Riverbend Regional Medical Center

Department of Pathology & Laboratory Medicine
1200 Halsted Avenue, Lakeshore, IL 60000 • CLIA 14D9999999

HEMATOPATHOLOGY — BONE MARROW EXAMINATION

Patient: DOE, JONATHAN R.	**Accession:** S26-BM-01187
MRN: MRN-4471902	**Collected:** 2026-04-22
DOB / Age / Sex: 1967-09-14 / 58 y / Male	**Reported:** 2026-04-24
Ordering provider: Patel, Anjali R., MD (Hematology/Oncology)	**Location:** Inpatient — 6 West Hematology

SPECIMEN

Bone marrow, left posterior iliac crest (aspirate and core biopsy). Aspirate smears (Wright-Giemsa), clot section, and decalcified core biopsy (H&E) received. Aspirate also submitted for flow cytometry, cytogenetics, and molecular studies under separate accession.

CLINICAL HISTORY

58-year-old man with three weeks of progressive fatigue, dyspnea on exertion, gingival bleeding, and scattered lower-extremity ecchymoses. CBC on admission: WBC 38.4 x10^9/L, hemoglobin 7.9 g/dL, platelets 31 x10^9/L. Peripheral smear with 41% circulating blasts, some with folded nuclei and abundant cytoplasm. No prior hematologic history, no prior chemotherapy or radiation. Bone marrow performed to evaluate for acute leukemia.

ASPIRATE DIFFERENTIAL (500-cell count)

Cell type	%	Cell type	%
Blasts	18	Lymphocytes	9
Promyelocytes	3	Plasma cells	1
Myelocytes / metamyelocytes	8	Monocytes (mature)	6
Neutrophils / bands	21	Promonocytes*	4
Eosinophils	2	Erythroid precursors	14
Basophils	1	M:E ratio	~4.4:1

** Promonocytes were enumerated separately; their assignment is morphologically subjective and is discussed below.*

MICROSCOPIC DESCRIPTION

Aspirate. Smears are adequately cellular and spicular. There is a population of medium-to-large blasts with high nuclear-to-cytoplasmic ratio, fine chromatin, and one to three nucleoli. A subset of blasts shows slightly folded or indented nuclei with moderate amounts of grayish cytoplasm and occasional fine azurophilic granulation; rare cells contain delicate cytoplasmic vacuoles. Occasional cells with monocytoid features are noted, but unequivocal promonocytes are difficult to distinguish from immature myeloid forms on morphology alone. No definite Auer rods are identified after review of multiple smears. Erythropoiesis is left-shifted with mild megaloblastoid change. Megakaryocytes are reduced.

Core biopsy and clot. The core is markedly hypercellular (cellularity approximately 90-95%) with extensive replacement by immature mononuclear cells arranged in sheets. Interstitial and paratrabecular distribution is noted. Residual maturing granulopoiesis and erythropoiesis are present but markedly decreased. Megakaryocytes are markedly reduced. Reticulin stain shows no significant fibrosis (MF-1). Iron stain (aspirate): storage iron present; no ring sideroblasts.

CYTOCHEMISTRY

Myeloperoxidase (MPO): positive in a minor subset of blasts (approximately 5-10%). Non-specific esterase (NSE, alpha-naphthyl butyrate): positive in a subset of cells with partial fluoride inhibition, supporting a monocytic component. The combined pattern is consistent with a myeloid process with probable monocytic differentiation; correlation with flow cytometry is recommended.

DIAGNOSIS

BONE MARROW, ASPIRATE AND CORE BIOPSY (LEFT POSTERIOR ILIAC CREST):

— HYPERCELLULAR MARROW WITH ACUTE MYELOID LEUKEMIA (see comment).

— Aspirate blast count 18% by 500-cell manual differential; core biopsy with extensive blast-equivalent infiltration.

— Probable monocytic differentiation by morphology and cytochemistry; to be confirmed by flow cytometry.

COMMENT

The manual aspirate blast percentage (18%) is below the historical 20% threshold; however, the core biopsy demonstrates extensive infiltration by immature cells well in excess of that proportion, and the peripheral blood blast count is 41%. Aspirate enumeration is likely affected by hemodilution and by the difficulty of separating promonocytes from myeloid blasts on smears. Under current WHO and ICC classifications, a diagnosis of acute myeloid leukemia does not require a 20% blast count when a defining genetic abnormality is present; classification will therefore depend on integration with flow cytometry, cytogenetic, and molecular results, which are pending at the time of this report. A combined integrated interpretation will follow once all ancillary studies are available.

Electronically signed: Marcus T. Whitfield, MD — Hematopathology. Resident/fellow review: K. Aboud, MD. Report status: FINAL (morphology component). This component report is part of a larger diagnostic episode and is not intended to stand alone.