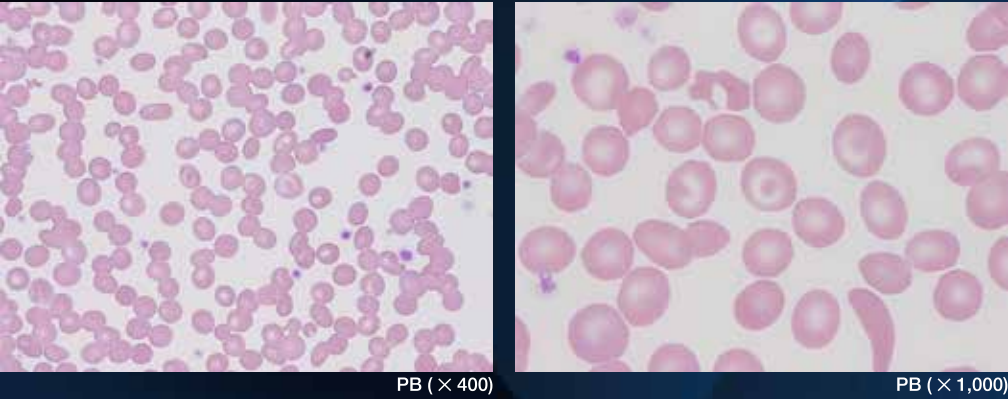


Case 8

β-thalassemia

A male in his 40s from South Asia who was diagnosed with β-thalassemia in his 20s visited the hospital for an auricular tumour.

Blood smear (May-Giemsa staining)



Visual differential counts

	(%)
Blast	0.0
Promyelo	0.0
Myelo	0.0
Meta	0.0
Band	2.0
Seg	61.0
Eosino	5.0
Baso	1.0
Mono	6.0
Lympho	25.0
Reactive-Ly	0.0
Other	0.0
NRBC	0.0

Celltac Data

Numerical results

WBC	5.28		10 ³ /μL
RBC	5.43	*	10 ⁶ /μL
HGB	10.44	L	g/dL
HCT	32.8	L	%
MCV	60.4	L	fL
MCH	19.2	L	pg
MCHC	31.8	L	g/dL
RDW-CV	15.6	H	%
RDW-SD	37.7	L	fL
PLT	411.9	*	10 ³ /μL
PCT	0.41	H	%
MPV	10.0		fL
PDW	19.1	H	%
P-LCR	54.4		%
P-LCC	224.1	H	10 ³ /μL
NE	2.90		10 ³ /μL
LY	1.71		10 ³ /μL
MO	0.29		10 ³ /μL
EO	0.33		10 ³ /μL
BA	0.05		10 ³ /μL
NE%	54.71		%
LY%	32.46		%
MO%	5.56		%
EO%	6.32		%
BA%	0.95		%
RET	0.1352		10 ⁶ /μL
RET%	2.49		%
IRF	7.8		%
LFR	92.2		%
MFR	7.0		%
HFR	0.8		%

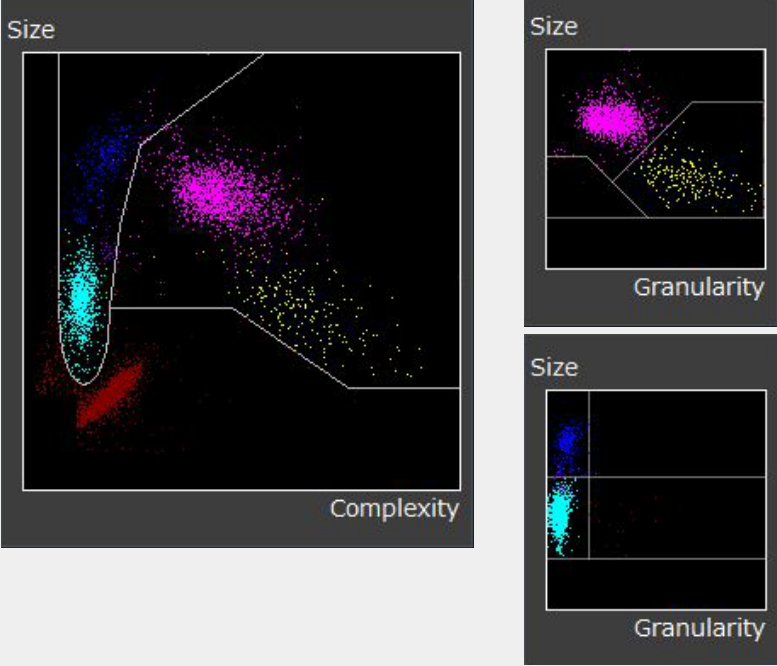
Flags

Morphological Flags	Numerical Flags
	Microcytosis
	PLT-RBC Interference

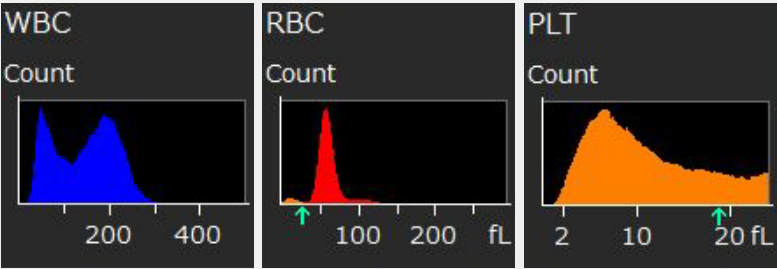
@Research use only

@Mentzer Index	11
@RDWI	172

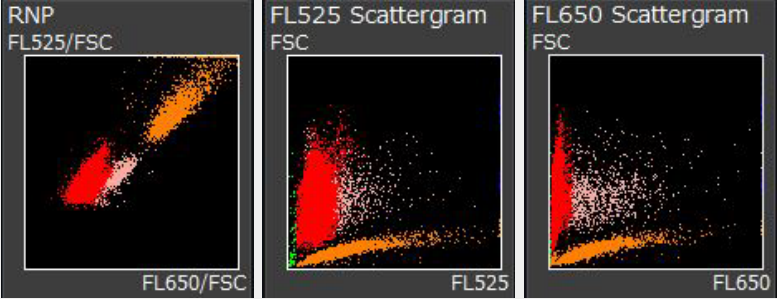
Scattergrams



Histograms



RET Scattergrams



Explanation of scattergram/histogram

Low HGB and MCV levels suggest microcytic hypochromic anemia. A “Microcytosis” flag indicating this is shown. Additionally, the “PLT-RBC Interference” flag indicates interference by platelets and RBCs, suggesting the presence of schistocytes and small RBCs. The Mentzer Index* of 11 and red cell distribution width index (RDWI**) of 172, which are reference items related to β-thalassemia and iron deficiency anemia, respectively, are indicative of thalassemia, although these items are for research use only.

* Mentzer Index = MCV/RBC²⁾
<13: suspect thalassemia
13<: thalassemia is less likely

** RDWI = MCV x RDW/RBC³⁾
<220: suspect thalassemia
220<: thalassemia is less likely

Reference
*2) Differentiation of iron deficiency from thalassemia trait. The Lancet. 1973;1(7808):p. 882. PMID: 4123424
*3) Vehapoglu A, Ozgurhan G, Demir AD, Uzuner S, Nursoy MA, Turkmen S, et al. Hematological indices for differential diagnosis of beta thalassemia trait and iron deficiency anemia. Anemia. 2014;10(5):1–7. doi:10.1155/2014/576738.

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Explanation of case

A complete blood count revealed microcytic anemia. The RBC was 5.43 ×10⁶/μL and the MCV was 60.4 fL. The Mentzer Index (MCV/RBC), which is useful for diagnosing thalassemia, was calculated as 60.4 ÷ 5.43 = 11.1. These results appear consistent with thalassemia. A Mentzer index value of less than 13 has been reported to indicate a sensitivity of 98.7% and a specificity of 82.3% for detecting the β-thalassemia trait.^{*)} The peripheral blood smear showed target cell scattering in the erythrocyte morphology. The blood findings were consistent with thalassemia.

*) Reference: Hematological indices for differential diagnosis of Beta thalassemia trait and iron deficiency anemia. Anemia. 2014; 2014: 576738. PMID: 24818016