

Plasmodium vivax

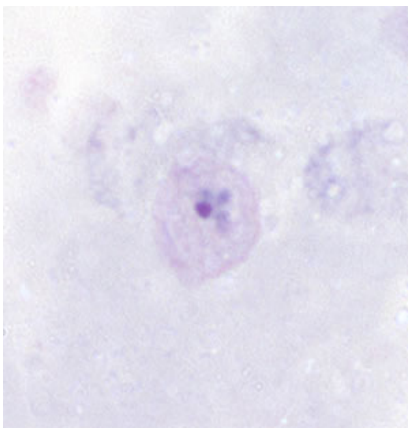
Basic guidelines

- A. Capillary blood should be obtained by fingerstick, or venous blood should be obtained by venipuncture.
- B. Blood smears, at least two thick and two thin, should be prepared as soon as possible after collection. ***Delay in preparation of smears can result in changes in parasite morphology and staining characteristics.***
- C. Schüffner's dots can be demonstrated in Giemsa stain, which is preferred to Wright or Wright-Giemsa stains.

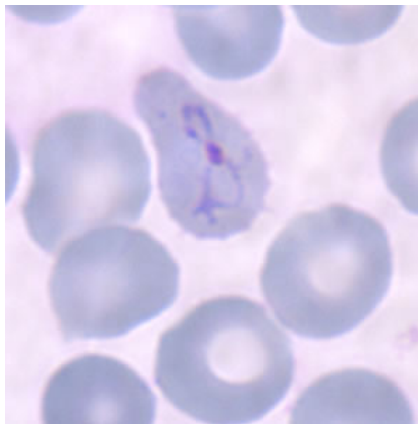
In *P. vivax* infections, red blood cells (rbcs) can be normal to enlarged (up to 1 1/2x to 2x) in size and may be distorted. Under optimal conditions, Schüffner's dots may be seen in Giemsa-stained slides.

1. Rings

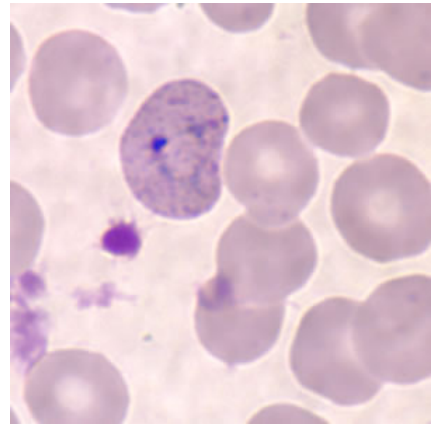
P. vivax rings have large chromatin dots and cytoplasm can become ameboid as they develop.



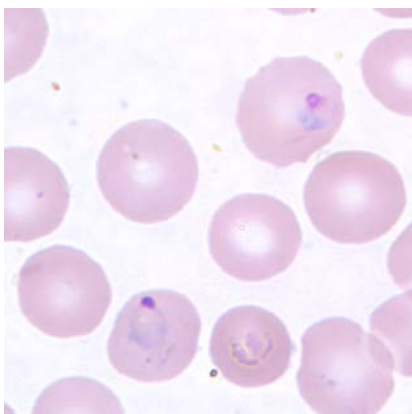
Ring in a thick blood smear. The "halo" is suggestive of Schüffner's dots.



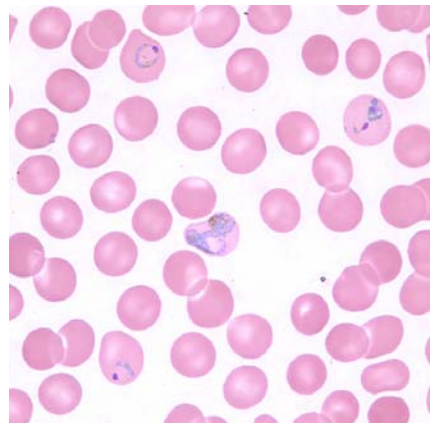
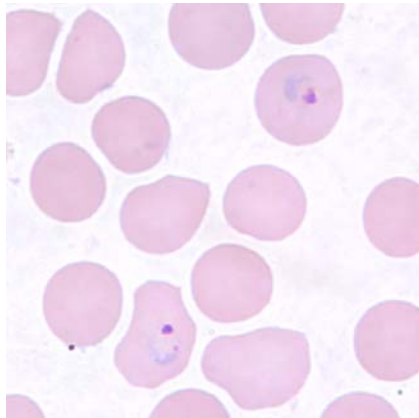
Ameboid ring in an enlarged and distorted infected rbc.



Ameboid ring in an enlarged and distorted infected rbc. Schüffner's dots are visible.



More ring forms in a thin blood smear. Note the slight enlargement of the infected rbcs.

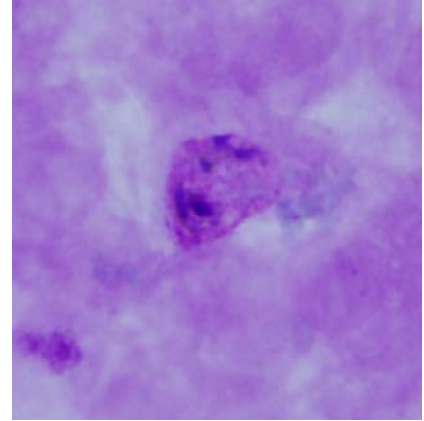
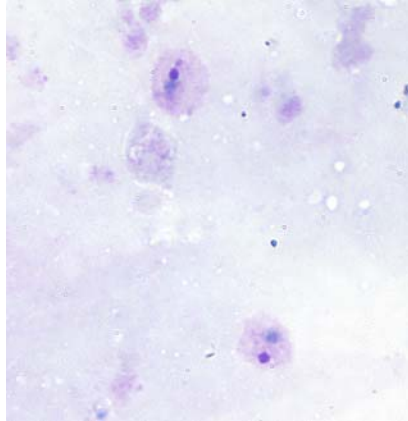
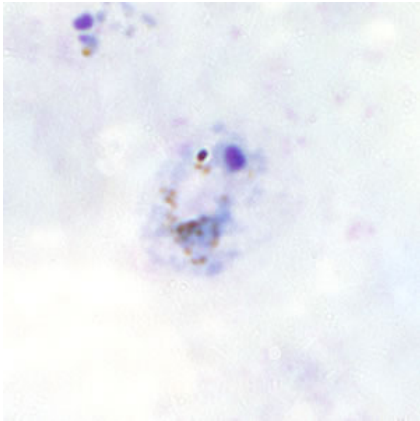


Rings and a trophozoite in a thin blood smear.

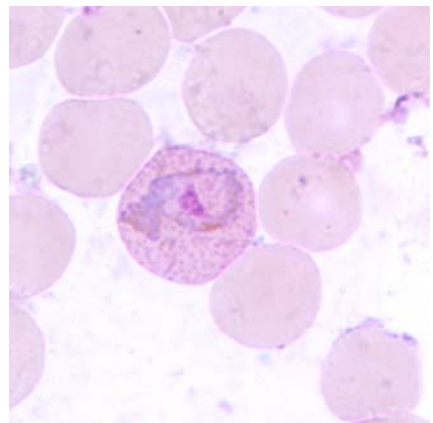
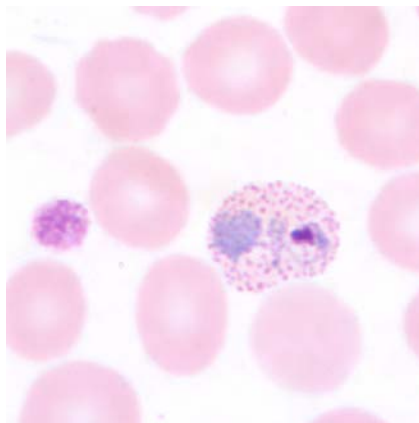
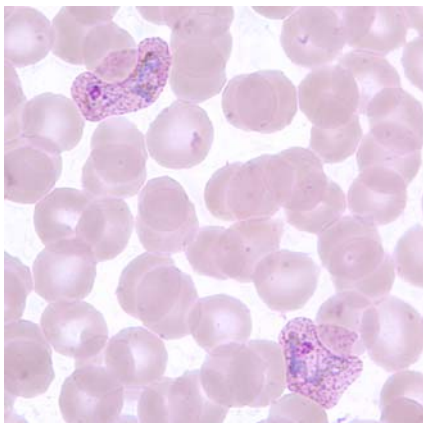
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2. Trophozoites

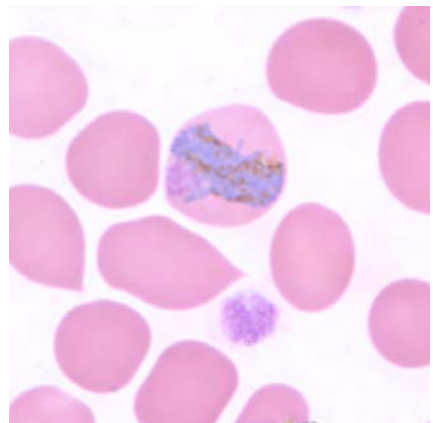
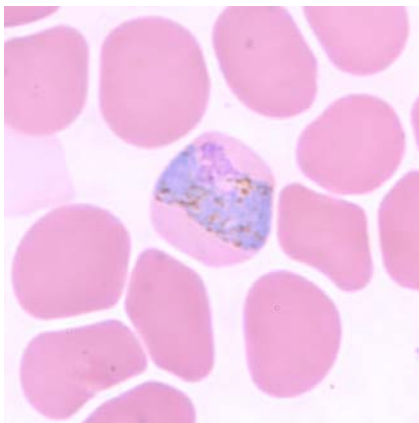
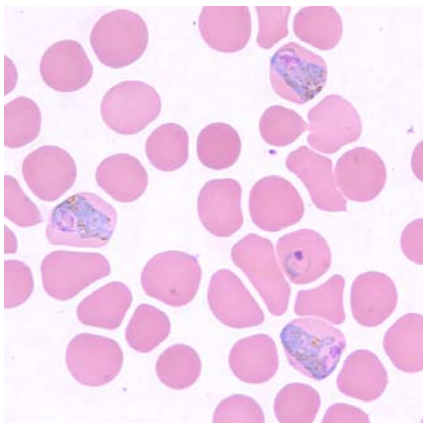
P. vivax trophozoites show amoeboid cytoplasm, large chromatin dots, and have fine, yellowish-brown pigment. Schüffner's dots may appear more fine in comparison to those seen in *P. ovale*.



Trophozoites in thick blood smears.



Large, amoeboid trophozoites in thin blood smears. Note the presence of Schüffner's dots, which are best seen when the blood is stained with Giemsa, and not Wright's stain.

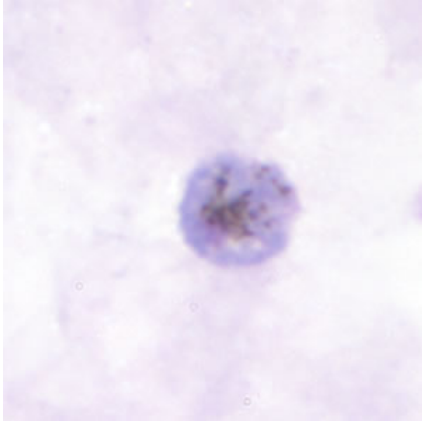


Thin smears showing mature trophozoites. Note the resemblance to the band forms of *P. malariae*. The enlarged size of the infected rbc's helps distinguish the two species.

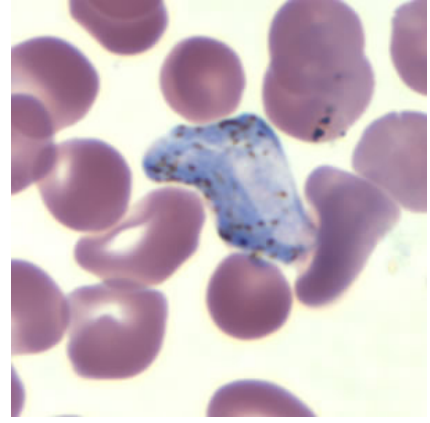
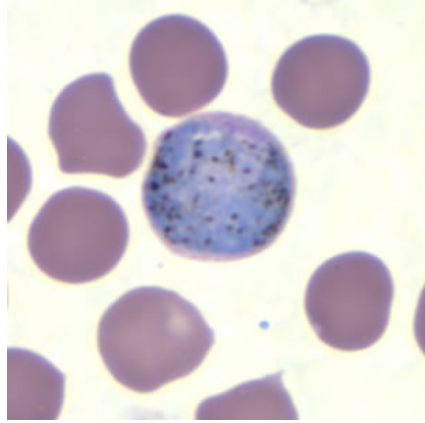
Laboratory diagnosis of malaria

3. Gametocytes

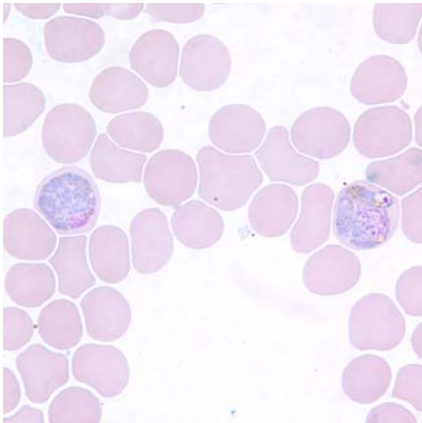
P. vivax gametocytes are round to oval with scattered brown pigment and may almost fill the rbc. Schüffner's dots may appear more fine in comparison to those seen in *P. ovale*.



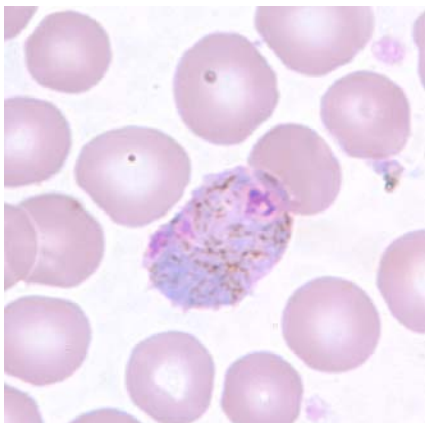
Gametocyte in a thick blood smear.



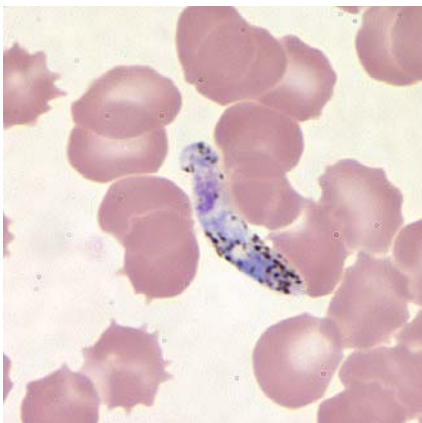
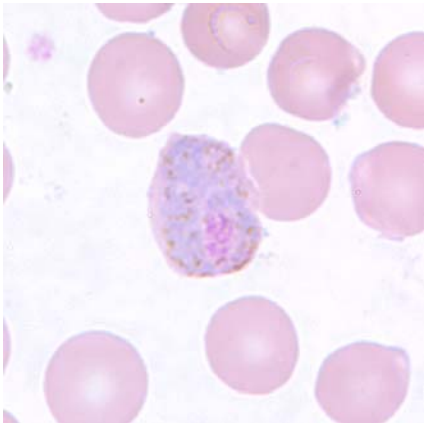
Gametocytes in thin blood smears.



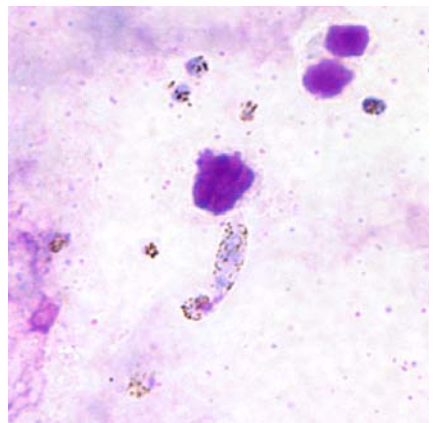
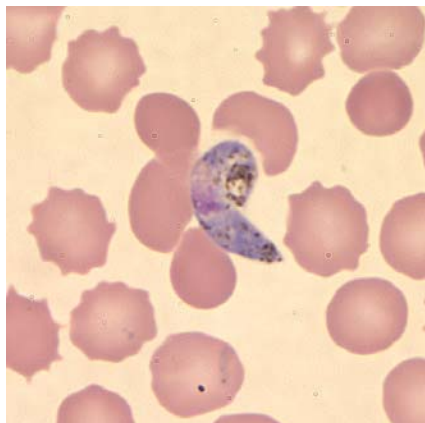
A pair of gametocytes in a thin blood smear.



Gametocytes in thin blood smears. Note the enlargement of the infected rbc and the scattered pigment.



Ookinets in thin blood smears. Ookinets may form if blood is allowed to sit too long before processing.

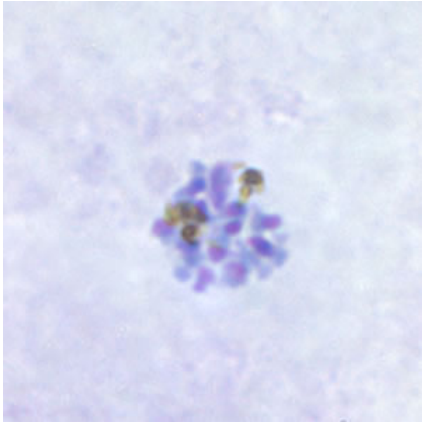


Ookinete in a thick smear.

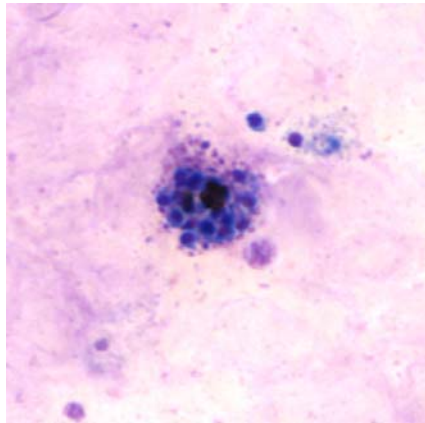
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4. Schizonts

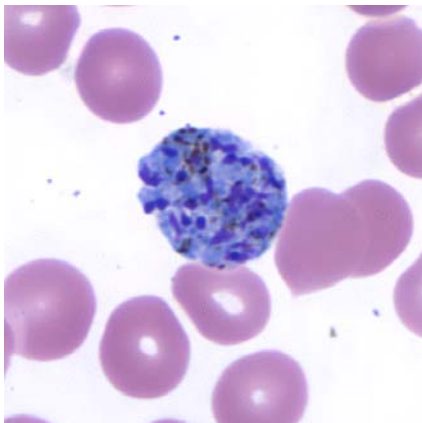
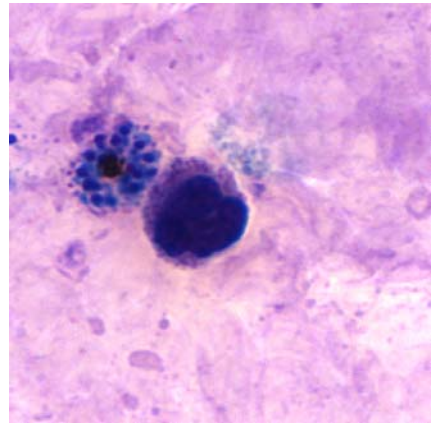
P. vivax schizonts are large, have 12 to 24 merozoites, yellowish-brown, coalesced pigment, and may fill the rbc.



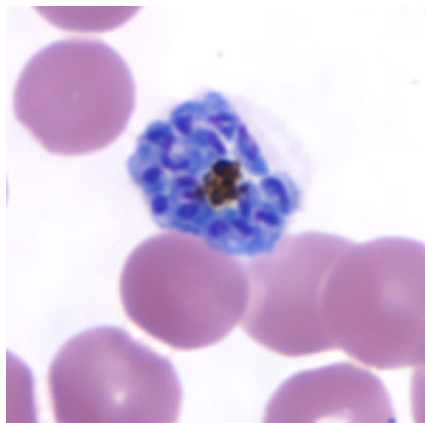
Schizont in a thick blood smear.



Schizonts in thick blood smears.



Immature schizont in a thin blood smear.



Mature schizonts in thin blood smears.

