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Parasitology

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Effects of anticoagulant on malarial parasites

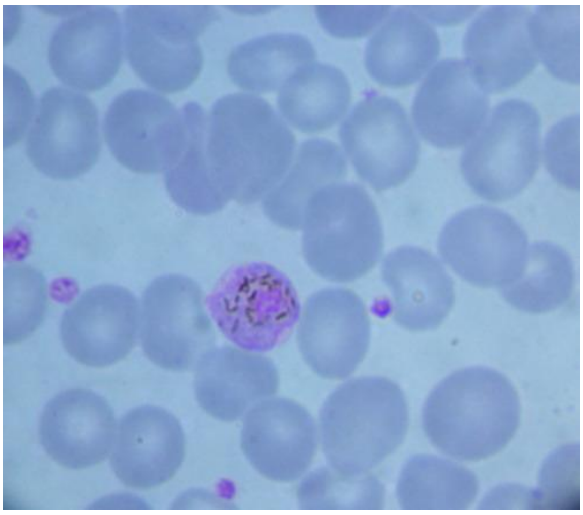
Thin blood films for malaria diagnosis are best prepared from venous or capillary blood taken directly from the patient, without the addition of anticoagulant. However this is not usually possible in a clinical laboratory, as many samples are received from General practices and other hospitals. All anticoagulants have some effect on the morphology of malaria parasites and the red blood cell they inhabit. This effect depends on the stage of the parasite, the time taken for the blood to reach the laboratory and the type of anticoagulant used. If it is necessary to use an anticoagulant, the films should be prepared as soon as possible after the blood being taken. If the films cannot be made immediately, potassium EDTA is the anticoagulant of choice. However if the blood is left for several hours in EDTA, the following effects may be seen.

1. Sexual stages may continue to develop and male gametocytes can exflagellate, liberating gametes into the plasma. These can be mistaken for organisms such as *Borrelia*. Gametocytes of *Plasmodium falciparum* which have a characteristic crescent shape, may round up and then resemble those of *P. malariae*.

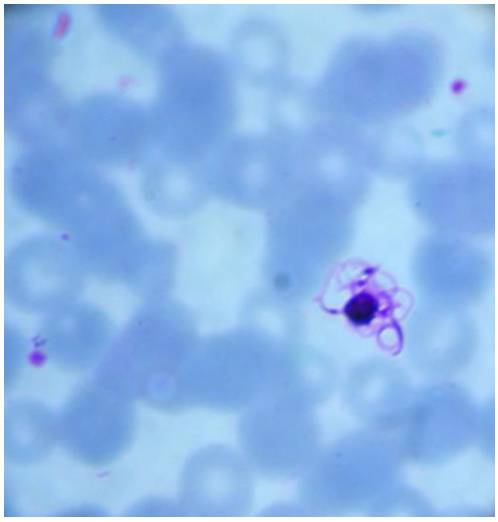
2. Accole forms, which are characteristic of *P. falciparum,* may be seen in *P. vivax* because of attempted reinvasion of the red blood cell by merozoites.

3. Mature trophozoites of *P. vivax* may condense when exposure becomes prolonged and in cases of extreme exposure, red blood cells containing gametocytes and mature schizonts may be totally destroyed along with the contained parasites. The malaria pigment, haemozoin, always remains and can provide a clue to the presence and, to an expert eye identity of the parasite.

4. The morphology of the red blood cell may be altered by shrinkage or crenation.



Rounded up gametocyte *of P. falciparum*



Exflagellating gametocyte of *P. falciparum*