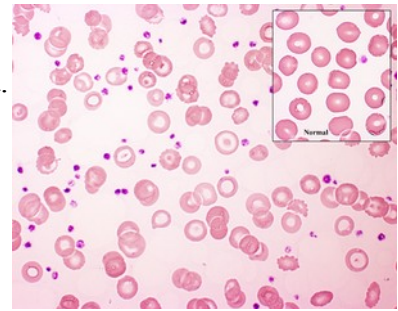


Case 2

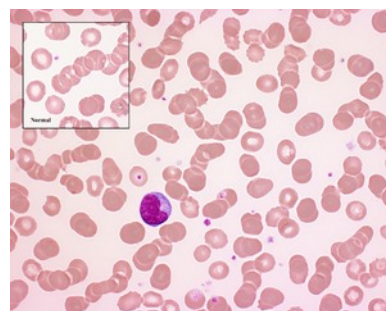
A 48-year-old woman is referred to the clinic because of anemia. Her hair is thinning and it is brittle. Her nails are flattened and brittle. Her period lasts 8–9 days, during which she loses significant amount of blood, and suffers from cramps.



Parameter	Value	Abn	Reference interval
WBC	11.04 G/l	H	4–10 G/l
Neutrophil	51.3 %		40–70 %
Neutrophil (abs)	5.67 G/l		1.8–7.0 G/l
Lymphocyte	33.9 %		20–40 %
Monocyte	11.8 %	H	2–6 %
Eosinophil	1.9 %		0–5 %
Basophil	1.1 %	H	0–1 %
RBC	4.26 T/l		4.0–5.2 T/l
Hemoglobin	71 g/l	L	120–150 g/l
HCT	0.26	L	0.34–0.45
MCV	61.0 fl	L	80–99 fl
MCH	16.7 pg	L	27–34 pg
MCHC	273 g/l	L	315–360 g/l
RDW	19.8 %	H	11.5–15.0 %
PLT	1174 G/l	H	150–400 G/l
MPV	9.8 fl		7.0–12.5 fl
Reticulocyte	0.9 %		0.5–2 %
Reticulocyte (abs)	39.2 G/l		30–100 G/l
Iron	2.8 µmol/l	L	11–32 µmol/l
Transferrin	4.12 g/l	H	2.0–3.6 g/l
Transferrin saturation	3 %	L	16–45 %
Soluble TfR	12.6 mg/l	H	1.9–4.4 mg/l
Ferritin	9 µg/l	L	10–120 µg/l
LDH	176 U/l	H	<170 U/l
CRP	1.2 mg/l		<8 mg/l

Case 3

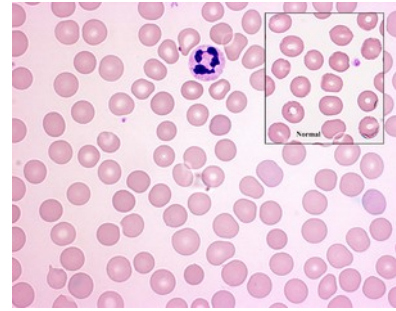
A 77-year-old woman was admitted to the hospital due to having a temperature (occasionally fever) for many months, weight loss and bad headaches on both sides in the frontal area.



Parameter	Value	Abn	Reference interval
WBC	6.28 G/l		4–10 G/l
Neutrophil	62.2 %		40–70 %
Neutrophil (abs)	3.91 G/l		1.8–7.0 G/l
Lymphocyte	26.8 %		20–40 %
Monocyte	7.5 %	H	2–6 %
Eosinophil	2.7 %		0–5 %
Basophil	0.8 %		0–1 %
RBC	3.18 T/l	L	4.0–5.2 T/l
Hemoglobin	93 g/l	L	120–150 g/l
HCT	0.30	L	0.34–0.45
MCV	94.3 fl		80–99 fl
MCH	29.2 pg		27–34 pg
MCHC	310 g/l	L	315–360 g/l
RDW	13.0 %		11.5–15.0 %
PLT	456 G/l	H	150–400 G/l
MPV	11.2 fl		7.0–12.5 fl
Reticulocyte	1.9 %		0.5–2 %
Reticulocyte (abs)	60.7 G/l		30–100 G/l
Iron	17.5 µmol/l		11–32 µmol/l
Transferrin	1.53 g/l	L	2.0–3.6 g/l
Transferrin saturation	53 %	H	16–45 %
Ferritin	231 µg/l	H	10–120 µg/l
LDH	264 U/l	H	<170 U/l
CRP	153.56 mg/l	H	<8 mg/l
ESR	115 mm/h	H	1–20 mm/h

Case 4

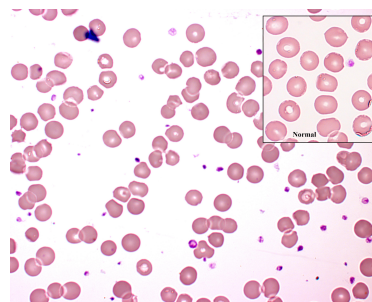
A 45-year-old man was admitted to hospital because an increased waist circumference and edema of the legs. He has been drinking 10 cans of beer and 5 shots per day for 15 years.



Parameter	Value	Abn	Reference interval
WBC	7.03 G/l		4–10 G/l
Neutrophil	63.9 %		40–70 %
Neutrophil (abs)	4.49 G/l		1.8–7.0 G/l
Lymphocyte	18.9 %	L	20–40 %
Monocyte	15.8 %	H	2–6 %
Eosinophil	0.7 %		0–5 %
Basophil	0.7 %		0–1 %
RBC	3.3 T/l	L	4.5–5.9 T/l
Hemoglobin	127 g/l	L	135–170 g/l
HCT	0.38	L	0.39–0.52
MCV	113.6 fl	H	80–99 fl
MCH	38.5 pg	H	27–34 pg
MCHC	339 g/l		315–360 g/l
RDW	13.7 %		11.5–15.0 %
PLT	116 G/l	L	150–400 G/l
MPV	9.8 fl		7.0–12.5 fl
Reticulocyte	1.0 %		0.5–2 %
Reticulocyte (abs)	33.0 G/l		30–100 G/l
Prothrombin	46 %	L	75–125 %
INR	1.49	H	0.85–1.20
T. bilirubin	123.0 µmol/l	H	<20 µmol/l
D. bilirubin	51.7 µmol/l	H	<3.4 µmol/l
GOT	119 U/l	H	<50 U/l
GPT	49 U/l		<50 U/l
GGT	362 U/l	H	<55 U/l
ALP	226 U/l	H	<120 U/l
LDH	232 U/l	H	<170 U/l
ESR	38 mm/h	H	1–20 mm/h
Vitamin B ₁₂	703 pmol/l	H	138–652 pmol/l
Folic acid	13.4 nmol/l		7.0–46.4 nmol/l
Albumin	27.5 g/l	L	35–52 g/l

Case 5

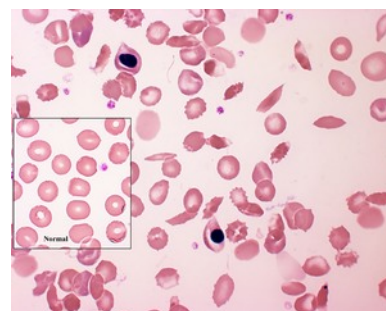
A 50-year-old man. He was anemic all the time as a child, his sclera was frequently yellowish. His father and grandfather was anemic as well. He had splenectomy at the age of 16, he is less anemic since then.



Parameter	Value	Abn	Reference interval
WBC	5.62 G/l		4–10 G/l
Neutrophil	36.2 %	L	40–70 %
Neutrophil (abs)	2.04 G/l		1.8–7.0 G/l
Lymphocyte	47.9 %	H	20–40 %
Monocyte	13.7 %	H	2–6 %
Eosinophil	2.0 %		0–5 %
Basophil	0.2 %		0–1 %
RBC	4.36 T/l	L	4.5–5.9 T/l
Hemoglobin	124 g/l	L	135–170 g/l
HCT	0.38	L	0.39–0.52
MCV	86.5 fl		80–99 fl
MCH	28.4 pg		27–34 pg
MCHC	329 g/l		315–360 g/l
RDW	17.4 %	H	11.5–15.0 %
PLT	434 G/l	H	150–400 G/l
MPV	9.2 fl		7.0–12.5 fl
Reticulocyte	2.6 %	H	0.5–2 %
Reticulocyte (abs)	113.4 G/l	H	30–100 G/l
T. bilirubin	40.7 µmol/l	H	<20 µmol/l
D. bilirubin	2.6 µmol/l		<3,4 µmol/l
LDH	275 U/l	H	<170 U/l
Haptoglobin	0.25 g/l	L	0.3–2.0 g/l

Case 6

An 18-year-old woman has been admitted to the ED. She has been complaining of a very intense abdominal pain and weakness for a day. She is a refugee who arrived two weeks ago from a Sub-Saharan country.



Parameter	Value	Abn	Reference interval
WBC	15.63 G/l	H	4–10 G/l
Neutrophil	46.0 %		40–70%
Neutrophil (abs)	7.19 G/l	H	2.0–6.9 G/l
Lymphocyte	36.5 %		20–40 %
Monocyte	8.5 %	H	2–6 %
Eosinophil	8.6 %	H	0–5 %
Basophil	0.4 %		0–1 %
RBC	2.30 T/l	L	4.1–5.1 T/l
Hemoglobin	72 g/l	L	123–153 g/l
HCT	0.21	L	0.35–0.45
MCV	90.9 fl		80–99 fl
MCH	31.2 pg		27–34 pg
MCHC	344 g/l		315–360 g/l
RDW	23.5 %	H	11.6–14.8 %
PLT	443 G/l	H	150–400 G/l
MPV	7.9 fl		6.5–12.0 fl
Reticulocyte	18.3 %	H	0.5–2 %
Reticulocyte (abs)	421.5 G/l	H	30–100 G/l
T. bilirubin	33.0 µmol/l	H	<20 µmol/l
D. bilirubin	5.8 µmol/l	H	<3.4 µmol/l
LDH	540 U/l	H	<170 U/l
Haptoglobin	too low to measure		0.3–2.0 g/l
Direct Coombs test	negative		

Case 7

A middle aged man complains of reduced tolerance of physical activity and effort dyspnea. His general appearance, however, is fine. His hair and beard are white, throughout his body he has hypopigmented areas. He noticed to develop hypopigmented areas 30 years ago, which got larger and more numerous. His tongue is smooth, shiny and sensitive.

Parameter	Value	Abn	Reference interval
WBC	4.13 G/l		4–10 G/l
Neutrophil	57.4 %		40–70%
Lymphocyte	37.5 %		20–40 %
Monocyte	1.2 %	L	2–6 %
Eosinophil	3.9 %		0–5 %
Basophil	0.0 %		0–1 %
RBC	1.09 T/l	L	4.10–5.10 T/l
Hemoglobin	48 g/l	L	123–153 g/l
HCT	0.13	L	0.35–0.45
MCV	122.9 fl	H	80–99 fl
MCH	44.0 pg	H	27–34 pg
MCHC	358 g/l		315–360 g/l
RDW	18.9 %	H	11.6–14.8 %
PLT	114 G/l	L	150–400 G/l
MPV	11.1 fl		6.5–12.0 fl
Reticulocyte	1.4 %		0.5–2.0 %
Reticulocyte (abs)	15.3 G/l	L	30–100 G/l
Iron	40.3 µmol/l	H	13–32 µmol/l
Transferrin	2.0 g/l		2.0–3.6 g/l
Transferrin saturation	79 %	H	16–45 %
Soluble TfR	4.7 mg/l		2.2–5.0 mg/l
Ferritin	421 µg/l	H	20–250 µg/l
Vitamin B ₁₂	<61 pmol/l	L	138–652 pmol/l
Folic acid	34.6 nmol/l		7.0–46.4 nmol/l
T. bilirubin	30.8 µmol/l	H	<20 µmol/l
D. bilirubin	6.9 µmol/l	H	<3.4 µmol/l
LDH	2777 U/l	H	<170 U/l
Haptoglobin	< 0.2 g/l	L	0.3–2.0 g/l
Direct Coombs test	negative		