CPD Evidence 2 (2022)

1. Registrant Information

1.1 Full Name: Chen Liu, AMRSB
1.2 Profession: BMS
1.3 Registration Number: BS075665
1.4 CPD type: Professional activities – maintaining or developing specialist skills
1.5 Date of completion: 30/03/2022
1.6 Standard(s) met:
Standard 1 – A registrant must maintain a continuous, up-to-date and accurate record of their CPD activity
Standard 4 – A registrant must seek to ensure that their CPD benefits to the service user

2. Details

Title: IBMS 2022 Morphology Quiz

I participated the IBMS 2022 Morphology Quiz (Standard 1), the score is shown as follow:

Your score has been released for IBMS 2022 Morphology Quiz.

Dear all,

Apologies for the slight delay in release of your results, we were really pleased that more than 740 people participated. We hope you enjoyed the quiz and found it useful. It is not really possible to accurately diagnose from the single field of view, but overall the most popular answer was always the right one! If you got things wrong there is some feedback which you might find useful.

There is a button to press on this email to get your results, but as ever with modern IT the link to the result may not work with your organisations' browser and you may need to copy the link and paste into the most modern one you can find!

Could we trouble you for some feedback - this is a very short form, but we are interested to see if you would like more similar quizzes in future, and would value any suggestions. The form can be found here:

https://forms.gle/3HsCmtKsYiQcpGVq6

Also, the old quiz is only going away for a short time, and will soon reappear for anybody interested on:

https://haematologyetc.co.uk

Thank you for participating

Michelle and John

IBMS 2022 Morphology Quiz

8/ 10

Quiz and feedback:

IBMS 2022 Morphology Quiz

Total points 8/10

This quiz is for education and entertainment in blood cell morphology aimed at all skill levels. Can we suggest a morphological diagnosis from just a few cells?

This quiz has 10 images of peripheral blood cells each with a multiple choice question. A discussion of the morphology will take place at the IBMS congress, but you do not need to be a conference attendee to take part and receive answers. After the conference you will receive an e-mail link allowing you to review your answers, see an annotated description and compare your results with others.

We hope you enjoy the quiz and thank you for participating,

Michelle Brereton and John Burthem

Please enter your e-mail address so we can email you the results after the conference.

NOTES:

1 Your email address is sufficient, registration with Google is not needed to complete the quiz
2 The quiz requires an up to date browser, if your default browser does not work, right click on the link and paste directly into a more up to date browser

Email *

immuno.chenliu@gmail.com

Privacy

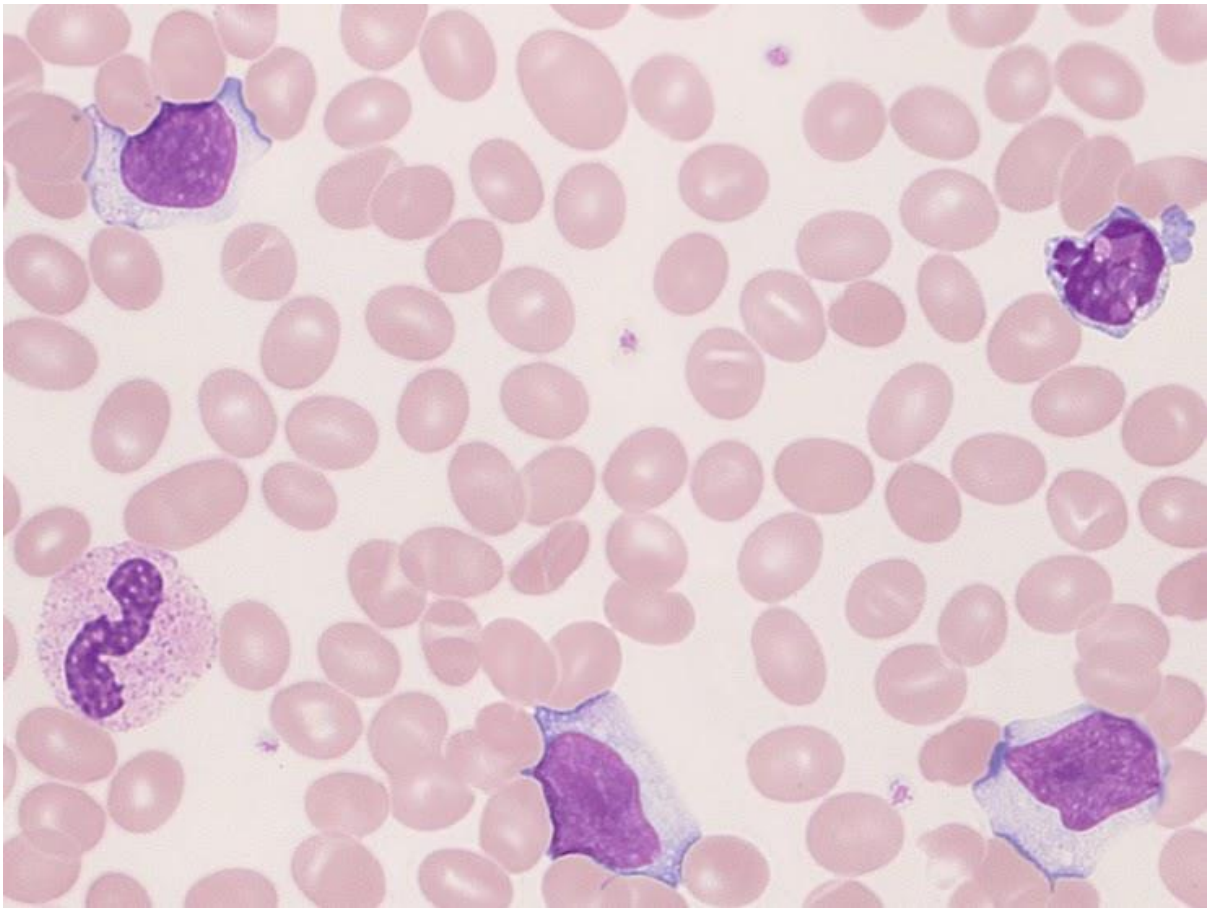
We collect and store this data solely so we give you your results. Your personal information will not be shared or used for any other purpose and we do not look at the results of individuals. although anonymous summarised results of all users will be presented.

Question 1
1 of 1 points

WBC = 12.0 x 10*9/L

Male aged 21 years “unwell and tired all the time” He also has an interesting red cell disorder but this is unrelated to the present condition. *

1/1



Adult T-cell leukaemia/lymphoma (ATLL)
Acute Lymphoblastic leukaemia (ALL)
Acute Monoblastic leukaemia (AML)
Acute Promyelocytic leukaemia variant (APLv)
Burkitt lymphoma
Chronic lymphocytic leukaemia (CLL)
Follicular Lymphoma
Infectious Mononucleosis (Glandular fever)

Mantle cell lymphoma
Sezary syndrome
Not able to suggest a preferred diagnosis

Feedback

Congratulations. The large pleomorphic lymphocytes of infectious mononucleosis (IM) have plentiful pale blue cytoplasm with curved or scalloped edges which appears to reach out almost to wrap around the surrounding red cells. There is a dying / apoptotic lymphocyte on the right where the nucleus seems

more condensed. Apoptotic cells may be seen where there is a high turnover of cells such as an active viral infection. The red cells show features of Southeast Asian ovalocytosis (SAO). This question was very well answered with more than 80% correct, there was no real pattern to the incorrect responses.

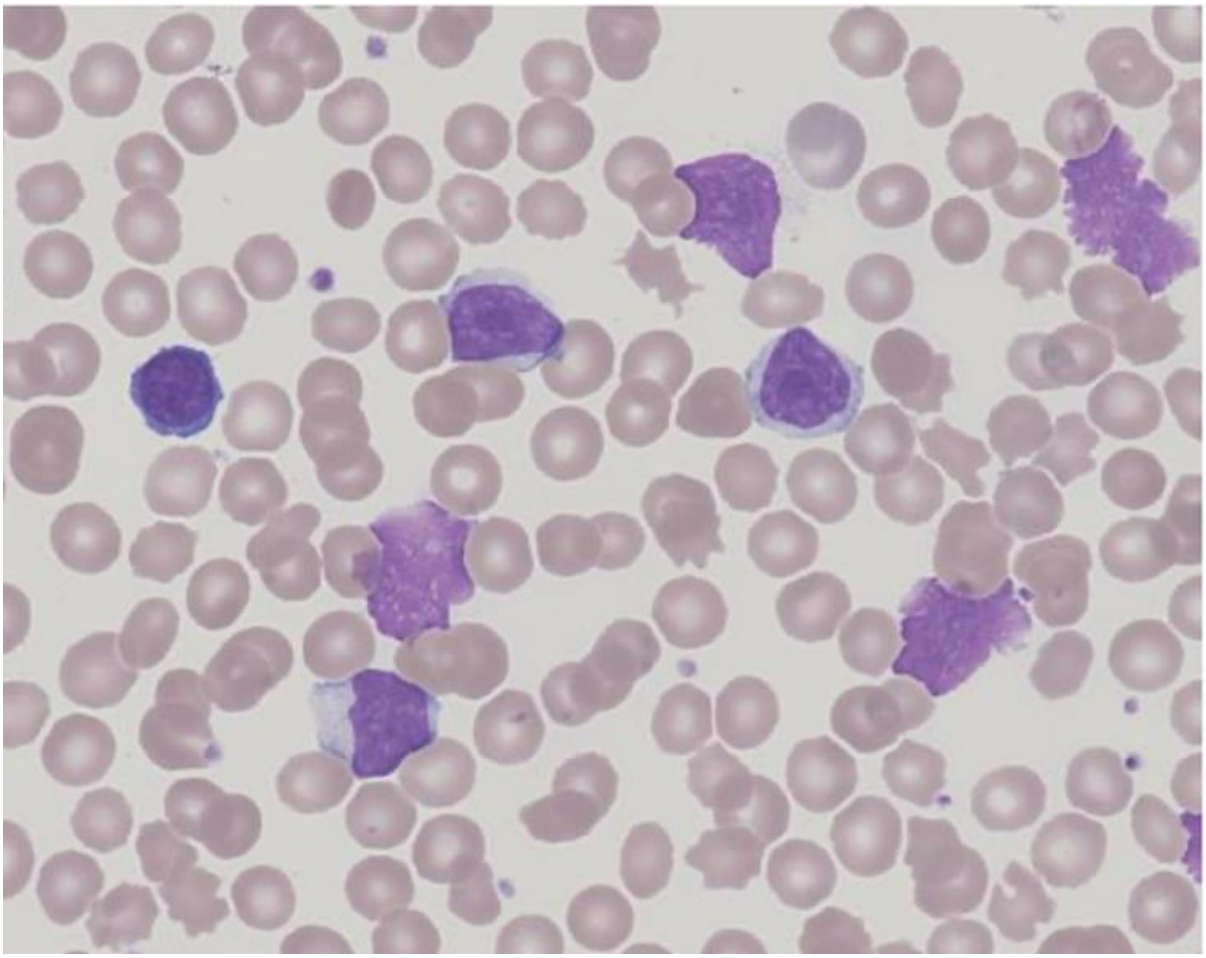
QUESTION 2

1 of 1 points

WBC = 86.0 x 10*9/L

Female aged 73 years routine health screen at GP *

1/1



Adult T-cell leukaemia/lymphoma (ATLL)
Acute Monoblastic leukaemia (AML)
Acute Promyelocytic leukaemia variant (APLv)
Burkitt lymphoma
Chronic lymphocytic leukaemia (CLL)
Follicular Lymphoma
Infectious Mononucleosis (Glandular fever)
Mantle cell lymphoma
Sezary syndrome
Not able to suggest a preferred diagnosis

Correct answer
Chronic lymphocytic leukaemia (CLL)

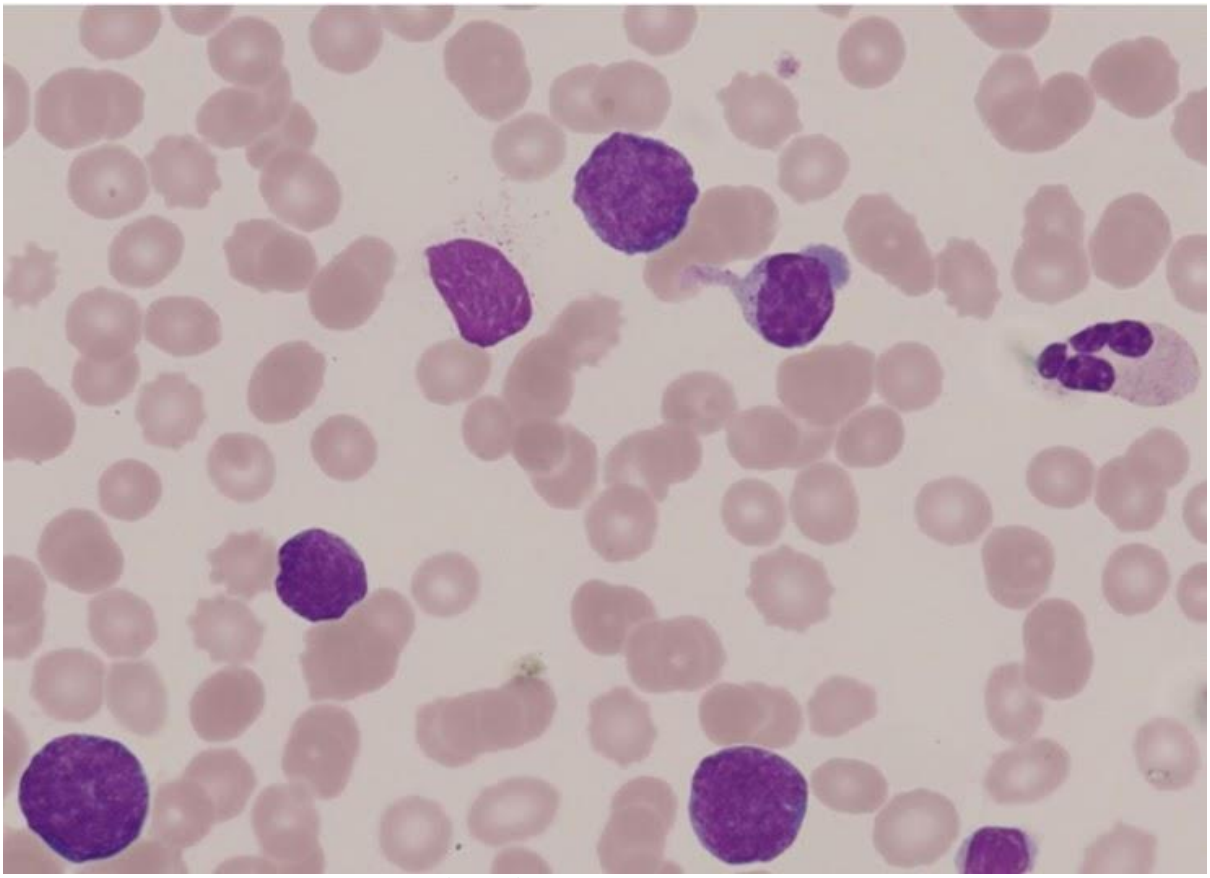
Feedback
Marked lymphocytosis against a background of mainly normal red cells and platelets. There are some smear cells. The lymphocytes are small to medium with a clear region of pale blue cytoplasm. The lymphocytes appear to touch the red cells but unlike viral infections the red cells are not embraced. Many nuclei have an "squared" shape of nucleus - this is typical of CLL. This question was really well answered with no real pattern to incorrect responses.

Question 3
1 of 1 points

WBC = 20 x 10*9/L

Q3/ Male aged 59 years with a skin rash is referred and found to have a lymphocytosis *

1/1



Adult T-cell leukaemia/lymphoma (ATLL)
Acute lymphoblastic leukaemia (ALL)
Acute Monoblastic leukaemia (AML)
Acute Promyelocytic leukaemia variant (APLv)
Burkitt lymphoma
Chronic lymphocytic leukaemia (CLL)
Follicular Lymphoma
Sezary syndrome
Not able to suggest a preferred diagnosis

Correct answer
Sezary syndrome

Feedback
There is a variable population of small and larger sized lymphoid cells but all appear abnormal with scanty dark basophilic cytoplasm. The nuclei are dense and lobulated or tightly folded. This convoluted appearance of the nucleus is said to resemble a brain-like structure. Sezary syndrome is frequently associated with skin infiltration by the abnormal T cells. This question was generally well answered,

many incorrect answers were for other T cell disorders, probably reflecting the irregular nuclear appearance. Mantle cell lymphoma is a good alternative choice, but the skin rash is a feature of Sezary syndrome.

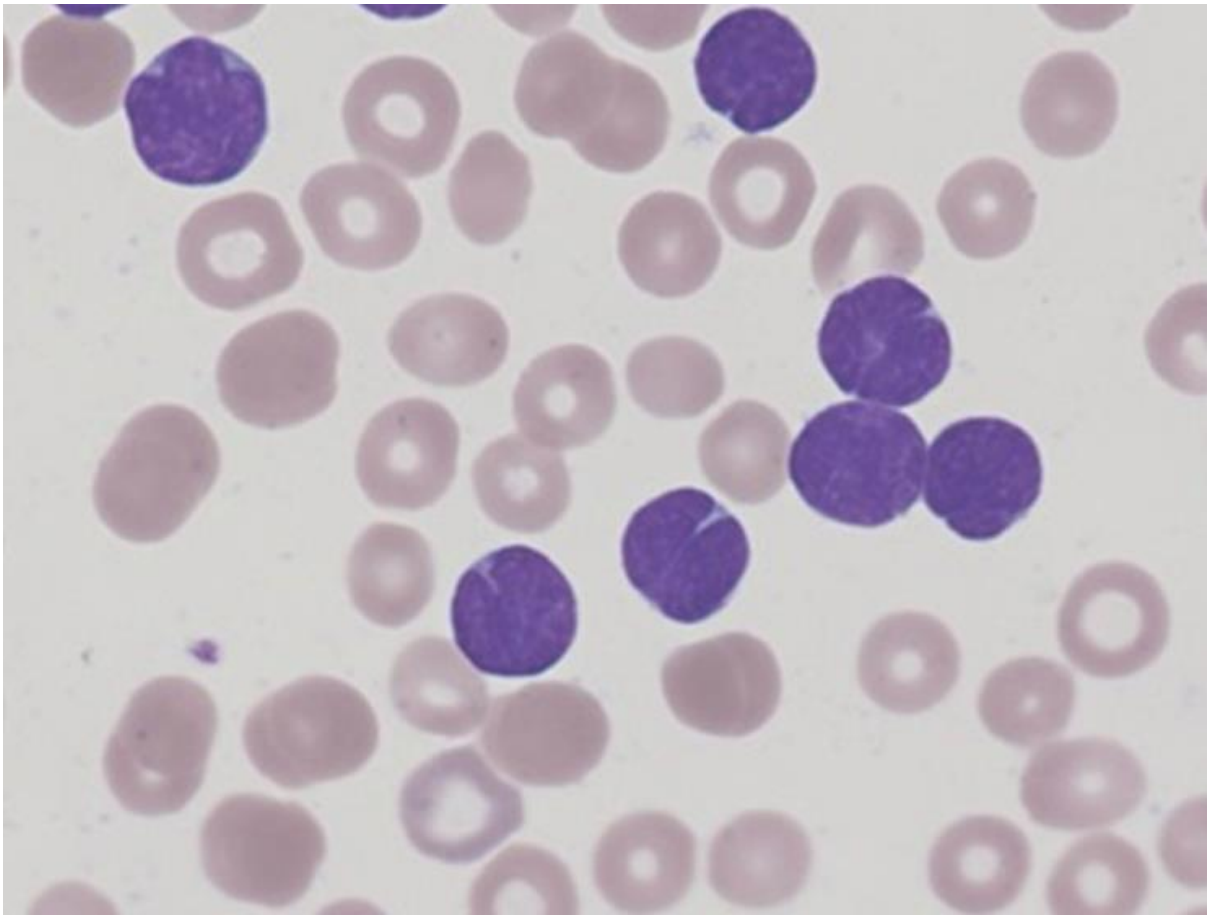
Question 4

0 of 1 points

WBC = 56.0 x 10*9/L

Female aged 54 years, presents to GP with enlarged lymph nodes but feels generally unwell. A film is examined. *

0/1



Adult T-cell leukaemia/lymphoma (ATLL)
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Acute Promyelocytic leukaemia variant (APLv)
Burkitt lymphoma

Chronic lymphocytic leukaemia (CLL)
Follicular Lymphoma
Infectious Mononucleosis (Glandular fever)
Mantle cell lymphoma
Sezary syndrome
Not able to suggest a preferred diagnosis

Correct answer
Follicular Lymphoma

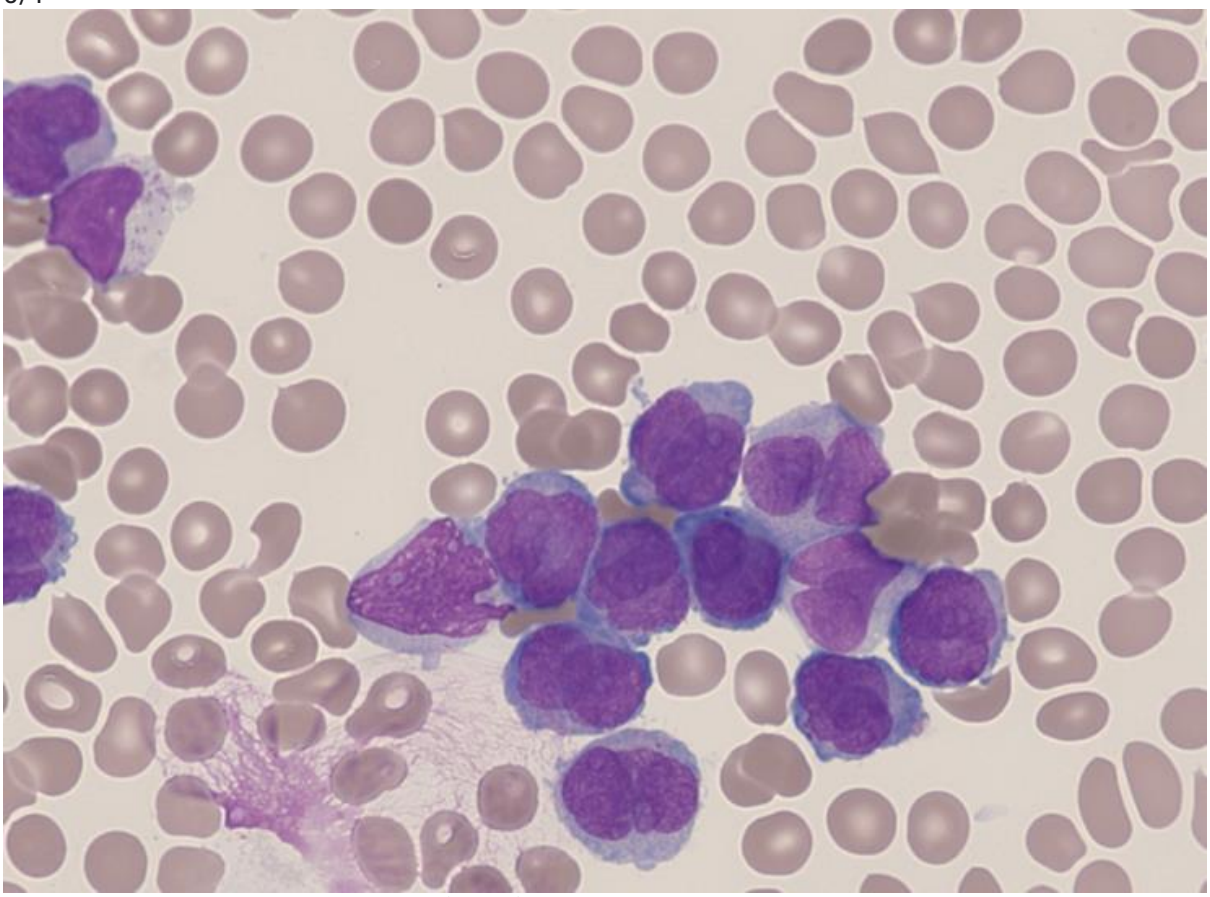
Feedback
The abnormal lymphoid cells of follicular lymphoma are generally small, some as small as the surrounding erythrocytes. Importantly the nucleus usually has one central deep fold or cleft that may seem to separate it equally. Cytoplasm is weakly stained and inconspicuous. Incorrect answers were of other disorders where nuclear clefting is also seen, the important features here being the small size of the cells and the central nature of the cleft (the different magnification of the slide makes this more difficult to see, so it is important to use other cells for reference).

Question 5
0 of 1 points

WBC = 36.0 x 10*9/L

Male aged 30 years presents as an emergency with a nose bleed. *

0/1



Adult T-cell leukaemia/lymphoma (ATLL)
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Acute Monoblastic leukaemia (AML)

Acute Promyelocytic leukaemia variant (APLv)
Burkitt lymphoma
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Follicular Lymphoma

Infectious Mononucleosis (Glandular fever)
Mantle cell lymphoma
Sezary syndrome
Not able to suggest a preferred diagnosis

Correct answer

Acute Promyelocytic leukaemia variant (APLv)

Feedback

Large abnormal primitive cells with no clear granulation and a large cloud-like nucleus. The abnormal cells can appear almost monocytic, but note the granules in the cytoplasm of the cell top left on the image. Many nuclei have an almost "figure of eight" appearance, others have the more typical bi-lobed appearance of this condition. Being able to "see through" the almost transparent nuclear chromatin to the lobe below is often a feature. The microcytic granules are generally too small for the human eye to see, so cells tend to appear agranular. These are abnormal promyelocytes of Acute Promyelocytic leukaemia variant (APLv). The white cell count is usually raised at presentation, compared to the more common granular APL where the white cell count may be normal or reduced. Note also the lack of platelets in the small image. This is a difficult case, and as is ofen the case with variant APL many considered that the cells were monoblasts. This justifiable, however, APL should always be considered.

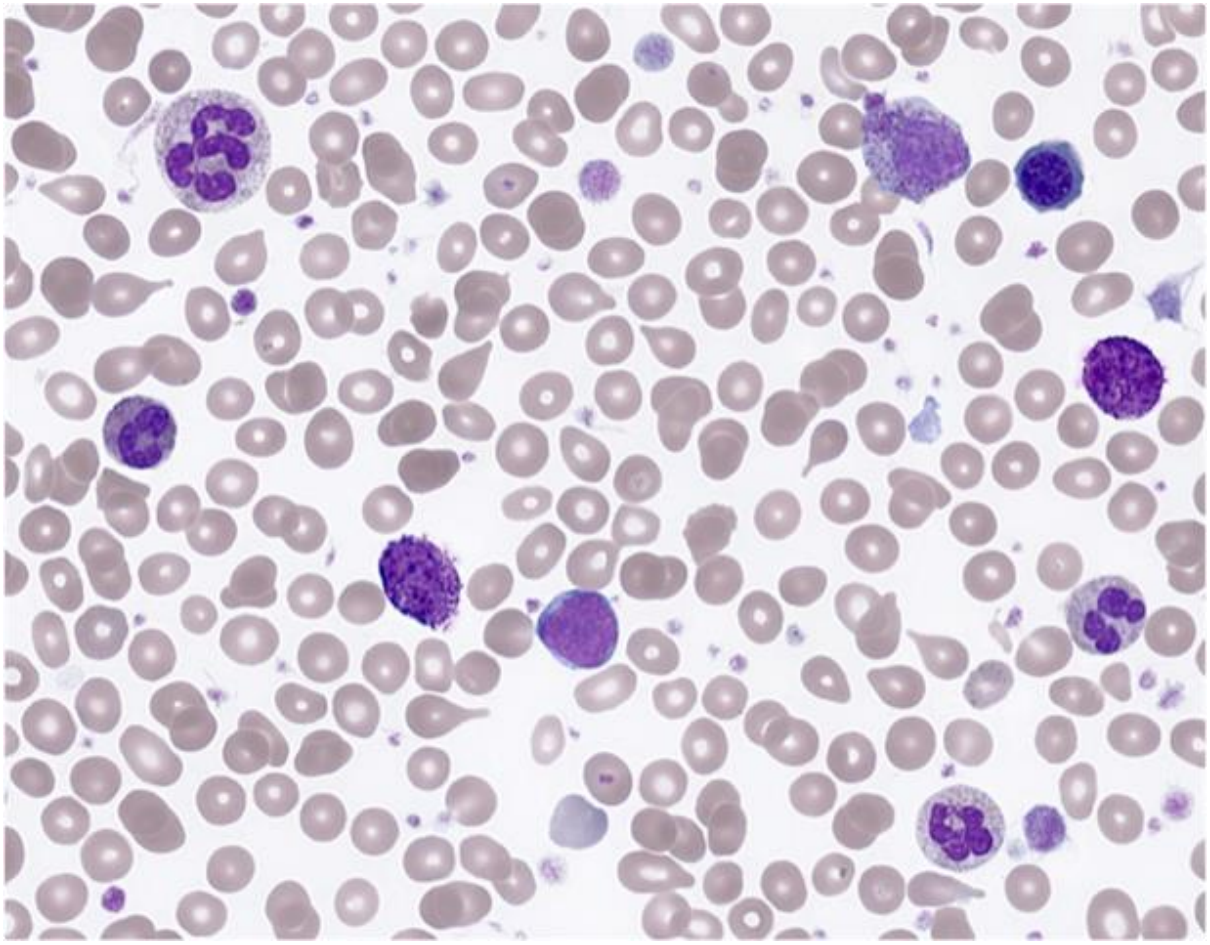
I answered Q4 and Q5 incorrectly, this means that I need improvements on morphological changes during leukaemia and lymphoma.

Question 6
1 of 1 points

WBC = 26.0 x 10*9/L

Female aged 77 years. Tired all the time. *

1/1



Severe burns
Chediak-Higashi syndrome
Chronic Myeloid leukaemia
Hereditary spherocytosis (HS)
Jordans anomaly
Megaloblastic anaemia

Microangiopathic haemolytic anaemia (MAHA)
Oxidative Haemolysis (due to G6PD deficiency)
Pelger-Huet anomaly
Primary myelofibrosis (PMF)
Sepsis
Not able to suggest a preferred diagnosis

Correct answer
Primary myelofibrosis (PMF)

Feedback

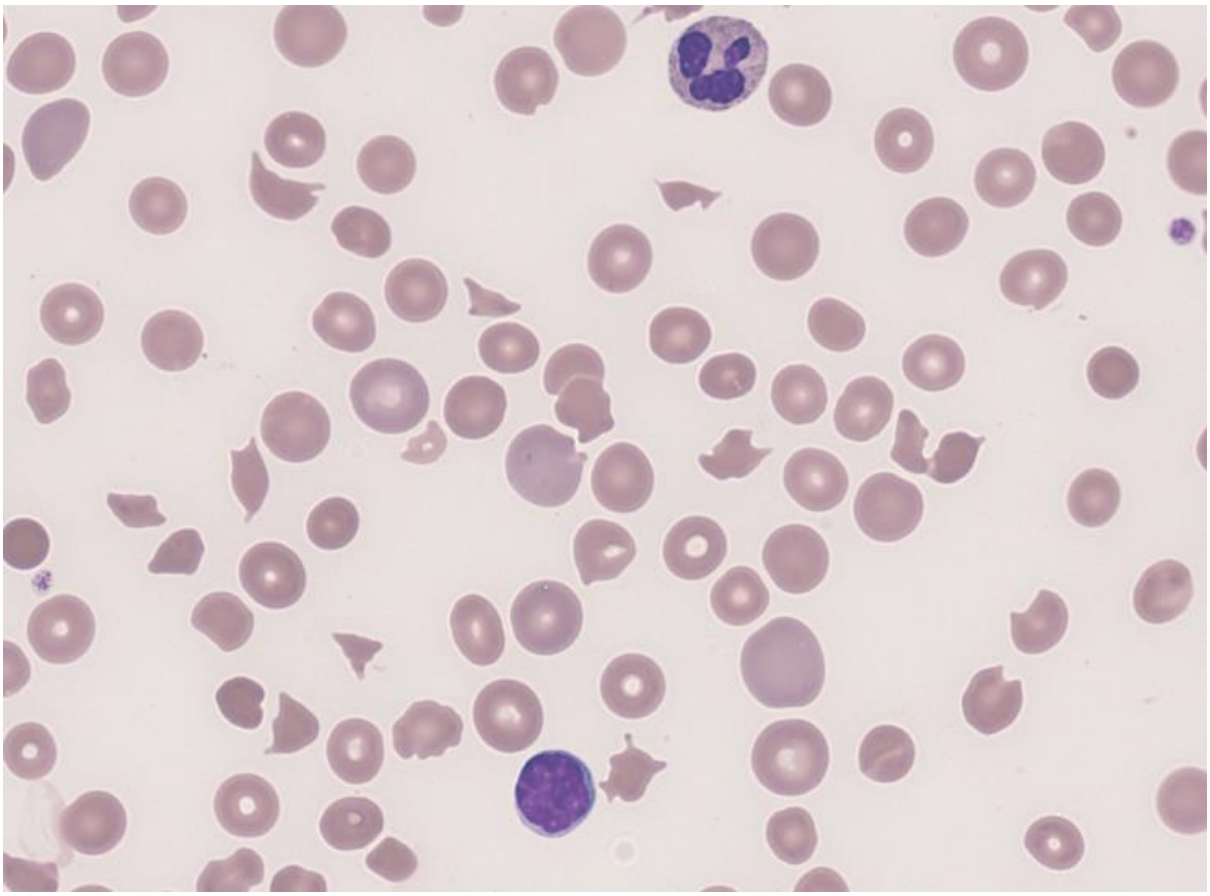
This is primary myelofibrosis. With a nucleated red blood cell and a blast cell this is a leukoerythroblastic picture. There are plentiful teardrop poikilocytes, and abnormal granulocytes including a giant neutrophil where the nucleus has sufficient lobes for two cells but the cytoplasm has not divided (macropolycyte). This giant cell is not the same as a right-shift or hypersegmented neutrophil which are usually similar size to a normal neutrophil. With basophils present you could consider CML as a possible diagnosis but many features are atypical for that disorder. In this case it is important to look at the overall feature set - the two most frequent incorrect answers were a megaloblastic anaemia (where people presumable focused on the macropolycyte) and CML (where the basophils were presumably considered most important).

Question 7
1 of 1 points

WBC = 12.0 x 10*9/L

Male aged 30 years in the Emergency Department extremely unwell. *

1/1



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Oxidative Haemolysis (due to G6PD deficiency)
Pelger-Huet anomaly
Primary myelofibrosis (PMF)
Sepsis
Not able to suggest a preferred diagnosis

Feedback

Congratulations. A case of Microangiopathic haemolytic anaemia (MAHA). Numerous red cell fragments with sharp edges is a concerning sign of red cells being damaged in the circulation by "slicing" forces, in this case by fibrin strands. There are very few platelets visible. This is actually a case

of idiopathic Thrombotic Thrombocytopenic purpura (TTP). It is essential that the clinical team are told there are fragments in the film as soon as possible. The majority of answers correctly identified this important and urgent case.

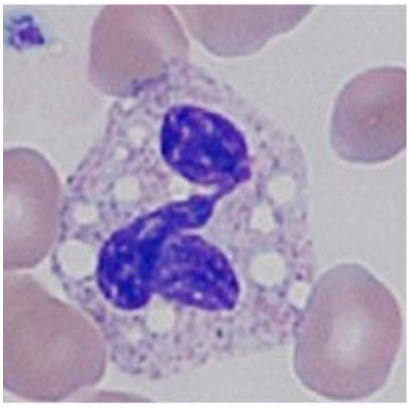
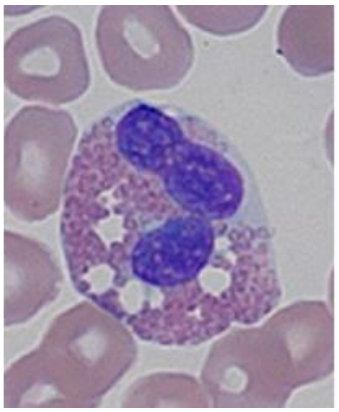
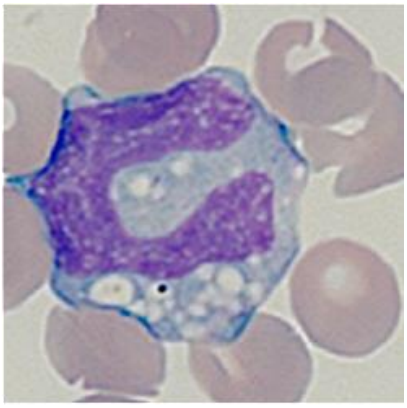
Question 8

1 of 1 points

WBC = 8.0 x 10*9/L

Male child aged 8 years with muscle weakness. *

1/1

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Sepsis
Not able to suggest a preferred diagnosis

Correct answer

Jordans anomaly

Feedback

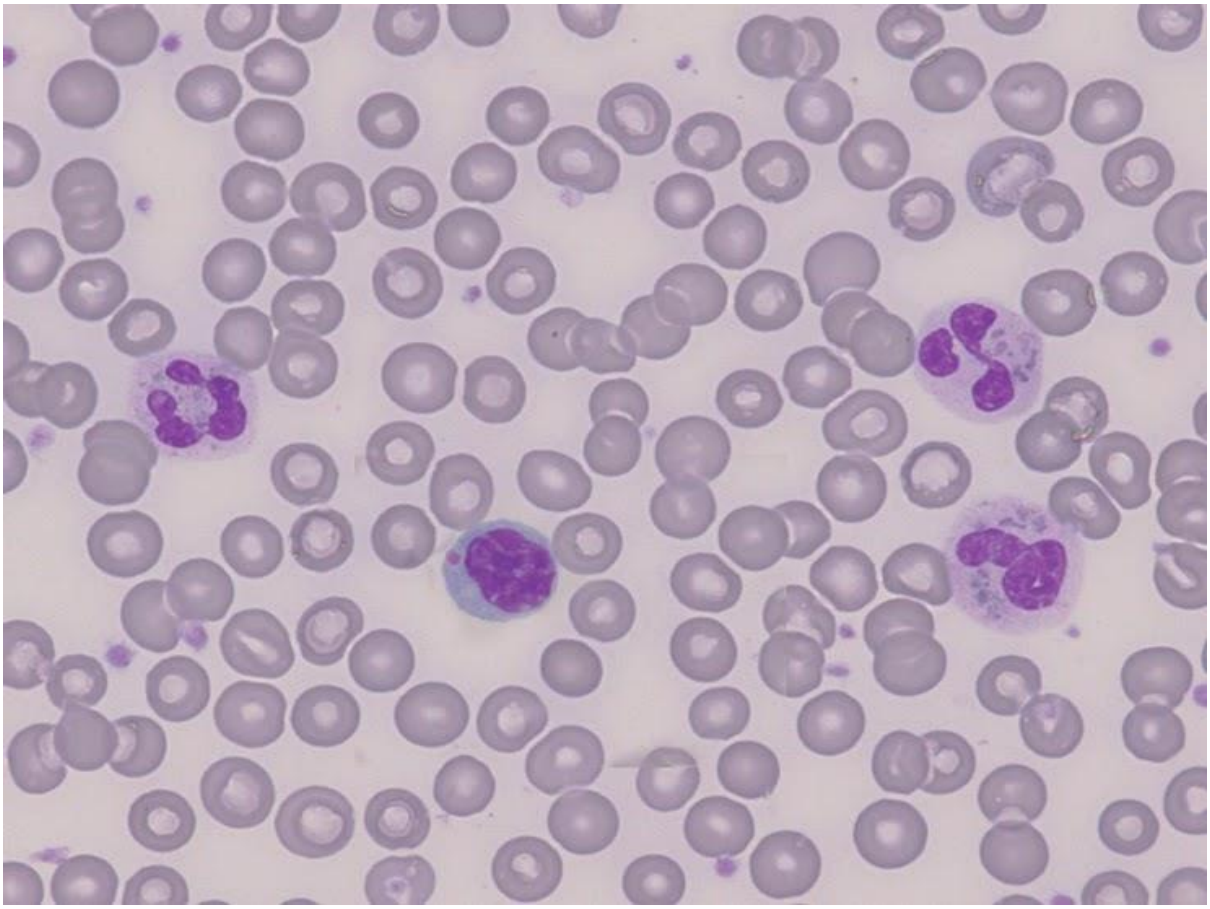
In these images from a patient with Jordan's anomaly the cytoplasm of the granulocytes (and in this case the monocytes) shows the classic large round vacuoles which contain lipids from the defective breakdown of triglycerides. Vacuoles in neutrophils can have many causes such as seen in excessive alcohol intake. There is no evidence of toxic granulation as would be expected in cases of sepsis. A rare disorder.

Question 9
1 of 1 points

WBC = 10.0 x 10*9/L

Male child age 2 years, multiple visits to GP with recurrent infections. The GP notes abnormal pigmentation of the boys eyes. *

1/1



Severe burns
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Megaloblastic anaemia
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Pelger-Huet anomaly
Primary myelofibrosis (PMF)
Sepsis
Not able to suggest a preferred diagnosis

Correct answer
Chediak-Higashi syndrome

Feedback

Reduced granulation of the granulocytes that has a coarse and grey appearance, and appears as a single granule in many lymphocytes is typical of the rare recessive inherited condition of Chediak-Higashi syndrome. A genetic mutation affects the LYST lysosomal trafficking regulator gene, causing impaired lysis of bacteria leading to recurrent infections. Other symptoms include easy bruising and ocular albinism.

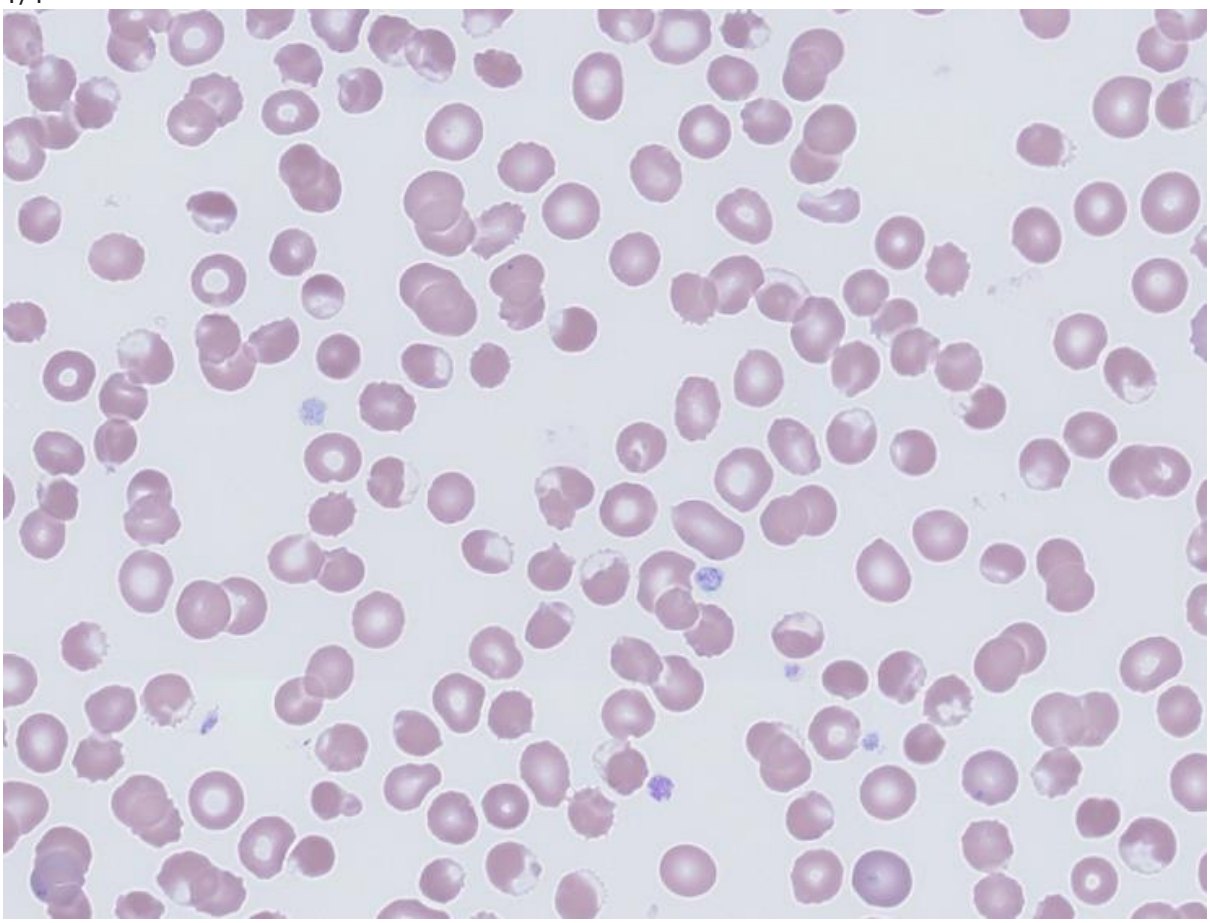
Question 10

1 of 1 points

WBC = 8.0 x 10*9/L

Male child aged 2 years, brought to the emergency department at 2am acutely unwell. *

1/1



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Megaloblastic anaemia
Microangiopathic haemolytic anaemia (MAHA)
Oxidative Haemolysis (due to G6PD deficiency)
Pelger-Huet anomaly
Primary myelofibrosis (PMF)

Sepsis

Not able to suggest a preferred diagnosis

Correct answer

Oxidative Haemolysis (due to G6PD deficiency)

Feedback

The key features of oxidative haemolysis as seen in G6PD deficiency are the irregularly contracted cells (ICC) which are not actually spherocytic but have the haemoglobin condensed with some areas of the cytoplasm damaged or appearing to burst or blister. These damaged red cells are known as bite cells or hemi-ghost cells and if you look carefully there are occasional membranes completely devoid of haemoglobin, these are ghost cells.

In conclusion, participating this quiz allows me to refresh my knowledge in blood morphology (Standard 4). Question with the highest correct rate (Q1) is about infectious mononucleosis (IM), which is a result of Epstein-Barr virus (EBV) infection. IM is a common test performed in the diagnostic haematology laboratory. I will take efforts to re-familiarize myself with leumaemia, lymphoma and myeloma (LLM) morphology, as well as WHO classifications.