

Case 13

A 19-year-old young man who has had a sore throat and a fever for a week. There is greyish-white coating on the swollen tonsils. There is lymphadenopathy on the neck. Spleen is palpable.

Parameter	Value	Abn	Reference interval
WBC	15.89 G/l	H	4–10 G/l
Neutrophil	%		40–70 %
Neutrophil (abs)	3.44 G/l		2.0–6.9 G/l
Lymphocyte	%		20–40 %
Monocyte	%		2–6 %
Eosinophil	%		0–5 %
Basophil	%		0–1 %
RBC	5.61 T/l		4.5–5.9 T/l
Hemoglobin	166 g/l		135–170 g/l
HCT	0.49		0.39–0.52
MCV	86.9 fl		80–99 fl
MCH	29.6 pg		27–34 pg
MCHC	340 g/l		315–360 g/l
RDW	14.8 %		11.5–15.0 %
Reticulocyte	1 %		0.5–2 %
Reticulocyte (abs)	56.1 G/l		30–100 G/l
PLT	195 G/l		150–400 G/l
MPV	8.2 fl		7.0–12.5 fl
Glucose	5.2 mmol/l		3.5–5.9 mmol/l
Sodium	138 mmol/l		135–146 mmol/l
Potassium	4.1 mmol/l		3.5–5.1 mmol/l
Creatinine	82 µmol/l		40–130 µmol/l
eGFR	>90.0 ml/min		> 60 ml/min
Se uric acid	365 µmol/l		150–400 µmol/l
T. bilirubin	21.7 µmol/l	H	< 20 µmol/l
D. bilirubin	8.4 µmol/l	H	< 3.4 µmol/l
GOT	383 U/l	H	< 50 U/l
GPT	627 U/l	H	< 50 U/l
ALP	386 U/l	H	< 120 U/l
GGT	291 U/l	H	< 55 U/l
LDH	892 U/l	H	< 170 U/l
CRP	25.92 mg/l	H	< 8 mg/l

Case 14

A 77-year-old man who has been monitored in the hematological ambulance since 2009. There is no palpable lymphadenopathy or splenomegaly. There are no general symptoms like weight loss, sweating or fever. There is no increased susceptibility for infections. Drug therapy was not required for him yet.

Parameter	Value	Abn	Reference interval
WBC	100.9 G/l	H	4–10 G/l
Neutrophil	6.6 %	L	40–70 G/l
Neutrophil (abs)	6.71 G/l		1.8–7.0 G/l
RBC	4.41 T/l	L	4.5–5.9 T/l
Hemoglobin	133 g/l	L	135–170 g/l
HCT	0.39		0.39–0.52
MCV	87.6 fl		80–99 fl
MCH	30.3 pg		27–34 pg
MCHC	346 g/l		315–360 g/l
RDW	15.3 %	H	11.5–15.0 %
Reticulocyte	1.8 %		0.5–2 %
Reticulocyte (abs)	77.7 G/l		30–100 G/l
PLT	104 G/l	L	150–400 G/l
MPV	8.8 fl		7.0–12.5 fl

Peripheral blood flow cytometry:

There is a lymphocytosis of 74% in the peripheral blood. 63% of all the cells coexpress CD19–CD5–CD23, they are κ monoclonal B cells with low intensity of CD20 expression. These cells are practically free of the CD38 epitope.

Pathophysiology: hematology cases

Case 15

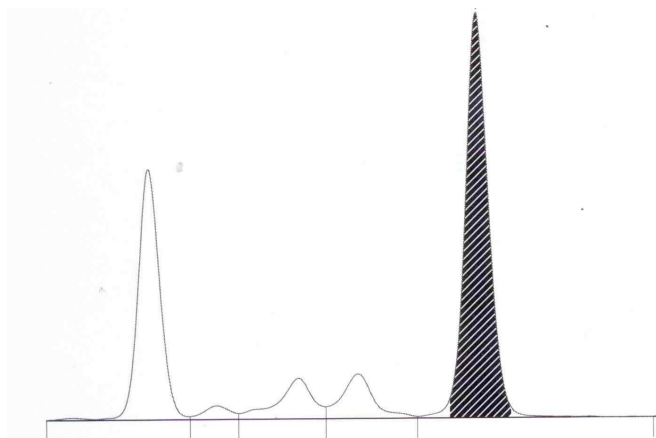
A 59-year-old man complains of being very weak and having significant pain in the lower back. He had a long lasting pneumonia two months ago.

Parameter	Value	Abn	Reference interval
WBC	7.29 G/l		4–10 G/l
Neutrophil	56.3 %		40–70 %
Neutrophil (abs)	4.10 G/l		1.8–7.0 G/l
Lymphocyte	29.1 %		20–40 %
Monocyte	9.7 %		2–6 %
Eosinophil	4.4 %		0–5 %
Basophil	0.5 %		0–1 %
RBC	3.16 T/l	L	4.5–5.9 T/l
Hemoglobin	94 g/l	L	135–170 g/l
HCT	0.29	L	0.39–0.52
MCV	92.4 fl		80–99 fl
MCH	29.7 pg		27–34 pg
MCHC	322 g/l		315–360 g/l
RDW	13.8 %		11.5–15.0 %
PLT	258 G/l		150–400 G/l
MPV	8.9 fl		7.0–12.5 fl
ESR	103 mm/h	H	< 20 mm/h
Glucose	5.3 mmol/l		4.1–5.9 mmol/l
Sodium	129 mmol/l	L	135–146 mmol/l
Potassium	4.4 mmol/l		3.5–5.1 mmol/l
BUN	7.4 mmol/l	H	3.5–7.0 mmol/l
Creatinine	89 µmol/l		40–130 µmol/l
eGFR	81.5 ml/min	L	> 60 ml/min
Se uric acid	496 µmol/l	H	150–400 µmol/l
Calcium	2.18 mmol/l	L	2.20–2.65 mmol/l
ALP	69 U/l		< 120 U/l
LDH	176 U/l		< 170 U/l
Total protein	122.6 g/l	H	66–83 g/l
β ₂ -microglobulin	4.5 mg/l	H	0.9–2.0 mg/l
CRP	3.61 mg/l		< 8 mg/l

Immunoglobulins and SPEP (serum protein electrophoresis):

Parameter	Value	Abn	Reference interval
IgG	76.87 g/l	H	7.0–16.0 g/l
IgA	0.24 g/l	L	0.7–4.0 g/l
IgM	0.10 g/l	L	0.4–2.3 g/l
Albumin	30.5 %	L	60–71 %
α_1 -globulin	2.0 %		1.4–2.9 %
α_2 -globulin	7.8 %		7–11 %
β -globulin	7.7 %	L	8–13 %
γ -globulin	52.0 %	H	9–16 %
A/G	0.44	L	1.5–2.0

There is an M-component in the γ -fraction: 62.04 g/l



Serum immunofixation:

Monoclonal κ -type IgG paraprotein is detected by immunofixation.
The normal immunoglobulin production is suppressed.