

Classic image: peripheral blood smear in a case of *Plasmodium falciparum* cerebral malaria

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DESCRIPTION

A 29-year-old African-American woman presented with acute onset of altered mental status. She was obtunded with visible rigors and a fever of 102.8°F. Routine laboratory study showed platelet count of 59k/mm³. Urine toxicology screening, blood alcohol level and cerebrospinal fluid analysis were within normal limits. CT of the head was non-revealing.

A Giemsa-stained peripheral blood smear (figure 1) was obtained which showed many red blood cells (RBCs) infected with classic, ring-shaped (arrow A) and headphone-shaped (arrow B) trophozoites of *Plasmodium falciparum* parasite. High degree of parasitaemia and RBCs infected with two or more trophozoites were seen, a finding typical of *P. falciparum* malaria (figure 1, arrow C). There were no schizonts or gametocytes. Marked thrombocytopenia was also noted. The patient was diagnosed with cerebral malaria and treated with intravenous quinine. She improved dramatically over next 2–3 days. It was later learnt that she had travelled to Nigeria recently.

Examination of Giemsa-stained peripheral blood smear is the standard test for the diagnosis of malarial infection. It is useful in establishing the

diagnosis of malaria, identifying the *Plasmodium* spp as well as determining the degree of parasitaemia.¹ Cerebral malaria is a complicated form of malaria associated with multisystem organ dysfunction and high degree of morbidity and mortality. These patients often present with impaired consciousness, delirium and convulsions. It is a medical emergency where prompt diagnosis and early institution of treatment can be lifesaving. Intravenous quinine or artesunate are the mainstays of treatment in cerebral malaria.²

Learning points

- ▶ Examination of Giemsa-stained peripheral blood smear is the standard test for the diagnosis of malarial infection. Classic ring-shaped/headphone-shaped trophozoites are seen in case of *Plasmodium falciparum* infection.
- ▶ Cerebral malaria is a complicated form of malaria which is most commonly associated with *P. falciparum* infection.
- ▶ Cerebral malaria is a medical emergency. Intravenous quinine or artesunate are the mainstays of treatment.

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Competing interests None.

Patient consent Obtained.

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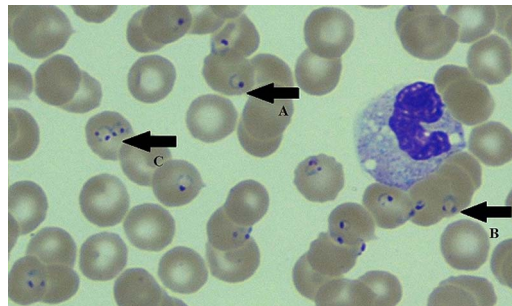


Figure 1 Giemsa-stained peripheral blood smear. Arrow A showing a classic, ring-shaped trophozoite of *Plasmodium falciparum*. Arrow B showing a classic, headphone-shaped trophozoite of *P. falciparum*. Arrow C showing two trophozoites of *P. falciparum* within the same red blood cell.



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