

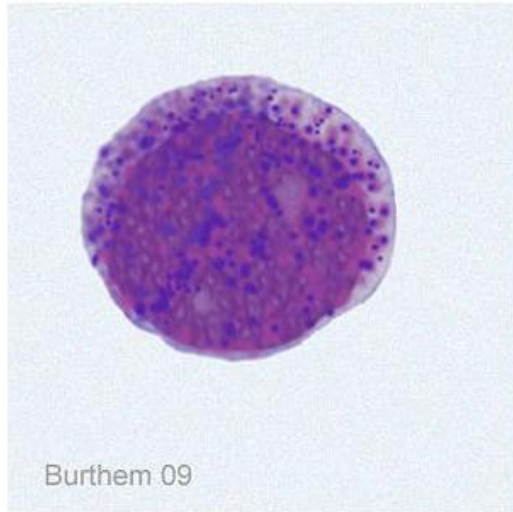
Acute myeloid leukaemia: APML

Typical appearances of acute promyeloc

The morphological appearances of APML are regarded as typical peripheral blood are generally quite low, while the abnormal cells pink or blue intracytoplasmic granules is typical, and these may **appearances may be seen:**

- Hypergranular typical blast cells
 - Elongated polar blast cells with granules or rods within the cy
 - Cells with frequent rod like structures (basket or faggot cells)
 - Cells with biobed nuclei (resembling variant APML) but with fr
- (see also the hypogranular or microgranular variant form -

Typical hypergranular APML



Note

- Blast cells are often large
- Nucleus is offset
- Very profuse cytoplasmic granules may obscure nucleus
- Granules may combine to form masses or rod structures

Elongated APML cells



Burthem 09

Note

- A common form of APML seem in some or occasionally all cells
- Blast cells remain large
- Nucleus is markedly offset at one pole of the cell
- Clear cytoplasmic granules throughout the tail

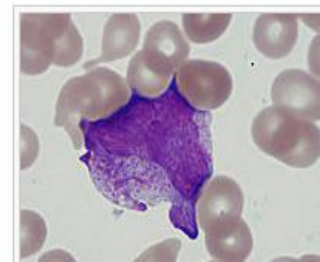
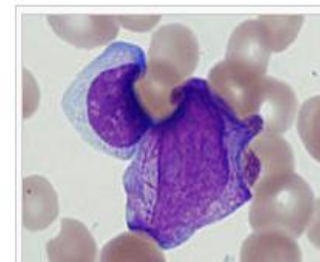
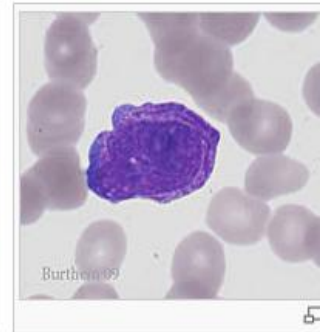
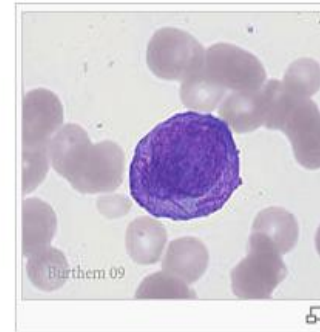
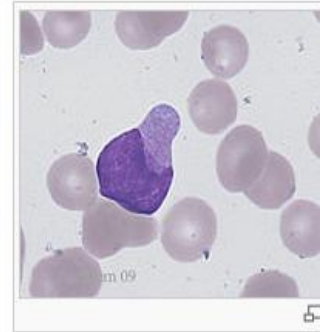
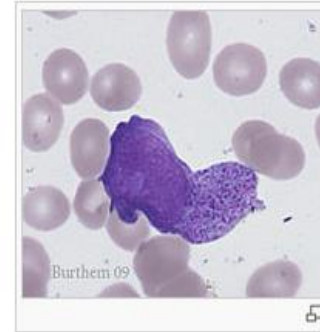
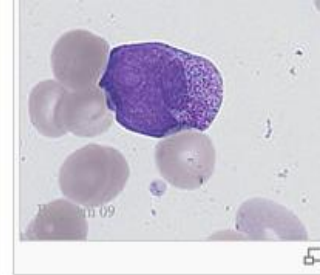
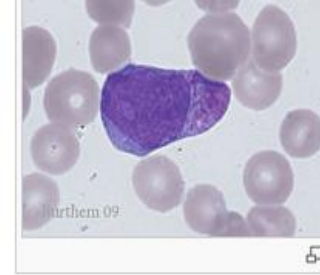
"Basket" or "faggot" cells



Burthem 09

Note

- Perhaps the most characteristic form, may be frequent or rare
- Rods frequently long and may form structures or



Demonstration of Blood Film CPD CPD Report

Participant: Module Administrator
CPD Date: October 17, 2007
Total Participant number: 1

Morphological features recorded:

Group

Acanthocytes	1	1
Echinocytes/Crenated cell	2	1
Polychromatic cells	3	1
Nucleated RBCs	4	1
Target cells	5	1

Participant

Acanthocytes	1	1
Target cells	5	1
Polychromatic cells	3	1
Echinocytes/Crenated cell	2	1
Nucleated RBCs	4	1

*Number in the first column indicates ranking of feature in overall participant group (1 is highest)

*Number in the second column indicates total number of participants selecting this feature.

Your suggested action:
Refer to medic (routine)

Your suggested diagnosis:
Haemolytic disorder ?type

Actual pathological diagnosis:
CPD

Brief Morphology Panel Comments:
Good luck

Reflective notes of participant:



- Compare feature with all users
- See top features selected by users
- Expert final diagnostic summary
- Add reflective report



Feedback (overview)



Wish list: - Case comparisons / Differentials / educational library

Comment – Raised interest in morphology / Positive experience



article edit

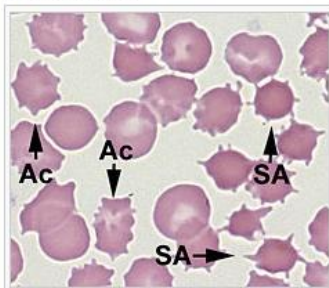
Spiculated erythrocytes

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Acanthocyte



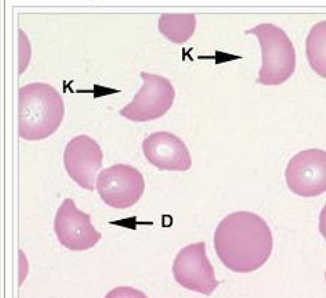
Acanthocyte forms shown include: early with normal discoid shape with relatively blunt early projections (Ac) and later contracted cells with fully formed sharp projections: termed "spherocanthocytes" (SA) [Go to full description](#)

Echinocyte



A single echinocyte is shown (B). The serrations are shorter, more blunt, and more evenly spaced than are acanthocytes. [Go to full description](#)

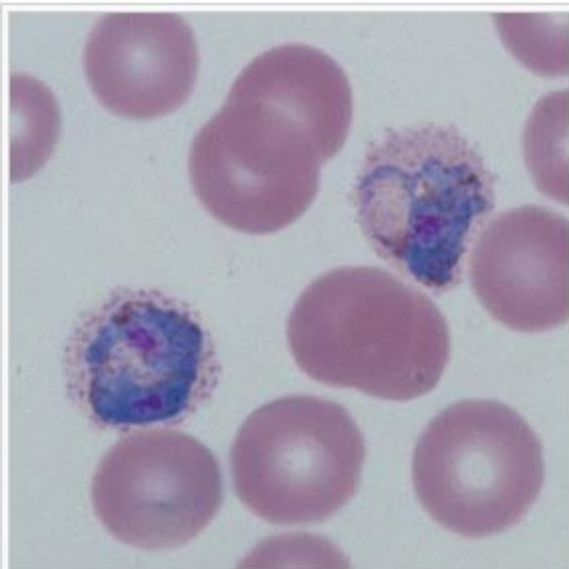
Keratocytes



Two typical keratocytes (K) showing the typical horned or "helmet-like" appearance, and a "double" keratocyte (D) [Go to full description](#)

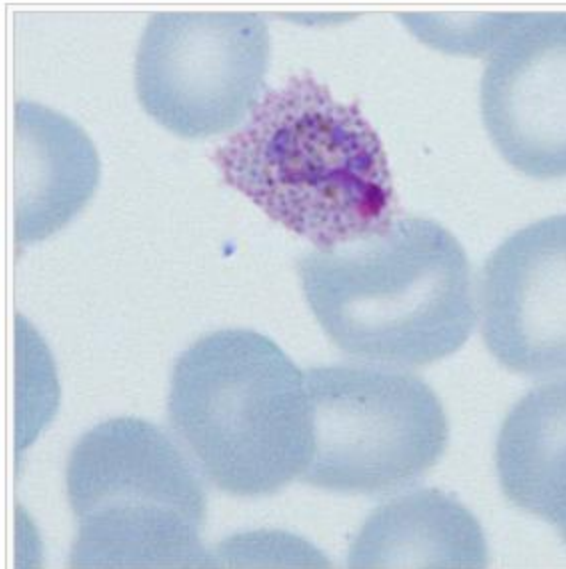
Different staining conditions

pH6.9



P. ovale pH6.9 the relatively acid pH of this stain allows erythrocytes to form a typical red colour; however, when compared with the more alkaline stain, parasite visibility and features are less clear

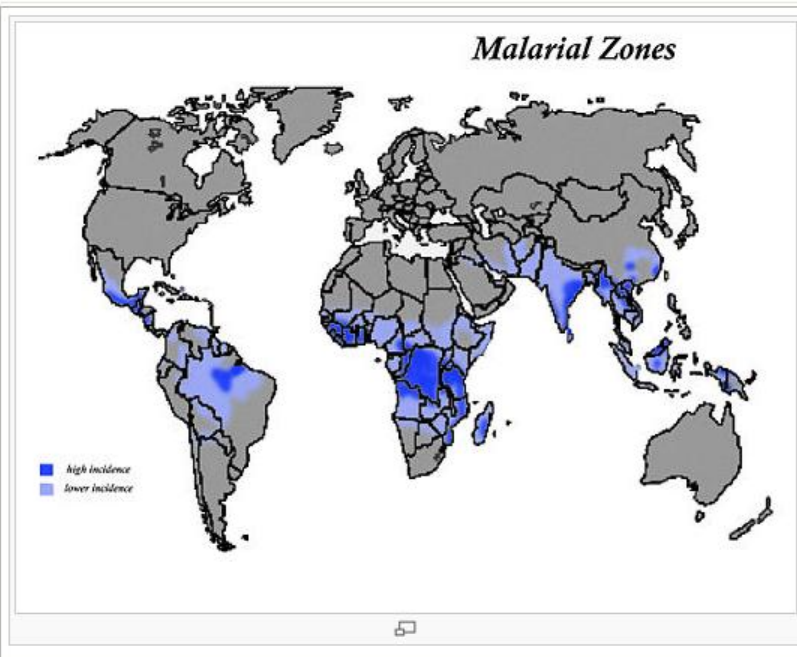
pH7.4



P. ovale pH7.4 at the higher pH the red cells are grey making parasites more visible; also note that the Schuffner's (James') dots and the chromatin dot of the parasite are also more visible than at lower pH

The colour characteristics red cells and parasites stained using Leishman's stain or Geimsa are highly dependent on the pH of the buffer. Early study by Schuffner and by Maurer showed that the parasites are more readily visible with slightly alkaline staining conditions (pH7.2-7.4); some important morphological features (e.g. [Maurer's dots and clefts](#) in *Plasmodium falciparum*) are highly dependent on buffer pH and may not be visible where pH is less than 7.0. As most laboratories recognise, routine staining of films (pH6.9) does not prevent malaria diagnosis, but may make it more difficult to detect parasites and their diagnostic features. For staining recommendations follow the link below: [\[BCSH Guidelines on laboratory diagnosis of malaria\]\[1\]](#)

Geographical incidence of malaria and malarial forms



Malaria Map

The malarial parasite depends for its transmission on the presence of its vector (species of the *Anopheles* mosquito). The mosquito requires particular humidity and temperature to breed, hence the restriction of infectivity to particular geographical zones. These "risk areas" for malaria transmission are indicated on the map (left).



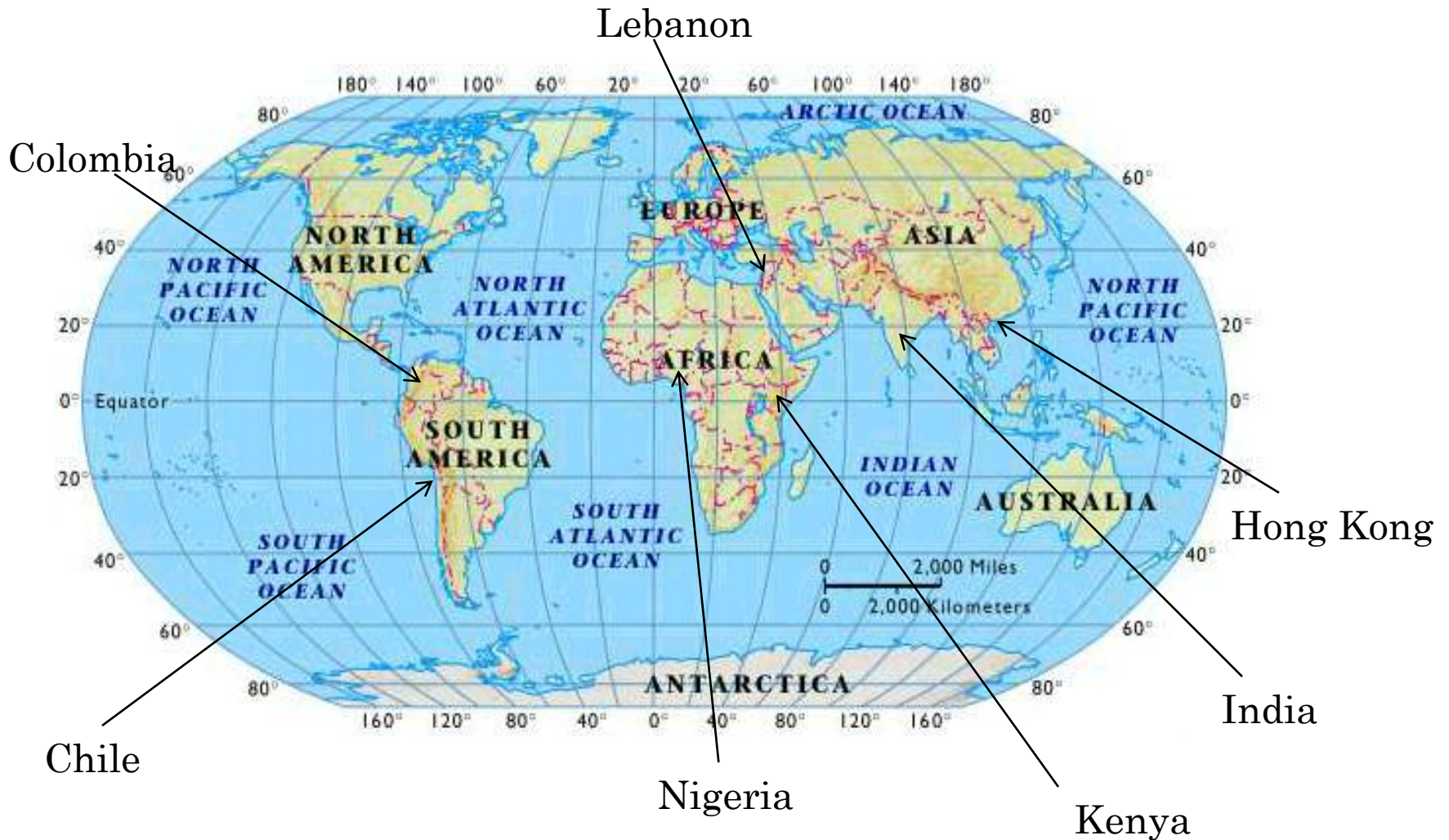
Anopheles mosquito, the malaria vector [1]

Malaria Species Distribution

- *Plasmodium falciparum*, *Plasmodium malariae*, and *Plasmodium ovale* share a similar distribution: the parasites are found in Central, South, West, and East Africa; and are relatively uncommon in the Middle East and in Asia.
- *Plasmodium vivax* is frequent in Asia (especially India and Pakistan); also in the Far East and Oceania.

UK NEQAS (H) pilot exercise for the WHO.

PARTICIPANTS AND LOCATIONS

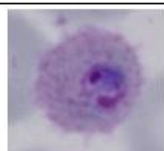


Laura Tatum

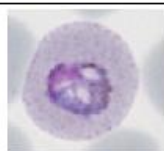
Navigation

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trophozoites *P. ovale* early trophozoite gallery *P. ovale* gametocyte gallery *P. ovale* schizont gallery *P. falciparum* late trophozoite gallery *P. malariae* late trophozoite gallery *P. vivax* late trophozoite gallery

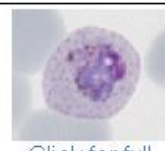
Plasmodium ovale late trophozoites



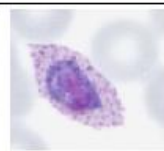
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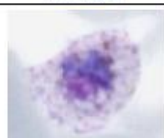
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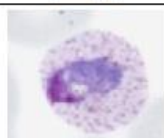
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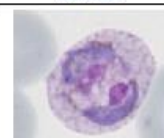
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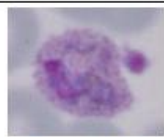
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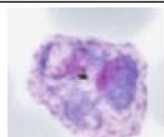
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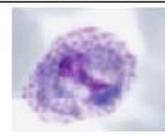
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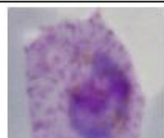
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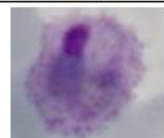
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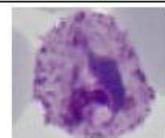
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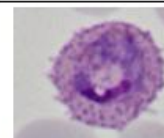
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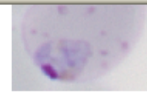
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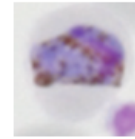
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seen. The trophozoite still has a similar appearance to the ring form. They are dense and compact and occupy about 1/3 of the cell.

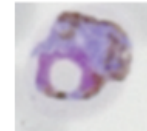


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In *P. malariae* late trophozoites are a common finding. The trophozoites have an irregular (amoeboid) formation but are more compact compared with *P. vivax*. The trophozoite is normally in one of two shapes, either a band form or a "basket-form". The parasite occupies a size 1/2 to 2/3 of the erythrocyte diameter.



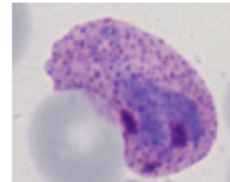
Band form



Basket form

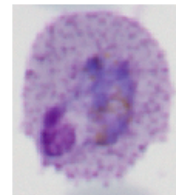
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In *P. vivax* late trophozoites are a common occurrence. The trophozoites are referred to as amoeboid rings, having an abnormally shaped cytoplasm with occupies 1/2 to 2/3 of the erythrocyte diameter but also have a vacuole within this. The parasite cytoplasm is pale blue or lilac with an in distinctive outline.



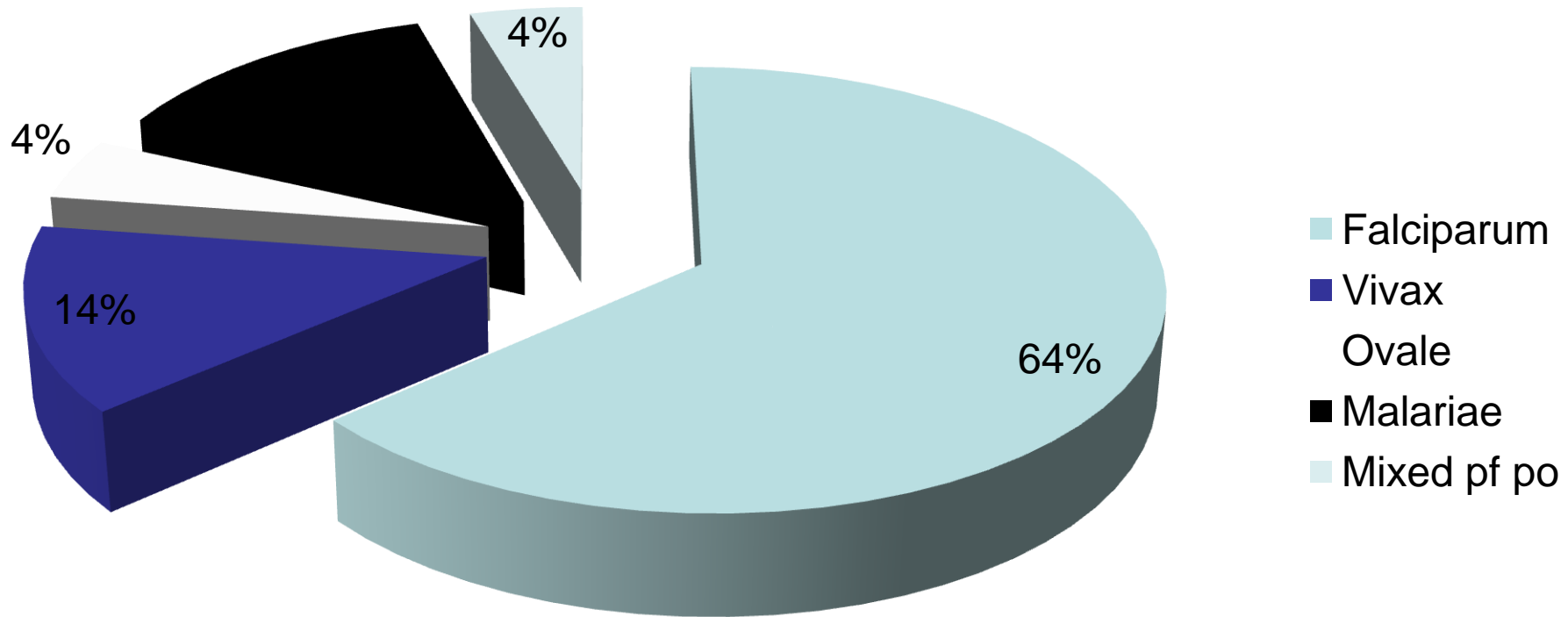
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In *P. ovale* late trophozoites are commonly seen. The trophozoite is usually a thick compact ring form but can also have an irregular shape, but less irregular than that of *P. vivax*. The parasite occupies 1/3 to 1/2 of the erythrocyte diameter, with the vacuole being less prominent than that of *P. vivax* and also having a clearly defined outline. Only a few cells at this stage have developed the characteristic oval shape, with a maximum of 20% of cells forming this shape overall. Cells may also be fimbriated.



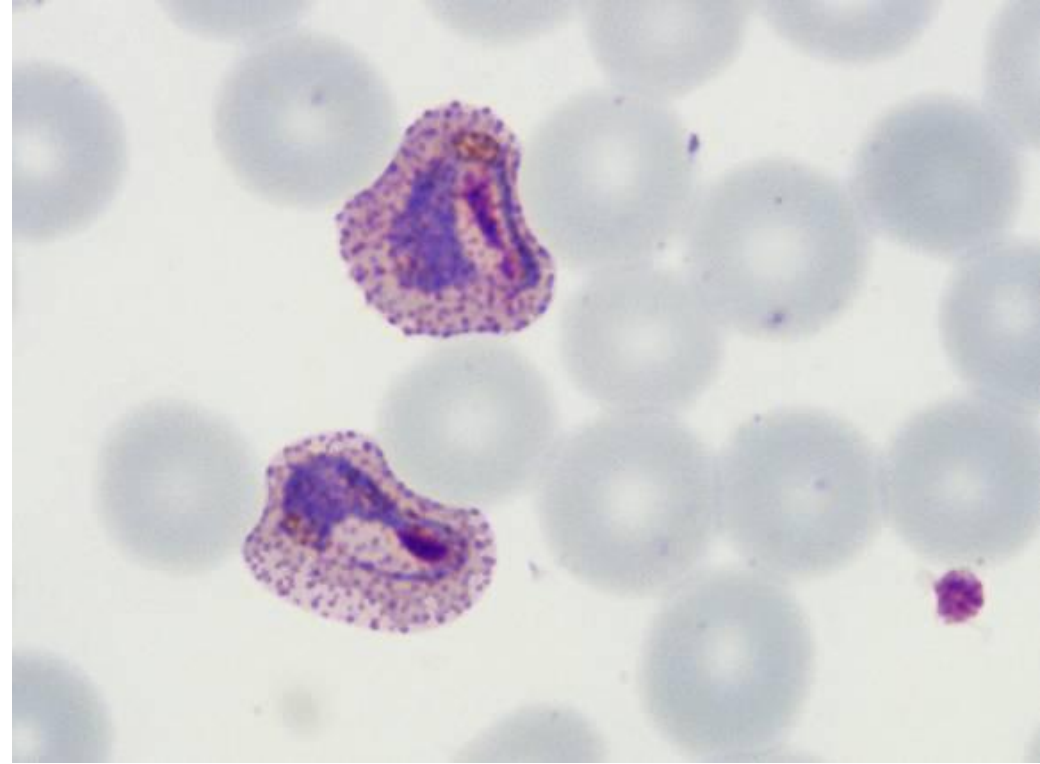
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UK High parasitaemia *P. falciparum*





- Quality of images
- Are they validated ?
- Are they fit for purpose?
- Is the software user friendly?
- Is the information correct ?
- Is the information useful ?
- Can users give feedback ?
- If interactive is data secure?
- Can I find my way ??????



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