A 75-year-old man with a diagnosis of chronic myelomonocytic leukemia evolved with asthenia and worsening cytopenias. A complete blood count showed hemoglobin 9.2 g/dL, neutrophils $0.5 \times 10^9$/L, monocytes $1.3 \times 10^9$/L, and platelets $20 \times 10^9$/L. Peripheral blood smear revealed 35% blast cells with a moderate nuclear:cytoplasmic ratio and one or more nucleoli. A high proportion of blast cells showed a hand-mirror morphology characterized by a cytoplasmic tail extending out from one pole of the nucleus (panels A and B, arrows) and harboring a few azurophilic granules and Auer rods (panels A and B, arrowheads). Bone marrow aspirate revealed 34% blast cells with similar morphology. Flow cytometry analysis confirmed an increased number of myeloblasts (CD34+, CD117+, CD13+, MPO+) and an increased number of monocytic blasts (CD14+, CD64+, CD33+, CD15-). Cytogenetic analysis demonstrated 13q deletion in 3 metaphases—46,XY, del(13)(q12q22)[3]/46,XY[17].

Hand-mirror cells have been described mostly, but not exclusively, in lymphoid malignancies, especially acute lymphoblastic leukemia, T-cell lymphomas, and multiple myeloma. Nevertheless, cases of acute myeloid leukemia with hand-mirror cells have been described in the literature and are often associated with chromosome 13 anomalies, mainly trisomy/tetrasomy 13. Although more frequently related to lymphoid malignancies, our case shows that hand-mirror morphology can also be observed in acute myeloid leukemia, thus emphasizing the lack of specificity of this finding in the diagnosis of leukemias.
Magic mirror in my hand, which is the lineage in the end? A case of acute leukemia with hand-mirror cells

Alex Freire Sandes and Edgar Gil Rizzatti