ISSUE
34
March
2023

QSP Monthly

HORIBA Medical

NEWSLETTER OF THE QUALITY SLIDE PROGRAM

This issue

March Slides

Slide 1
See Case study on right

Slide 2
Polyvalent medicine unit. Follow up of a CLL. (Lymphocyte membrane fragility +++. Cytogenetics: 13q14 deletion.) Expert's comments: Typical LLC. Classify "smudge" in lymphocytes otherwise erroneous manual formula or make the results of the analyser with comment.

Slide 3
Anisopoikilocytosis (++). Echinocytes (++). Hypochromic (+) RBCs. Schizocytes (+). Band cells/hyposegmented and hypogranulated neutrophils(+). Myelemia. Erythroblastosis. Expert's comments: Cytological appearance of Neutrophil and #Neutrophils in favour of MDS/MPS.

Slide 4
Heamodialysis unit. Anisocytosis (+).

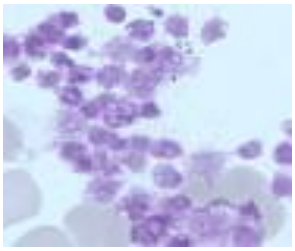
Slide 5
Clinical Haematology unit. Hyperleukocytosis. Neutropenia (hyposegmented and hypogranulated neutrophils). Blastosis (+++). Aniso-poikilocytosis (++).

Slide 6
Aniso-poikilocytosis(++). Echinocytes(++). Hypochromic (+) RBCs. Schizocytes(+). Band cells/hyposegmented and hypogranulated(+) neutrophils. Myelemia. Erythroblastosis.

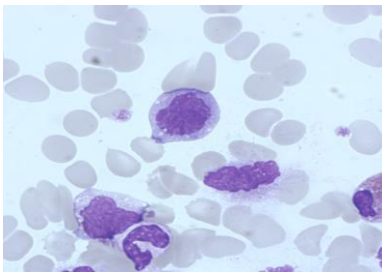
Monthly Digital Case Study Presentation
March 2023, Slide 1

FBC Results

WBC **20.7*** (10^3/mm3)
RBC **3.59 (**10^6/mm3)
HGB **9.8** (g/dL)
HCT **29.4** (%)
MCV **82** (fL)
MCH **27.3** (pg)
MCHC **33.3** (g/dL)
PLT **432*** (10^3/mm3)
Neutrophils **74.0** %
Lymphocytes **9.4**%
Monocytes **15.0**%
Eosinophils **1.6**%
Basophils **0.0**%
Myelocytes **0.0**%
Large Platelets present



Platelet clumps



Field from RBC section showing numerous monocytes

Clinical Details

Female (90 years old)

Slide Information

Polyvalent Post-Emergency Internal Medicine unit. Monocytosis. Platelet aggregates and macroplatelets (++).

Expert comment:
Amend the platelet result "underestimation of platelet count: PLT clumps". Platelet count represents a minimum. Suggest citrate platelet count?

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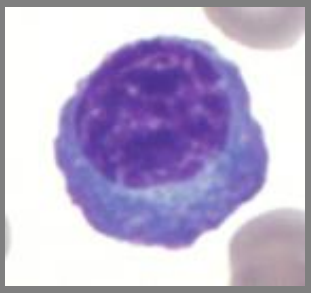
Cell Quiz

This cell is from a 26 year old female, presenting with tiredness, jaundice, and axillary adenopathy. What test should be performed?



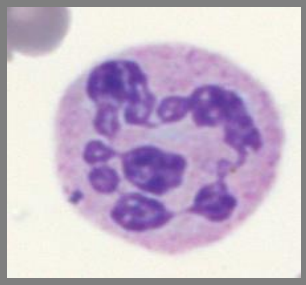
A) Glandular fever screening test

B) Rheumatoid factor

C) Ferritin

Last Month's Quiz

What feature is shown in the cell below:



a) Pelger-Huet anomaly
b) Neutrophil Hypersegmentation
c) Neutro Toxic Granulation

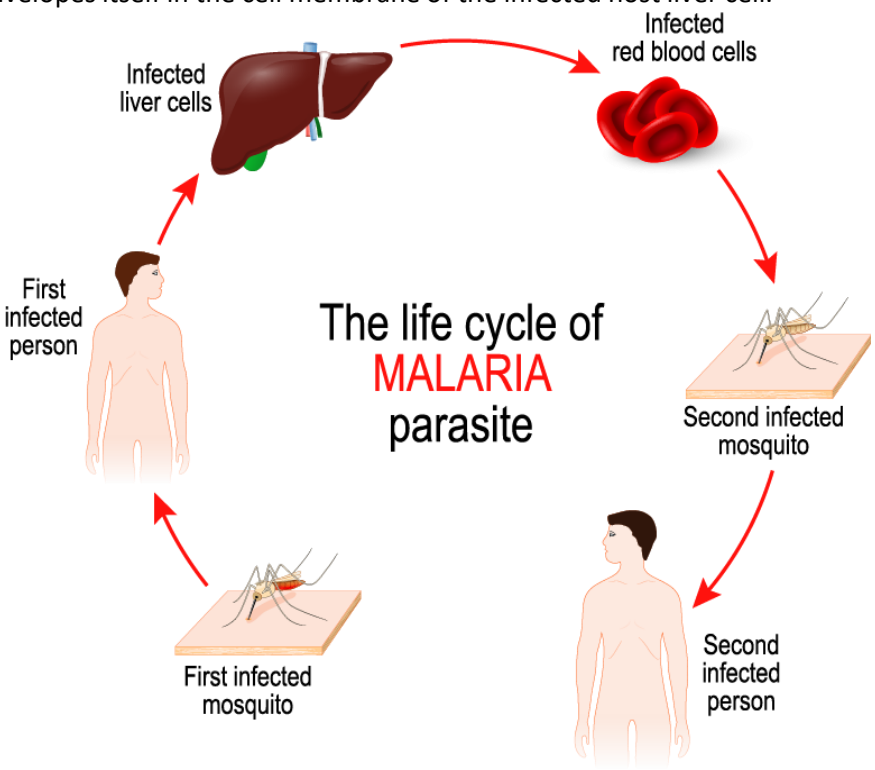
Right answer:
The cell caused some debate as to whether it was a true hypersegmented Neutrophil as seen in megaloblastic anaemia or a dysplastic feature. This shows the difficulty sometimes in identifying single cells without clinical context.

Malaria

On the occasion of World Malaria Day in April, this month's issue will once again feature previously delivered content on malaria. Malaria is a worldwide disease that it is transmitted to humans via the Anopheles Mosquito, through a bite. Malaria is found in tropical and subtropical regions of the world.

The mosquito bite introduces the parasite into the human's blood via sporozoites in the saliva. The parasites then migrate to the liver, where they mature and reproduce. This is known as the **exoerythrocytic phase**.

The organisms multiply in the liver in infected hepatocytes. These differentiate into thousands of merozoites, which rupture the host cell, infiltrating the blood and infecting red blood cells. This next stage is known as the **erythrocytic stage** of the life cycle. The parasite is able to leave the liver undetected as it envelopes itself in the cell membrane of the infected host liver cell.

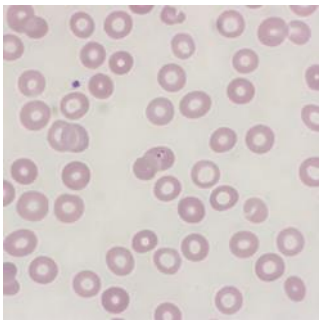


There are four commonly known types of malaria parasite, Plasmodium falciparum, Plasmodium Vivax, Plasmodium Ovale, and Plasmodium Malariae. The most severe is Plasmodium falciparum, the lesser common is Plasmodium Knowlesi.

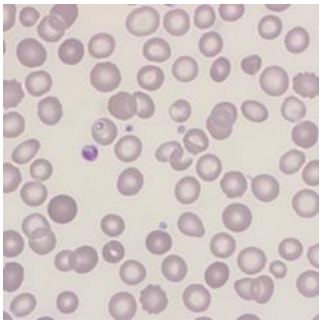
- **Plasmodium falciparum:** found mainly in Africa, it's the most common type of malaria parasite and is responsible for most malaria deaths worldwide, though treatment does cure the infection.
- **Plasmodium vivax:** mainly found in Asia and South America, this parasite causes milder symptoms but it can stay in the liver for years which can result in symptoms reoccurring, if it isn't treated properly.
- **Plasmodium Ovale:** fairly uncommon and usually found in West Africa.
- **Plasmodium Malariae**: this is quite rare and usually only found in Africa.
- **Plasmodium Knowlesi:** this is very rare and found in parts of southeast Asia.

Each has variations which help identification (see table below):

Observation (RBC)	P. Falciparum	P. Vivax	P. Malariae	P. Ovale
Size	Not enlarged	Enlarged	Not enlarged	Enlarged
Shape	Round, sometimes crenated	Round or oval	Round	Round or oval, often fimbriated
Colour	Normal, but may become darker or may have a purple rim	Normal to pale	Normal	Normal
Stippling	Maurer's spots, appear as large red spots, loops and clefts	Schuffner's dots, appear as small red dots, numerous	Ziemann's dots, few tiny dots, rarely detected	Schuffner's dots (James's dots). Numerous small red dots
Pigment	Black or dark brown	Seen as a haze of fine golden brown granules scattered through the cytoplasm	Black or brown coarse granules, scattered	Intermediate between P. *Vivax* and *P. Malariae*
Trophozoite	Smallest, delicate, sometimes two chromatin dots, multiple rings commonly found	Relatively large, one chromatin dot, sometimes two, often two rings in one cell	Compact, one chromatin dot, single	Compact, one chromatin dot, single
Schizont	Medium size	Large	Small	Medium Size
Gametocyte	Crescent shaped	Spherical	Similar to P. Vivax, but smaller and less frequent	Like P. Vivax, but smaller



P.Falciparum (shows double dots)



Malaria

Testing for the diagnosis of malaria is confirmed by a microscopic (blood films) and no-microscopic (FBC, rapid test) tests. See next newsletter.

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Bibliography

Essential Haematology
A.V .Hoffbrand & J.E.Pettit

https://www.ncbi.nlm.nih.gov/books/NBK555962/

Editorial Team

Kelly Duffy
Andrew Fisher

About us

HORIBA UK Limited
Kyoto Close
Moulton Park
Northampton, UK
NN3 6FL

HORIBA Medical
Parc Euromédecine, 390
Rue du Caducée, 34790,
France

www.horiba.com/medical

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