Figure 2. Differential Diagnosis of Hypereosinophilia

Cardiac, constitutional, gastrointestinal, and/or respiratory symptoms

CBC

- Eosinophil count ≥1.5 x 10⁹/L
- 2–19% blasts

Rule out secondary causes of hypereosinophilia

Suspect MPN

Leukemia/Lymphoma Evaluation (immunophenotyping)

Unremarkable T-cell population

- Suspect nonreactive hypereosinophilia

Bone Marrow Morphology and Chromosome Analysis/FISH (FIP1L1/PDGFRA)

Aberrant T-cell population

- Suspect T-cell-associated reactive hypereosinophilia or neoplasms; consider T-cell receptor gene rearrangement testing

Hypercellularity due to ↑ number of eosinophils
- 5–19% myeloblasts or clonal abnormality other than those associated with 5q31-33, 8p11, or AML
- Negative FIP1L1/PDGFRA

CEL, NOS diagnosed

Hypercellularity due to ↑ number of eosinophils
- 5–19% myeloblasts
- ↑ reticulin; ↑ mast cells +/-
- Negative for 5q31-33, 8p11, AML
- Positive FIP1L1/PDGFRA

CEL with FIP1L1/PDGFRA diagnosed

Normocellular, normal trilineage hematopoiesis, and normal karyotype
- Negative FIP1L1/PDGFRA

Tissue damage present?

- Yes
- Idiopathic HES diagnosis likely
- No
- Idiopathic hypereosinophilia diagnosis likely

MPN indicates myeloproliferative neoplasms; AML, acute myeloid leukemia; CEL, NOS, chronic eosinophilic leukemia not otherwise specified; and HES, hypereosinophilic syndrome. This algorithm is intended as a guide for using Quest Diagnostics laboratory tests to diagnose hypereosinophilia. It is based on references 5 and 9. The algorithm is provided for informational purposes only and is not intended as medical advice. A physician’s test selection and interpretation, diagnosis, and patient management decisions should be based on his/her education, clinical expertise, and assessment of the patient.