Received: 17 September 2023 | Accepted: 19 September 2023

DOI: 10.1002/ajh.27114

MORPHOLOGY UPDATE

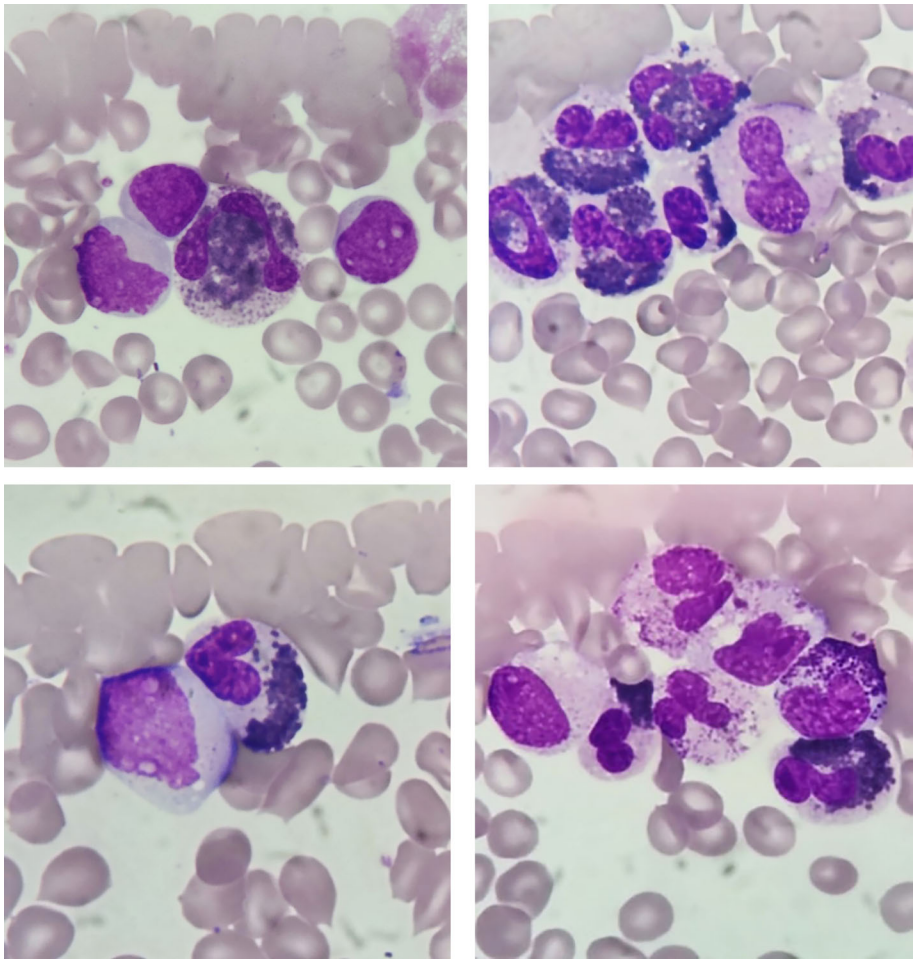
Pseudo-Chédiak–Higashi anomaly in acute myeloid leukemia

Biswadip Hazarika[1] | **Barbara J. Bain**[2]

[1]Department of Haematology, Batra Hospital and Medical Research Centre, New Delhi, India

[2]Centre for Haematology, Department of Immunology and Inflammation, St Mary's Hospital Campus of Imperial College Faculty of Medicine, St Mary's Hospital, London, UK

Correspondence
Barbara J. Bain, Blood Sciences, Imperial College Healthcare NHS Trust, St Mary's Hospital, Praed Street, London W2 1NY, UK.
Email: b.bain@imperial.ac.uk



A 13-year-old Indian boy presented with dysuria and intermittent fever for 6 weeks. Physical examination showed no specific abnormality. His blood count showed a white cell count of 26.8 × 10^9/L, hemoglobin concentration 109 g/L, mean cell volume 82.9 fL, and platelet count 24 × 10^9/L. His blood film showed marked neutrophilia and 26% blast cells; the neutrophils and eosinophils were packed with

aberrantly staining, mainly purple granules, some of which were giant (all images ×100 objective). No granules or Auer rods were detected in blast cells. Immunophenotyping showed the blast cells to express CD13, CD33, CD117, CD34, CD38, and CD7. There was no expression of myeloperoxidase, CD64, cytoplasmic CD3, or B-lineage markers. Cytogenetic analysis showed a normal male karyotype. There were no clinical features of Chédiak–Higashi syndrome. A diagnosis of acute myeloid leukemia (AML) complicated by the pseudo-Chédiak–Higashi anomaly was made. The patient responded to induction chemotherapy with abnormal granulocytes disappearing from the blood; the few neutrophils then present did not have abnormal granules. The patient was well enough to be discharged and was to seek further treatment elsewhere.

The pseudo-Chédiak–Higashi anomaly is well recognized but rare in AML. Usually the abnormal granules are found in blast cells, but occasionally they have been identified in promyelocytes and myelocytes.[1–3] They stain variously, pink or purple. They are usually peroxidase-positive but not invariably.[4] Auer rods are also not infrequently present. An association with t(8;21) has been reported in at least three patients,[3,5,6] but no other consistent cytogenetic abnormality has been recognized. This patient is exceptional in that the granules were confined to mature granulocytes.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

ORCID

Barbara J. Bain https://orcid.org/0000-0003-3077-4579

REFERENCES

1. Dittman WA, Kramer RJ, Bainton DF. Electron microscopic and peroxidase cytochemical analysis of pink pseudo-Chediak-Higashi granules in acute myelogenous leukemia. *Cancer Res*. 1980;40:4473-4481.
2. Ahluwalia J, Kumar V, Trehan A, Marwaha RK, Garewal G. The Psuedo [sic]-Chediak–Higashi anomaly: an unusual staining pattern in an Indian child with acute myeloid leukemia. *Pediat Hematol Oncol*. 2004; 21(3):199-202.
3. Avcı Z, Malbora B, Ozbek N. Pseudo Chediak-Higashi anomaly. *Turk J Hematol*. 2013;30:230-231.
4. Daneshbod Y, Medeiros LJ. Pseudo Chediak-Higashi anomaly in acute monoblastic leukemia. *Blood*. 2016;128:2583.
5. Chang H, Yi QL. Acute myeloid leukemia with pseudo–Chédiak-Higashi anomaly exhibits a specific immunophenotype with CD2 expression. *Hema*. 2006;125:791-794.
6. Bozkaya IO, Yarali NS, Sac RÜ, et al. Pseudo-Chediak-Higashi anomaly in acute myeloid leukemia with t (8;21). *J Pediat Hematol Oncol*. 2012; 34:242.

How to cite this article: Hazarika B, Bain BJ. Pseudo-Chédiak–Higashi anomaly in acute myeloid leukemia. *Am J Hematol*. 2023;1-2. doi:10.1002/ajh.27114