Myeloproliferative Neoplasm: A Diagnostic Approach to Bone Marrow Evaluation

Clinical suspicion of myeloproliferative neoplasm

Bone marrow testing begins with:
- HPWET / Hematopathology Consultation, MCL Embed
- HPCUT / Hematopathology Consultation, Client Embed
- CHRBM / Chromosome Analysis, Hematologic Disorders, Bone Marrow
- BCRFX / BCR/ABL1 Qualitative Diagnostic Assay with Reflex to BCR/ABL1 p190 Quantitative Assay or BCR/ABL1 p210 Quantitative Assay, Varies
- Complete blood count (CBC)
- Clinical findings
- Bone marrow features
- EPO / Erythropoietin (EPO), Serum*

Positive for BCR/ABL1

Chronic myeloid leukemia**

Chronic Myeloid Leukemia Algorithm

Negative for BCR/ABL1

Bone marrow morphology: myeloproliferative neoplasm (MPN)?

Overall findings NOT supportive of PV

MPNR / Myeloproliferative Neoplasm (MPN), JAK2 V617F with Reflex to CALR and MPL, Varies

Erythrocytosis?

POSITIVE or NEGATIVE

POSITIVE

Essential thrombocythemia (ET)**
Primary myelofibrosis (PMF)**
Myeloproliferative neoplasm-unclassified (MPN-U)**

PMF
MPN-U

NGSHM / OncoHeme Next-Generation Sequencing for Myeloid Neoplasms**

NEGATIVE

Overall findings SUSPICIOUS for PV

PVJAK / Polycythemia Vera, JAK2 V617F with Reflex to JAK2 Exon 12-15, Sequencing for Erythrocytosis, Varies

Erythrocytosis Evaluation

POSITIVE

MPNCM / Myeloproliferative Neoplasm (MPN), CALR with Reflex to MPL, Varies

NEGATIVE

Morphology consistent with MPN

Morphology equivocal for MPN

Overall findings NOT supportive of PV

PV**

MPNR / Myeloproliferative Neoplasm (MPN), JAK2 V617F with Reflex to CALR and MPL, Varies

If clinically indicated

ET**
PMF**
MPN-U**

NGSHM / OncoHeme Next-Generation Sequencing for Myeloid Neoplasms**

* A minor criterion for polycythemia vera (PV)
** In the appropriate clinicopathologic setting