ISSUE
04
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2020

HORIBA Medical

QSP Monthly

NEWSLETTER OF THE QUALITY SLIDE PROGRAM

This issue

Last Month's Slides

July 2020 Slide Summaries

Slide 1
Mostly normal slide with some platelet aggregates and giant platelet

Slide 2
Generally normal film

Slide 3
Lymphoproliferative disorder, probable CLL. Smear cells and abnormal lymphocytes

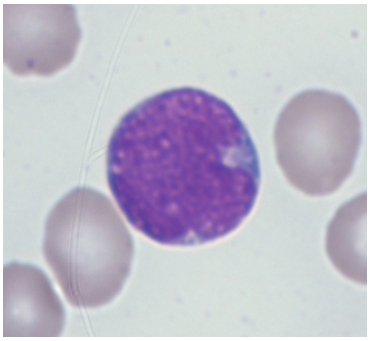
Slide 4
Myelodysplastic blood film with circulating megakaryocytes, Blasts Multiple cell abnormalities. Erythroblasts, Cabot's rings in RBCs Basophilia

Slide 5
Lymphoblasts, abnormal lymphoid cells. Probable ALL

Slide 6
Leukoerythroblastic blood film. Myelodysplastic changes,approx. 50% blasts, auer rods, monocytoid blasts. Probable M4 Acute

Monthly Digital Case study

July 2020 Slide 5



Presentation

Child (5 years old)
Presenting with weakness and jaundice

FBC Results

WBC	**2.63 (10^3/mm3)**
RBC	**2.37 (10^6/mm3)**
HGB	**65 (g/L)**
HCT	**20.3 (%)**
MCV	**85 (fL)**
MCH	**27.4 (pg)**
MCHC	**32.1 (g/dL)**
PLT	**104 (10^3/mm3)**

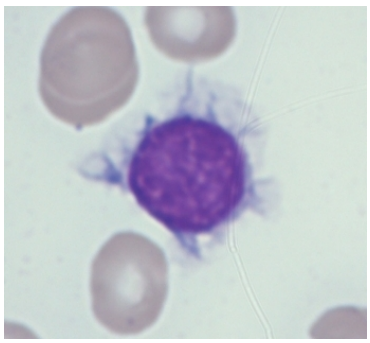
Neutrophils	**7.6%**
Lymphocytes	**87.3%**
Monocytes	**1.7%**
Blasts	**3.4%**

Slide review

Leukopaenia/neutropaenia confirmed
Small blasts present with minimal cytoplasm – lymphoid in appearance
Abnormal lymphoid cells (counted with lymphocytes) with cytoplasmic projections. Almost certainly some of these abnormal cells are lymphoblasts making the differentiation between these abnormal cells and obvious blasts cells subjective

Diagnosis

Probable Acute lymphocytic Leukaemia (immunophenotyping required to complete the diagnosis)



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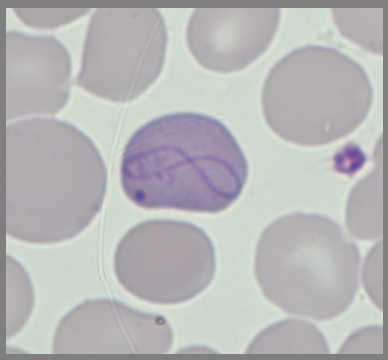
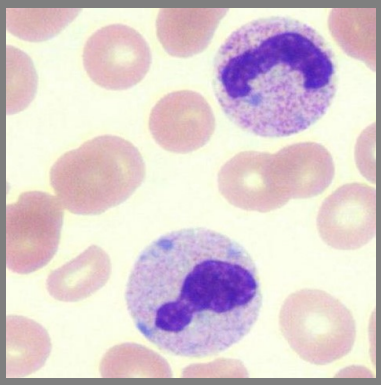
Monthly Morphology Quiz

Look closely at this red cell:



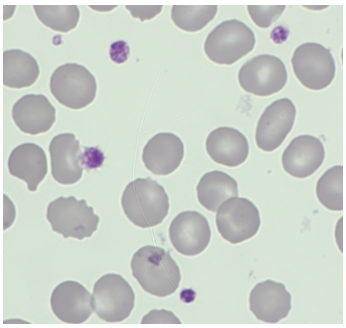
What is unusual about it and what could this Indicate?

Last month's cells:



The blood film shows neutrophils with Dohle bodies in the cytoplasm

These are remnants of rough endothelial reticulum and can accompany toxic left-shift



Platelet morphology in peripheral blood

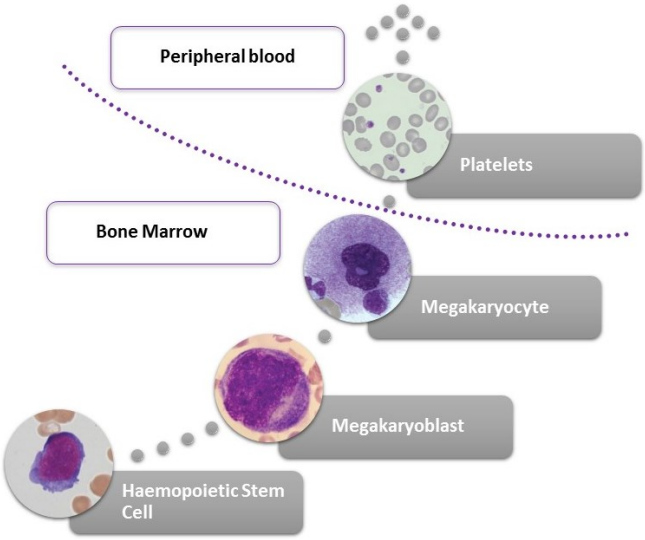
An overview of laboratory findings

Introduction

Platelets are cell fragments circulating in the peripheral that are involved in secondary haemostasis. Aggregated platelets, platelet polymorphism, platelet satellitism and the presence of platelet precursors, megakaryocytes, in the peripheral blood are useful indicators of a variety of conditions.

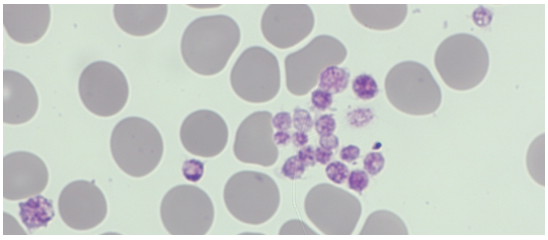
Platelet production

Platelets are produced in the bone marrow by fragmentation of the tips of cytoplasmic extensions of cells called megakaryocytes. Each cell produces approximately 1000 to 5000 platelets. They are released into the blood stream through the endothelium of the vascular niches of the bone marrow.
There is a 10-day cycle for the production and release of platelets:



Platelet aggregates

Platelet aggregates are very common and can give rise to falsely low platelet counts and occasional interference with other parameters. They can be cause by slow or difficult venepuncture but, in some individuals, platelets may be sensitive to EDTA anticoagulant and invariably clump when blood samples are taken. In these instances, a sample taken into tri-sodium citrate can give a correct result after correction for anticoagulant dilution factor.



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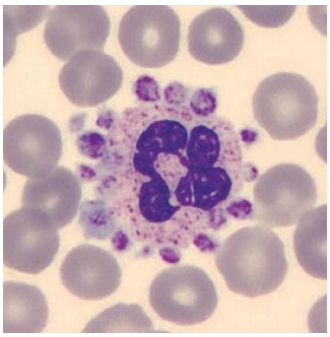
Platelet morphology in peripheral blood



Continued from page 2

Platelet Satellitism

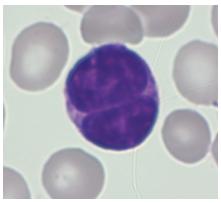
Platelet satellitism (illustration above)is a rare phenomenon in EDTA blood where the platelets congregate around a white cell (usually a neutrophil). It is generally considered to be an artifact, but it has been observed in some conditions including lymphoproliferative disorders, lupus, vasculitis and liver disease but a cause has not been established.

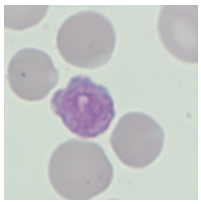
Giant platelets

The presence of giant platelets may indicate that there is increased platelet production as younger platelets tend to be larger. It is also associated with Idiopathic thrombocytopaenic Purpura (ITP). In this case, the platelets may not function correctly as they are unable to stick to the injured blood-vessel wall.
Giant platelets also occur in hereditary platelets disorders such as Bernard-Soulier Syndrome.

Megakaryocytes

Megakaryocytes are normally not seen in the peripheral blood and their presence is indicative of bone marrow such as Myelodysplastic Symdrome, Myeloid Leukaemia, Polycythaemia Rubra Vera and myelofibrosis.
Megakaryocytes in the peripheral blood are often 'bare' – ie. with minimal cytoplasm (illustrations of giant platelets and megakaryocyte from July 04 slide).

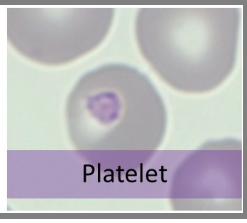




This Month's Top Morphology Tip

The Hunt for Malaria

Common errors in looking for malaria in thin films are caused by platelets overlying a red blood cell, if in doubt, rack in and out of focus on the particular cell, if the platelet is on top of the red cell, it should come into focus before the red cell, which will still be slightly blurred. If it is a malaria parasite within the red cell, clear focus will be on the same plane.



Other News

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Bibliography

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Hoffbrand's Essential Haematology 7th edition Wiley Blackwell

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