflict of interest to declare.

## References

1. Legros F, Gay F, Belkaid M, Danis M. Paludisme in France Métropolitaine en 1996. Centre National de Référence pour les Maladies d'Importation. *Bulletin du CNRMI* 1997;13: 1–60.
2. Krajden S, Panisko DM, Tobe B, Yang J, Keystone JS. Prolonged infection with *Plasmodium falciparum* in a semi-immune patient. *Trans R Soc Trop Med Hyg* 1991;85:731–2.
3. Gentilini M. Paludisme, Médecine Tropicale; Paris: Editions Flammarion; 1995, p. 94.
4. Verdrager J. Observation of the longevity of *Plasmodium falciparum*: with special reference to findings in Mauritius. *Bull WHO* 1964;31:747–51.
5. Eloy O, Zuily E, Greder-Belan A, Bouchot C, Ghnassia JC, Legros F. Paludisme à *Plasmodium falciparum* quatre ans après le retour de zone d'endémie. *Presse Med* 1998;27:189.
6. Duperval R, Longpré B, Madamas P. Unexplained falciparum malaria in a patient with chronic lymphocytic leukaemia. *Can Med Assoc J* 1979;121:1585–8.
7. Besson P, Robert JF, Reviron J, Richard-Lenoble D, Gentilini M. Two cases of transfusional malaria. *Rev Fr Transfus Immunohematol* 1976;19:369–73.
8. Slinger R, Giulivi A, Bodie-Collins M, Hindieh F, St John R, Sher G, et al. Transfusion transmitted malaria in Canada. *Can Commun Dis Rep* 1999;25:53–6.
9. Romi R, Sabatinelli G, Majori G. Could malaria reappear in Italy? *Emerg Infect Dis* 2001;6:915–9.
10. Castelli F, Caligaris S, Matteelli A, Chiodera A, Carosi G, Fausti G. Baggage malaria in Italy: cryptic malaria explained? *Trans R Soc Trop Med Hyg* 1993;87:394.
11. Rasheed FN, Bulmer JN, De Francisco A, Jawla MF, Jakobsen PH, Jepson A, et al. Relationships between maternal and malarial immune responses in mothers and neonates. *Parasite Immunol* 1995;17:1–10.
12. CDC. Transfusion-transmitted malaria – Missouri and Pennsylvania, 1996–1998. *MMWR* 1999;48:253–6.
13. CDC. Probable transfusion-transmitted malaria – Houston, Texas 2003. *MMWR* 2003;52:1075–6.

Mario Giobbia\*

Eva Tonon

Alessandra Zanatta

Luisa Cesaris

Alberto Vaglia

Regional Hospital, Infectious Diseases Division  
Piazza Ospedale 1, 31100 Treviso, Italy

\*Corresponding author. Tel.: +39 0422 322065

fax: +39 0422 322645

E-mail address: mgiobbia@ulss.tv.it

Zeno Bisoffi

Center for Tropical Diseases

“Sacro Cuore” Hospital, Negrar, Verona, Italy

23 February 2004

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

SCIENCE @ DIRECT®