

Setup: all data

AV = assigned value

CVE = consensus of the experts

&gt;&gt;&gt; ... expected result

&gt; ... acceptable result

± ... result not assessed

N<sub>tot</sub> = total number of the resultsN<sub>rel</sub> = relative number of the resultsN<sub>eva</sub> = number of the results assessedN<sub>suc</sub> = number of successful resultsS<sub>rel</sub> = relative success

Sample Test Group	Frequency of the results				Success		
	AV	N <sub>tot</sub>	N <sub>rel</sub> [%]	Result	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]

## Photo

## Photo A1

## (941) Object no. 1: type of cell

All results		5	10	Granulopoiesis: Myeloblast			
		10	20	Monocyte pop: Monoblaste			
	CVE >>>	21	42	Monocyte pop: Promonocyte			
		14	28	Other cells: Blast, unclassifiable			

## (943) Object no. 2: type of cell

All results		>	14	28	Erythropoiesis: Basophilic erythroblast		
	CVE >>>		34	68	Erythropoiesis: Polychromatophil erythroblast		
			1	2	Erythropoiesis: Orthochromatic erythroblast		
			1	2	Megakaryopoiesis: Promegakaryocyte		

## (944) Object no. 2: morphology

All results			1	2	Granulopoiesis: Nucleocytoplasmatic asynchrony		
			5	10	Erythropoiesis: Normal finding		
	CVE >>>		40	80	Erythropoiesis: Disturbance of cytoplasmatic haemoglobinisation		
			6	12	Erythropoiesis: Cytoplasmatic vacuolisation		
		>	9	18	Erythropoiesis: Nucleocytoplasmatic asynchrony		
			2	4	Erythropoiesis: Macroerythroblast		
			1	2	Megakaryopoiesis: Micro (mega) karyocyte		

## (945) Object no. 3: type of cell

All results		CVE >>>	50	100	Granulopoiesis: Neutrophil segment		
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## (946) Object no. 3: morphology

All results		CVE >>>	48	96	Granulopoiesis: Hypo-/agranularity		
		>	32	64	Granulopoiesis: Neutrophil and eosinophil hyposegmentation and acquired Pelger-Huët anomaly		
			9	18	Granulopoiesis: Abnormal chromatin clumping		
			1	2	Erythropoiesis: Abnormal chromatin clumping		

## (947) Object no. 4: type of cell

All results		CVE >>>	38	76	Granulopoiesis: Promyelocyte		
		CVE >>>	12	24	Granulopoiesis: Neutrophil myelocyte		

## (948) Object no. 4: morphology

All results			5	10	Granulopoiesis: Normal finding		
			14	28	Granulopoiesis: Hypo-/agranularity		
	CVE >>>		24	48	Granulopoiesis: Neutrophil disgranularity		
			13	26	Granulopoiesis: Cytoplasmatic vacuolisation		
	CVE >>>		13	26	Granulopoiesis: Nucleocytoplasmatic asynchrony		
			2	4	Granulopoiesis: Abnormal/leukemic promyelocyte		

## (949) Object no. 5: type of cell

All results			1	2	Granulopoiesis: Myeloblast		
	CVE >>>		46	92	Erythropoiesis: Proerythroblast		
			2	4	Monocyte pop: Monoblaste		
			1	2	Other cells: Blast, unclassifiable		

## (950) Object no. 5: morphology

All results			2	4	Not specified		
			1	2	Granulopoiesis: Normal finding		
			1	2	Granulopoiesis: Abnormal chromatin clumping		
	CVE >>>		25	50	Erythropoiesis: Normal finding		
		>	9	18	Erythropoiesis: Disturbance of cytoplasmatic haemoglobinisation		
		>	9	18	Erythropoiesis: Cytoplasmatic vacuolisation		
			6	12	Erythropoiesis: Macroerythroblast		
			2	4	Erythropoiesis: Megaloerythroblast		
			1	2	Monocyte pop: Normal finding		

## (951) Overall assessment (photo)

			50			50	33	66
Maximum score achievable:	60 points	Criterion (60 % out of the maximum):	36 points					
Minimum score achieved:	4 points (6,7 %)							
Maximum score achieved:	56 points (93,3 %)							
All results			17	34	Unacceptable result			
		>>>	33	66	Correct result			

Setup: all data

Sample Test Group	Frequency of the results				Success		
	AV	N <sub>tot</sub>	N <sub>rel</sub> [%]	Result	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]

**Photo A2****(941) Object no. 1: type of cell**

All results	CVE >>>	50	100	Other cells: Bare nuclei / smudge cell
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**(943) Object no. 2: type of cell**

All results		3	6	Granulopoiesis: Neutrophil metamyelocyte
		1	2	Granulopoiesis: Atypical granulocyte / myelomonocyte
		1	2	Lymphocyte pop.: Lymphocyte
	CVE >>>	45	90	Monocyte pop: Monocyte

**(944) Object no. 2: morphology**

All results		4	8	Granulopoiesis: Hypo-/agranularity
		1	2	Granulopoiesis: Nucleocytoplasmatic asynchrony
		1	2	Lymphocyte pop.: Reactive lymphocyte
		1	2	Lymphocyte pop.: Cytoplasmatic vacuolisation
	>	21	42	Monocyte pop: Normal finding
	CVE >>>	24	48	Monocyte pop: Atypical/reactive monocyte

**(945) Object no. 3: type of cell**

All results		1	2	Granulopoiesis: Neutrophil myelocyte
	CVE >>>	45	90	Granulopoiesis: Neutrophil metamyelocyte
		3	6	Granulopoiesis: Neutrophil bar
		1	2	Granulopoiesis: Eosinophil metamyelocyte

**(946) Object no. 3: morphology**

All results		2	4	Granulopoiesis: Normal finding
	CVE >>>	46	92	Granulopoiesis: Hypo-/agranularity
		3	6	Granulopoiesis: Neutrophil disgranularity
	>	11	22	Granulopoiesis: Cytoplasmatic vacuolisation
		2	4	Granulopoiesis: Nucleocytoplasmatic asynchrony
		1	2	Granulopoiesis: Megalostabs and megalometamyelocytes
		1	2	Granulopoiesis: Neutrophil and eosinophil hyposegmentation and acquired Pelger-Huët anomaly
		4	8	Granulopoiesis: Abnormal chromatin clumping

**(947) Object no. 4: type of cell**

All results		19	38	Granulopoiesis: Myeloblast
	CVE >>>	3	6	Granulopoiesis: Promyelocyte
	>	14	28	Monocyte pop: Monoblaste
		14	28	Other cells: Blast, unclassifiable

**(949) Object no. 5: type of cell**

All results	CVE >>>	50	100	Granulopoiesis: Neutrophil segment
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**(950) Object no. 5: morphology**

All results		49	98	Granulopoiesis: Hypo-/agranularity
		1	2	Granulopoiesis: Neutrophil disgranularity
		20	40	Granulopoiesis: Neutrophil and eosinophil hyposegmentation and acquired Pelger-Huët anomaly
		7	14	Granulopoiesis: Abnormal chromatin clumping

**(951) Overall assessment (photo)**

		50			50	43	86
Maximum score achievable:	52 points	Criterion (60 % out of the maximum):	32 points				
Minimum score achieved:	8 points (15,4 %)						
Maximum score achieved:	52 points (100 %)						
All results		7	14	Unacceptable result			
	>>>	43	86	Correct result			

**Photo B1****(941) Object no. 1: type of cell**

All results	CVE >>>	50	100	Lymphocyte pop.: Plasmocyte
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**(942) Object no. 1: morphology**

All results	>	41	82	Lymphocyte pop.: Normal lymphocyte/plasmocyte
	>	8	16	Lymphocyte pop.: Pathological plasmocyte/plasmablast
		1	2	Lymphocyte pop.: Cytoplasmatic vacuolisation

**(943) Object no. 2: type of cell**

All results	>	5	10	Lymphocyte pop.: Lymphoblast
	CVE >>>	45	90	Lymphocyte pop.: Lymphocyte

**(944) Object no. 2: morphology**

All results	>	2	4	Not specified
		6	12	Lymphocyte pop.: Normal lymphocyte/plasmocyte
	CVE >>>	41	82	Lymphocyte pop.: Pathological lymphocyte
		1	2	Lymphocyte pop.: Pathological plasmocyte/plasmablast

Setup: all data

Sample Test Group	Frequency of the results				Success		
	AV	N <sub>tot</sub>	N <sub>rel</sub> [%]	Result	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]
<b>(945) Object no. 3: type of cell</b>							
All results	CVE >>>	47	94	Erythropoiesis: Polychromatophil erythroblast			
		3	6	Erythropoiesis: Orthochromatic erythroblast			
<b>(946) Object no. 3: morphology</b>							
All results		1	2	Granulopoiesis: Nucleocytoplasmatic asynchrony			
	CVE >>>	37	74	Erythropoiesis: Normal finding			
	>	11	22	Erythropoiesis: Disturbance of cytoplasmatic haemoglobinisation			
		1	2	Erythropoiesis: Cytoplasmatic vacuolisation			
		2	4	Erythropoiesis: Nucleocytoplasmatic asynchrony			
<b>(947) Object no. 4: type of cell</b>							
All results		>	11	Lymphocyte pop.: Lymphoblast			
	CVE >>>	39	78	Lymphocyte pop.: Lymphocyte			
<b>(948) Object no. 4: morphology</b>							
All results		>	3	Not specified			
		1	2	Lymphocyte pop.: Normal lymphocyte/plasmocyte			
	CVE >>>	44	88	Lymphocyte pop.: Pathological lymphocyte			
		2	4	Lymphocyte pop.: Pathological plasmocyte/plasmablast			
<b>(949) Object no. 5: type of cell</b>							
All results	CVE >>>	46	92	Erythropoiesis: Basophilic erythroblast			
		3	6	Erythropoiesis: Polychromatophil erythroblast			
		1	2	Lymphocyte pop.: Plasmocyte			
<b>(950) Object no. 5: morphology</b>							
All results		1	2	Not specified			
	CVE >>>	43	86	Erythropoiesis: Normal finding			
		4	8	Erythropoiesis: Disturbance of cytoplasmatic haemoglobinisation			
		1	2	Erythropoiesis: Nucleocytoplasmatic asynchrony			
		1	2	Erythropoiesis: Macroerythroblast			
		1	2	Lymphocyte pop.: Normal lymphocyte/plasmocyte			
<b>(951) Overall assessment (photo)</b>							
		50			50	45	90
Maximum score achievable: 56 points		Criterion (60 % out of the maximum): 34 points					
Minimum score achieved: 10 points (17,9 %)							
Maximum score achieved: 56 points (100 %)							
All results		5	10	Unacceptable result			
	>>>	45	90	Correct result			

## Photo B2

<b>(941) Object no. 1: type of cell</b>							
All results	CVE >>>	50	100	Granulopoiesis: Neutrophil segment			
<b>(942) Object no. 1: morphology</b>							
All results		1	2	Not specified			
	CVE >>>	36	72	Granulopoiesis: Normal finding			
		10	20	Granulopoiesis: Hypergranularity/toxic granulation			
		2	4	Granulopoiesis: Neutrophil disgranularity			
		3	6	Granulopoiesis: Neutrophil hypersegmentation			
		1	2	Granulopoiesis: Abnormal chromatin clumping			
		1	2	Lymphocyte pop.: Cytoplasmatic vacuolisation			
<b>(943) Object no. 2: type of cell</b>							
All results		>	12	Lymphocyte pop.: Lymphoblast			
	CVE >>>	37	74	Lymphocyte pop.: Lymphocyte			
		1	2	Other cells: Blast, unclassifiable			
<b>(944) Object no. 2: morphology</b>							
All results		>	6	Not specified			
		1	2	Lymphocyte pop.: Normal lymphocyte/plasmocyte			
	CVE >>>	42	84	Lymphocyte pop.: Pathological lymphocyte			
		1	2	Lymphocyte pop.: Pathological plasmocyte/plasmablast			
<b>(945) Object no. 3: type of cell</b>							
All results	CVE >>>	50	100	Lymphocyte pop.: Lymphocyte			
<b>(946) Object no. 3: morphology</b>							
All results		1	2	Not specified			
		1	2	Granulopoiesis: Normal finding			
	CVE >>>	46	92	Lymphocyte pop.: Normal lymphocyte/plasmocyte			
		2	4	Lymphocyte pop.: Pathological lymphocyte			
<b>(947) Object no. 4: type of cell</b>							
All results	CVE >>>	50	100	Granulopoiesis: Neutrophil bar			

Setup: all data

Sample Test Group	Frequency of the results			Success			
	AV	N <sub>tot</sub>	N <sub>rel</sub> [%]	Result	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]
<b>(948) Object no. 4: morphology</b>							
All results			1	2			
	CVE >>>	44	88	Granulopoiesis: Normal finding			
		2	4	Granulopoiesis: Hypo-/agranularity			
		1	2	Granulopoiesis: Neutrophil disgranularity			
		1	2	Granulopoiesis: Nucleocytoplasmatic asynchrony			
		1	2	Granulopoiesis: Megalostabs and megalometamyelocytes			
<b>(949) Object no. 5: type of cell</b>							
All results		2	4	Erythropoiesis: Basophilic erythroblast			
	CVE >>>	47	94	Erythropoiesis: Polychromatophil erythroblast			
		1	2	Erythropoiesis: Orthochromatic erythroblast			
<b>(950) Object no. 5: morphology</b>							
All results		1	2	Granulopoiesis: Nucleocytoplasmatic asynchrony			
	CVE >>>	30	60	Erythropoiesis: Normal finding			
	>	18	36	Erythropoiesis: Disturbance of cytoplasmatic haemoglobinisation			
		3	6	Erythropoiesis: Cytoplasmatic vacuolisation			
		1	2	Erythropoiesis: Nucleocytoplasmatic asynchrony			
<b>(951) Overall assessment (photo)</b>							
		50			50	45	90
Maximum score achievable: 60 points Criterion (60 % out of the maximum): 36 points							
Minimum score achieved: 26 points (43,3 %)							
Maximum score achieved: 60 points (100 %)							
All results		5	10	Unacceptable result			
	>>>	45	90	Correct result			

**General view****Patient A**

<b>(955) Cellularity</b>							
All results		1	2	Normocellular			
	CVE >>>	48	96	Hypercellular			
		1	2	Hypocellular			
<b>(956) Granulopoiesis - count</b>							
All results		>	22	44	Within physiological limits		
	CVE >>>	28	56	Increased			
<b>(957) Granulopoiesis - morphology</b>							
All results		CVE >>>	46	92	Dysplastic granulopoiesis		
			4	8	Pathological (clonal) granulopoiesis		
<b>(958) Erythropoiesis - count</b>							
All results		CVE >>>	37	74	Within physiological limits		
			1	2	Increased		
		>	12	24	Decreased		
<b>(959) Erythropoiesis - morphology</b>							
All results		CVE >>>	3	6	No significant changes		
			47	94	Dysplastic erythropoiesis		
<b>(960) Lymphopoiesis - count</b>							
All results			9	18	Within physiological limits		
			1	2	Increased		
	CVE >>>	40	80	Decreased			
<b>(961) Lymphopoiesis - morphology</b>							
All results			1	2	Not specified		
	CVE >>>	48	96	No significant changes			
			1	2	Pathological lymphopoiesis		
<b>(962) Monocytopoiesis - count</b>							
All results			7	14	Within physiological limits		
	CVE >>>	43	86	Increased			
<b>(963) Monocytopoiesis - morphology</b>							
All results			7	14	No significant changes / reactive changes		
	CVE >>>	43	86	Pathological monocytopoiesis			
<b>(964) Megakaryopoiesis - count</b>							
All results		>	29	58	Within physiological limits		
	CVE >>>	21	42	Increased			
<b>(965) Megakaryopoiesis - morphology</b>							
All results			3	6	No significant changes		
	CVE >>>	45	90	Dysplastic megakaryopoiesis			
			2	4	Pathological (clonal) megakaryopoiesis		
<b>(966) Estimation of diagnosis</b>							
All results			1	2	CML (chronic myelogenous leukaemia)		
			7	14	MDS-MLD (MDS with multilineage dysplasia)		

Setup: all data

Sample Test Group	Frequency of the results				Success		
	AV	N <sub>tot</sub>	N <sub>rel</sub> [%]	Result	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]
		1	2	MDS-EB (MDS with excess blasts)			
		1	2	Myelodysplastic syndrome (unclassifiable)			
	CVE >>>	35	70	CMML (chronic myelomonocytic leukaemia)			
		1	2	Others (atypical CML, juvenile myelomonocytic leukaemia, unclassifiable)			
		2	4	Acute myeloid leukaemia - all types according to WHO (excl. APL)			
		1	2	APL (acute promyelocytic leukaemia)			
		1	2	Plasma cell myelom/MGUS			
(967) Summary assessment (description)		50			50	39	78
Maximum score achievable: 26 points	Criterion (60 % out of the maximum):	16 points					
Minimum score achieved: 4 points (15,4 %)							
Maximum score achieved: 26 points (100 %)							
All results		11	22	Unacceptable result			
	>>>	39	78	Correct result			

**Patient B****(955) Cellularity**

All results	>	20	40	Normocellular
		1	2	Hypercellular
	CVE >>>	29	58	Hypocellular

**(956) Granulopoiesis - count**

All results	>	23	46	Within physiological limits
		1	2	Increased
	CVE >>>	26	52	Decreased

**(957) Granulopoiesis - morphology**

All results	CVE >>>	39	78	No significant changes
		4	8	Dysplastic granulopoiesis
		1	2	Megaloblastic granulopoiesis
	>	5	10	Atypical/toxic granulopoiesis
		1	2	Pathological (clonal) granulopoiesis

**(958) Erythroipoiesis - count**

All results	CVE >>>	37	74	Within physiological limits
	>	13	26	Decreased

**(959) Erythroipoiesis - morphology**

All results	CVE >>>	44	88	No significant changes
		5	10	Dysplastic erythroipoiesis
		1	2	Atypical erythroipoiesis

**(960) Lymphopoiesis - count**

All results		2	4	Within physiological limits
	CVE >>>	47	94	Increased
		1	2	Decreased

**(961) Lymphopoiesis - morphology**

All results	CVE >>>	50	100	Pathological lymphopoiesis
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**(964) Megakaryopoiesis - count**

All results	CVE >>>	50	100	Within physiological limits
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**(965) Megakaryopoiesis - morphology**

All results	CVE >>>	42	84	No significant changes
		4	8	Dysplastic megakaryopoiesis
		4	8	Atypical megakaryopoiesis

**(966) Estimation of diagnosis**

All results		1	2	Primary myelofibrosis
	>	3	6	Precursor B a T lymphoblastic neoplasmata
		2	4	Acute leukaemia, unclassifiable
		1	2	DLBCL (diffuse large B-cell lymphoma)
		1	2	Follicular lymphoma
	CVE >>>	32	64	Mantle cell lymphoma
		1	2	Lymphoplasmacytic lymphoma / M.Waldenström
	>	9	18	Mature B and T lymphocytes neoplasms (unclassifiable)

**(967) Summary assessment (description)**

		50			50	41	82
Maximum score achievable: 22 points	Criterion (60 % out of the maximum):	14 points					
Minimum score achieved: 3 points (13,6 %)							
Maximum score achieved: 22 points (100 %)							
All results		9	18	Unacceptable result			
	>>>	41	82	Correct result			

EQA round: NKDF1/23 - Bone Marrow Aspirate Film

Deadline: 26.5.2023

Setup: all data

Sample Test Group	Frequency of the results				Success		
	AV	N <sub>tot</sub>	N <sub>rel</sub> [%]	Result	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]

Summary for all samples							
(951)	Overall assessment (photo)		50		50	43	86
(967)	Summary assessment (description)		50		50	34	68