

Plasmodium falciparum

It is the causative agent of malignant tertian fever (term no longer in use): fever on the first day, remission of fever on the second, return of fever on the third (synchronous malaria). In order for this to occur, different asexual erythrocytic cycles must take place, i.e. trophozoite transformation into schizont, division and maturation, rupture of the schizont, merozoite invasion of new red blood cells, all parasitized in a synchronous way. Actually this hardly ever occurs, so that the patient almost always experiences fever on a daily basis. This species is responsible for highly severe and often fatal pernicious attacks, especially in non-immune individuals; a diagnosis must be made with extreme urgency, since immediate pharmacological treatment is called for. It produces a higher level of parasitemia than other species (Plate 7).

Parasitized red blood cells

Red blood cells of all ages are parasitized [46].

Size and shape: normal, round.

Granulations: characteristic (Maurer's clefts) and of great diagnostic value provided that the film is stained with an aqueous solution at pH 7.2.

Polyparasitism: very frequent in this species, from 2 to 7 trophozoites may occupy the same red blood cell, which nonetheless retains the same size and shape.

Young trophozoite

It consists of.....

Plasmodium falciparum

È l'agente della febbre terzana maligna (denominazione in disuso): il primo giorno febbre, il secondo remissione della febbre, il terzo giorno febbre (malaria sincrona). Perché questo avvenga si devono verificare diversi cicli asessuati eritrocitari cioè: trasformazione del trofozoite in schizonte, divisione e maturazione, rottura dello schizonte, invasione da parte dei merozoiti di nuovi globuli rossi, tutti parassitati in modo sincrono. In realtà questo non avviene quasi mai, per cui la febbre è quasi sempre giornaliera. Questa specie è responsabile, soprattutto nei soggetti non immuni, di accessi perniciosi molto gravi, spesso mortali; la sua diagnosi deve essere eseguita con estrema urgenza in quanto il trattamento farmacologico deve essere iniziato immediatamente. La parassitemia raggiunge valori più elevati rispetto alle altre specie (Tavola 7).

Globuli rossi parassitati

Sono parassitati globuli rossi di tutte le età [46].

Dimensioni e forma: normale, rotonda.

Granulazioni: caratteristiche (di Maurer) e di grande valore diagnostico a condizione che il preparato sia colorato in soluzione acquosa a pH 7, 2.

Poliparasitismo: molto frequente in questa specie, da 2 sino a 7 trofozoiti nel medesimo globulo rosso, pur mantenendo quest'ultimo dimensione e forma invariate.

Trofozoite giovane

È costituito da.....

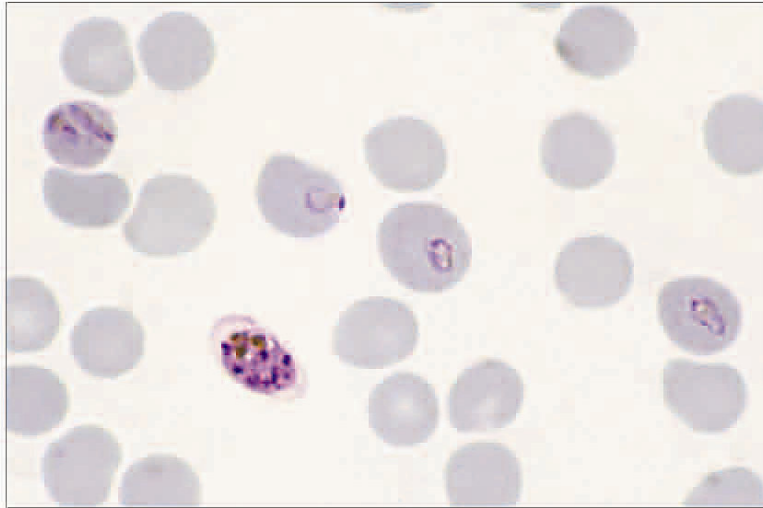


Fig. 61: *P. falciparum*. An oval shaped RBC infected by a schizont with eight nuclei and pigment clustered in three masses. G. St.

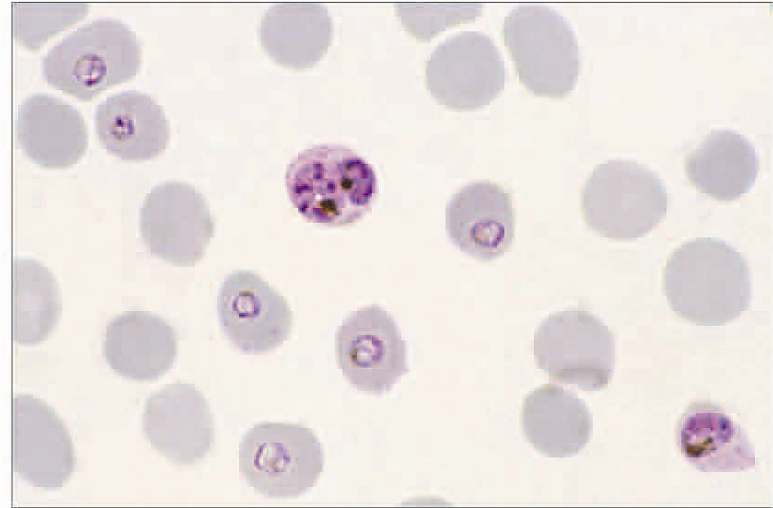


Fig. 62: *P. falciparum*. Right, below: a mature trophozoite in the initial process of chromatin division; in the middle: a RBC holding two schizonts, one with six nuclei, the other with three nuclei. G. St.

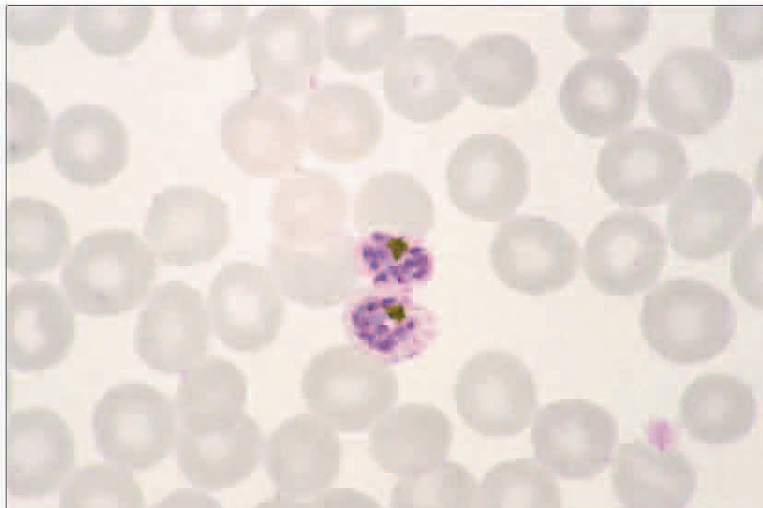


Fig. 63: *P. falciparum*. A doubly infected RBC in apparent phase of division; a cytoplasmic bridge is seen. Artifact? G. St.

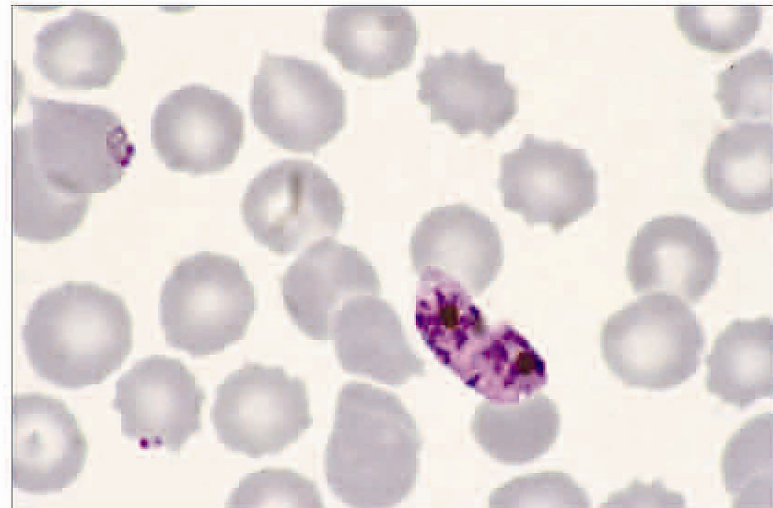


Fig. 64: *P. falciparum*. An elongated shaped RBC infected by two developing schizonts with compact pigment. G. St.

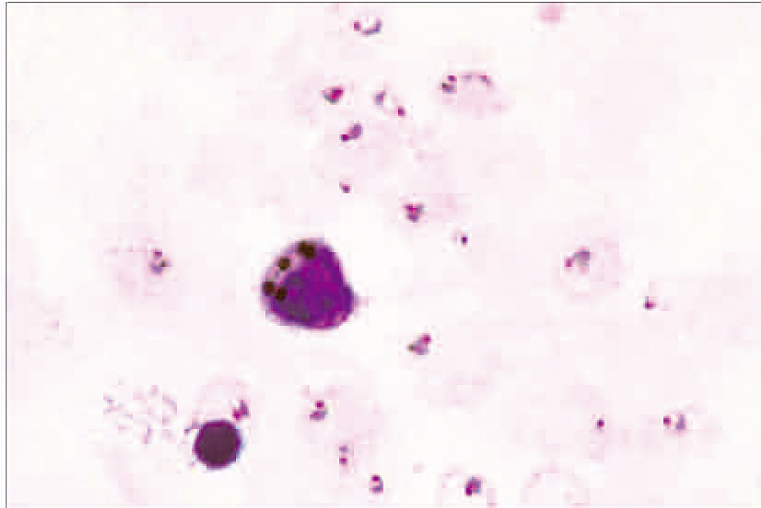


Fig. 129: *P. falciparum*. Trophozoites at a different developmental stage and not well hemolyzed RBCs; no Maurer's dots. In the middle: phagocytosis of pigment by a mononuclear cell (melaniferous cell). Thick film. G. St.

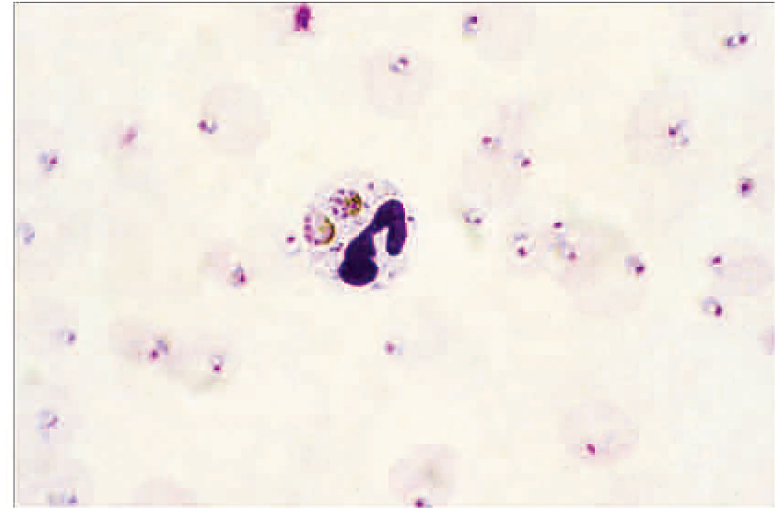


Fig. 130: *P. falciparum*. Two schizonts phagocytized by a neutrophil. Thick film. G. St.

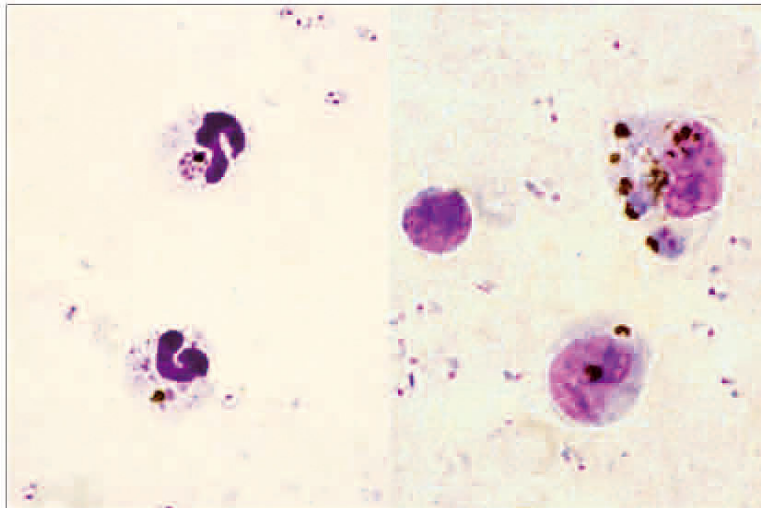


Fig. 131: *P. falciparum*. Left, above: a schizont phagocytized by a neutrophil; right, above: a mononuclear cell phagocytizing a schizont with two nuclei. Thick film. G. St.

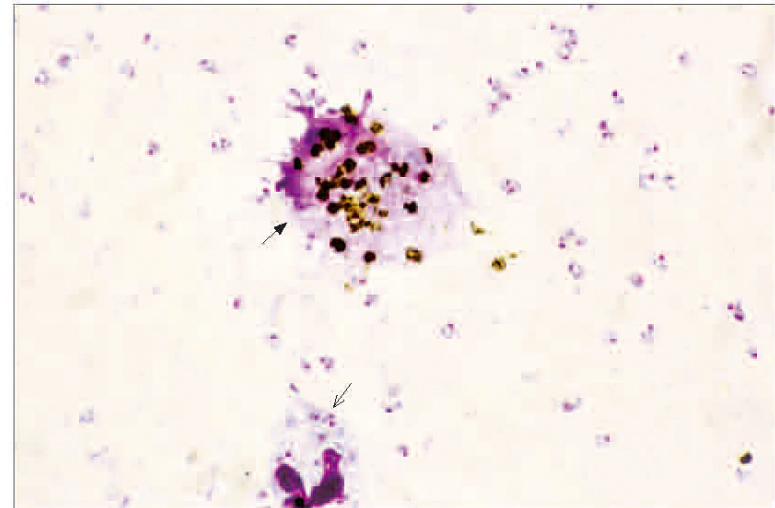


Fig. 132: *P. falciparum*. Phagocytosis of malarial pigment (→) and of young trophozoites by a macrophage and a neutrophil respectively (⇒). Thick film. G. St.