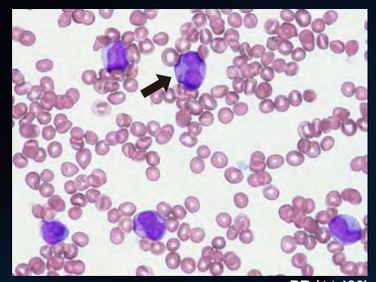
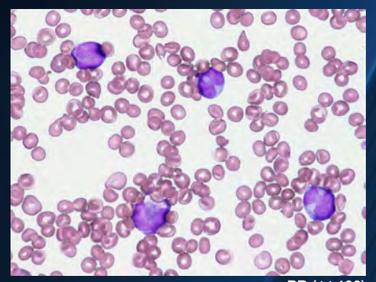
Case 7

AML-M3, Hypogranular Variant

A female patient, age in her 30s, visited a general practitioner after experiencing gingival bleeding and purpura. A complete blood count showed leucocytosis, anemia, and thrombocytopenia, and thus a blood disorder was suspected and the patient was referred to the hospital.

Blood smear (May-Giemsa staining)


PB (×400)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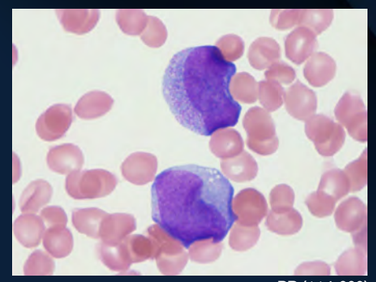
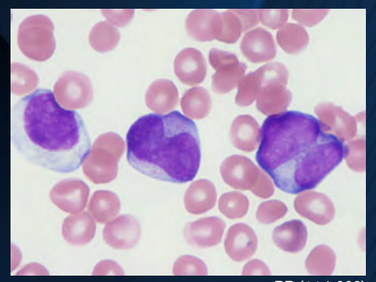
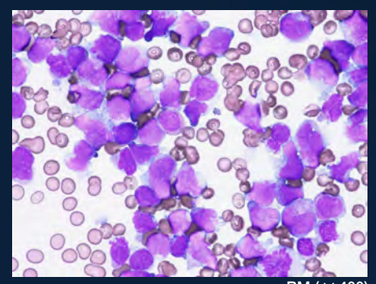
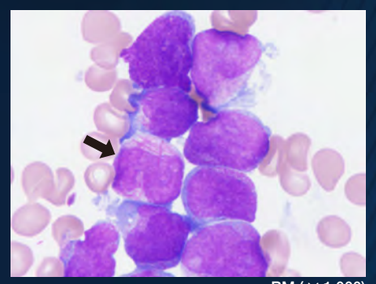
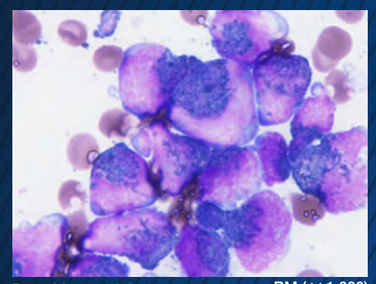

PB (×1,000)


PB (×1,000)


BM (×400)


BM (×1,000)


Peroxidase staining

BM (×1,000)

Visual differential counts

Blast	5.0
Promyelo	75.0
Myelo	0.0
Meta	0.0
Band	0.0
Seg	6.0
Eosino	0.0
Baso	0.0
Mono	2.0
Lympho	12.0
At-Ly	0.0
NRBC	0.0
Other	0.0

Explanation of case

A complete blood count showed leucocytosis, anemia, and thrombocytopenia. Peripheral blood images showed Auer bodies and abnormal cells with a butterfly-shaped nuclei. Bone marrow images showed abnormal cells and faggot cells similar to those in peripheral blood. Genetic testing revealed *PML*::*RARA* positivity, and chromosome testing revealed t (15;17). Therefore, this patient was diagnosed with acute premyelocyte leukaemia with *PML*::*RARA*.

- Peripheral blood: large, basophilic cytoplasm with fine granules and some Auer bodies (↑) were observed. Nuclei were observed to have a butterfly-like shape with a constricted center.
- Bone marrow: The cell density was hyperplastic, with some showing a butterfly-like shape similar to peripheral blood or irregular nuclei. Fine granules were observed in the cytoplasm, and some cells had bundles of Auer bodies (faggot cells) (↑). These cells showed strong positivity in MPO staining.

Celltac Data

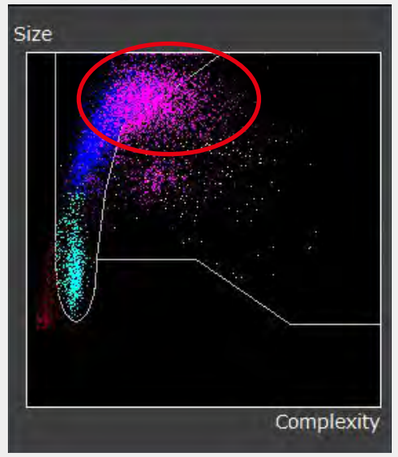
Numerical results

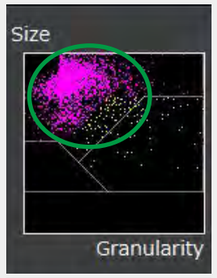
WBC	11.51	H	$10^3/\mu L$
RBC	2.10	*	$10^6/\mu L$
HGB	6.81	L	g/dL
HCT	18.9	L	%
MCV	90.0		fL
MCH	32.4		pg
MCHC	36.0	H	g/dL
RDW-CV	14.5		%
RDW-SD	52.2		fL
PLT	15.7	*	$10^3/\mu L$
PCT	0.02	L	%
MPV	9.6		fL
PDW	20.9	H	%
P-LCR	51.7		%
P-LCC	8.1	L	$10^3/\mu L$
NE	4.92	*	$10^3/\mu L$
LY	1.15	*	$10^3/\mu L$
MO	5.13	*	$10^3/\mu L$
EO	0.19	*	$10^3/\mu L$
BA	0.12	*	$10^3/\mu L$
NE%	42.77	*	%
LY%	9.96	*	%
MO%	44.56	*	%
EO%	1.68	*	%
BA%	1.03	*	%
RET	0.0806		$10^6/\mu L$
RET%	3.84	H	%
IRF	27.9	H	%
LFR	72.1	L	%
MFR	16.7	H	%
HFR	11.2	H	%

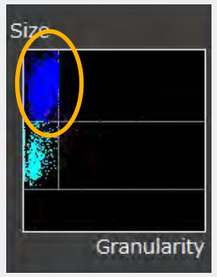
Flags

Morphological Flags	Numerical Flags
Blast	Monocytosis
Immature Granulocyte	Anemia
Left Shift	Thrombocytopenia
Atypical Ly	PLT-RBC Interference
Ly-Mo Interference	

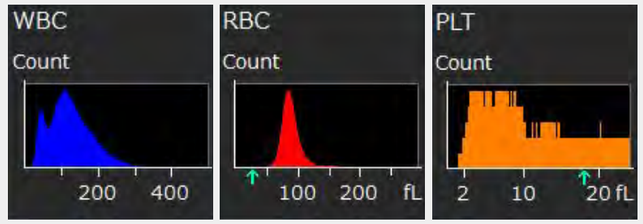
Scattergrams



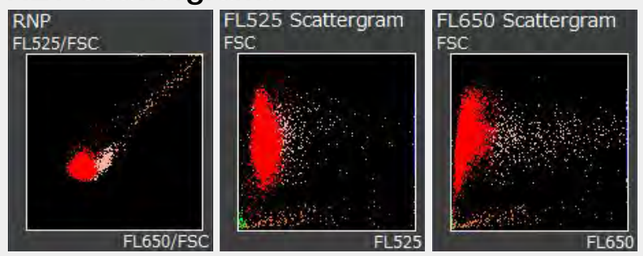




Histograms



RET Scattergrams



Explanation of scattergram/histogram

The neutrophil plot on the MAIN scattergram showed a left shift (○), and the neutrophil plot on the NE-EO scattergram showed a distribution that extends upwards (○), suggesting the appearance of young cells. The “Immature Granulocyte” flag was displayed to indicate this. Additionally, the monocyte plot on the MO-BA scattergram showed an abnormal distribution extending upwards to the blast flag detection area (○), suggesting the appearance of blasts. The “Blast” flag was displayed to indicate this.

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