Lesson of the Week

Atypical falciparum malaria: case report

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Malaria may be transmitted in non-endemic areas of the world by mosquitoes inadvertently transported by aircraft coming from endemic areas. Such transmission usually occurs near airports and is fully documented.^{1 2} Falciparum malaria, however, may mimic many other acute illnesses,^{3 4} causing considerable diagnostic difficulty when combined with transmission of the infection in a non-endemic area. We report such a case.

Case report

A 30 year old German housewife resident in London was admitted to Coppetts Wood Hospital on 1 July 1983. She gave a history of headache, fever, and rigors for six days and of suprapubic pain and watery diarrhoea for four days. Menstruation had started 24 hours before admission and she was fitted with an intrauterine contraceptive device. Her medical history contained nothing else of note. She had never travelled outside northern Europe except for a holiday visit to Italy in June.

On examination she was found to be flushed, feverish, and hypotensive (blood pressure 90/50 mm Hg). She was tender suprapubically and in the right hypochondrium; neither the spleen nor the liver was palpable and examination of rectum and vagina showed nothing abnormal. Initial investigations yielded a haemoglobin concentration of 12.8 g/dl, white cell count $5.0 \times 10^9/l$, blood urea concentration 8.1 mmol/l (49.0 mg/100 ml), and plasma concentration of potassium 3.2 mmol(mEq)/l, sodium 132 mmol(mEq)/l, and bicarbonate 16 mmol(mEq)/l. Urine microscopy showed no abnormality.

Initially the picture suggested a Gram negative sepsis arising from the pelvis or an invasive salmonella infection and we therefore gave chloramphenicol 1 g six hourly intravenously with physiological saline and plasma expanders and removed the intrauterine contraceptive device. She remained hypotensive and feverish, however, and the next morning complained of severe pain and tenderness in the right hypochondrium. At laparotomy (Royal Free Hospital) 400 ml bloodstained serous fluid was found in the abdomen but there were no other abnormalities.

Postoperatively she remained very ill with continuing fever and hypotension. Gentamicin, flucloxacillin, and metronidazole were substituted for the chloramphenicol but with little effect, and her condition was further complicated by the onset of thrombocytopenia and coagulation abnormalities suggesting disseminated intravascular

Falciparum malaria may closely mimic other conditions and should be considered in any patient presenting with an acute illness and a recent history of travelling by air even if the itinerary did not include an endemic area

coagulation. She was given fresh frozen plasma, platelets, and whole blood but her condition remained critical until the morning of 4 July, when close scrutiny of several blood films disclosed trophozoites of *Plasmodium falciparum*. Chloroquine by intravenous infusion effected a rapid cure and her subsequent recovery was uneventful.

Comment

The source of this patient's malaria caused much speculation. Her Italian holiday had occupied a week during 12 to 19 June, and she had flown both ways via Heathrow and Rome airports. Her symptoms began on 24 June, and the incubation period of falciparum malaria varies from eight to 15 days, or occasionally much longer.³ Hence if "airport malaria" was the case in our patient then infection probably occurred in one of the airports used on the outward leg of her journey.

The environmental temperature below which malaria parasites stop developing in the anopheline mosquito is 16°C.⁵ The meteorological office at Bracknell, Berks, recorded average temperatures (of maximum and minimum) at Heathrow and Rome airports on 11 June of 16.2°C and 22.0°C respectively. The maximum at Heathrow was 20.0°C; thus conditions existed at both airports for the development of malaria parasites within a mosquito, and such a mosquito would transmit viable parasites.

Finally, this case illustrates that falciparum malaria may closely resemble other conditions and unless diagnosed in time may cause life threatening illness.

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References

- 1 World Health Organisation. Malaria surveillance. *Weekly Epidemiological Record* 1978;53:337-8.
- 2 Holvoet G, Michielsens P, Vandepitte J. Airport malaria in Belgium. *Lancet* 1982;ii:881-2.
- 3 Manson-Bahr PEC, Apter FIC, eds. *Manson's tropical diseases*. London: Baillière, Tindall, 1982.
- 4 Castellani A, Chalmers AJ. *Manual of tropical medicine*. London: Baillière, Tindall and Cox, 1919.
- 5 Bruce-Chwatt LJ. *Essential malariology*. London: Heinemann, 1980.

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