

Myeloma's multiple morphologies

Silvia Cantoni¹ | Andrea Galitzia^{1,2}  | Valentina Mancini¹ | Anna Maria Cafro¹ | Roberto Cairoli¹

¹Department of Hematology, ASST Grande Ospedale Metropolitano Niguarda, Niguarda Cancer Center, Milan, Italy

²Department of Medical Sciences and Public Health, University of Cagliari, Cagliari, Italy

Correspondence

Andrea Galitzia, MD, Hematology and Oncology Department, ASST Grande Ospedale Metropolitano Niguarda, Niguarda Cancer Center, Piazza Ospedale Maggiore 3, 20162 Milan, Italy.

Email: a.galitzia@gmail.com

An 82-year-old male patient was admitted to the hospital because of worsening heart failure.

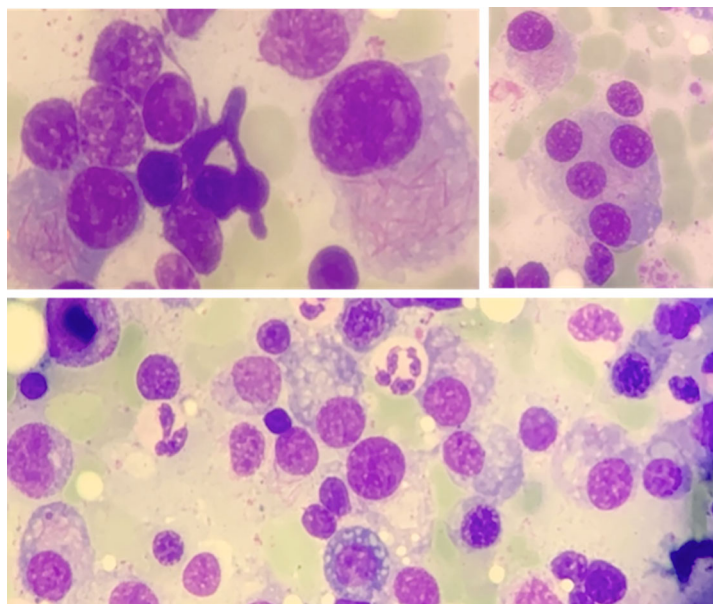
Serum electrophoresis performed on admission as part of routine blood chemistry showed a monoclonal component (MC) in the gamma range which led to further investigation for suspected multiple myeloma. Serum immunofixation confirmed an IgG-k MC with total IgG 2077 mg/dL (n.v. 700–1600) and IgA and IgM in the normal range; k free light chains 1015.15 mg/L (n.v. 3.3–19.4) with FLC ratio 35.07 (n.v. 0.26–1.65). Mild anemia (Hb 11 g/dL) and thrombocytopenia (platelets $84 \times 10^9/L$) were also present.

Serum creatinine was 1.67 mg/dL (n.v. 0.67–1.17); urine immunofixation was positive for IgG-k MC with free light chains k 6112.12 mg/L (< 33), free light chains λ 30 mg/L (< 4), and 24-h

proteinuria of 1.43 g/24 h. Serum calcium levels were within normal range.

The bone marrow aspirate (May-Grunwald-Giemsa stain, $\times 50$ – 100 objective) was consistent with a diagnosis of multiple myeloma with a marrow plasma cell infiltrate, as estimated on smears only, accounting for approximately 25% of nucleated cells. The peculiar finding was that these plasma cells exhibited “multiple morphology” with several distinctive morphologic features not commonly seen in multiple myeloma.

Most of the plasma cells, including multinucleated ones, showed cytoplasmic inclusions reminiscent of Auer rods, as seen in promyelocytic “faggot cell” blasts (image, upper left and right panels). Mott cells were also present (image, lower panel).



This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *eJHaem* published by British Society for Haematology and John Wiley & Sons Ltd.

Comment: Myeloma plasma cells may harbor intracytoplasmic inclusions. Most commonly, immunoglobulin aggregates are observed in vesicular structures derived from the dilated rough endoplasmic reticulum, the so-called Mott cells, named after FW. Mott, a surgeon who described this peculiar feature in the brains of monkeys affected by trypanosomiasis [1].

Over the years, a number of different intracytoplasmic crystalline inclusions have been reported (reviewed in Ref. [2]).

Auer rod-shaped inclusions, first described in 1906 by John Auer, an American physiologist, are rarely observed in plasma cells. They result from crystalline deposits of lysosomal enzymes, similar to those observed in acute leukemia [3].

As with intracytoplasmic immunoglobulin aggregates, the presence of Auer rod-like inclusions does not appear to affect the prognosis of affected patients or to be associated with specific cytogenetic or immunophenotypic features [2].

AUTHOR CONTRIBUTIONS

SC conceptualized and wrote the manuscript and captured the original images. AG contributed to manuscript writing and figure creation and provided valuable contributions on the manuscript. VM assisted in capturing the original images and provided significant input for the manuscript. AMC made valuable contributions to the manuscript. RC oversaw the report and provided substantial input for the manuscript.

FUNDING

The authors received no specific funding for this work.

CONFLICT OF INTEREST STATEMENT

No conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

ETHICS STATEMENT

The information presented in this manuscript is deidentified, and there is minimal risk to the patient's privacy or confidentiality. IRB approval was not required by our institution for preparation of this manuscript.

PATIENT CONSENT STATEMENT

Patient consent was not obtained.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

No material from other sources is included in this manuscript.

ORCID

Andrea Galitzia  <https://orcid.org/0000-0002-9122-4258>

REFERENCES

1. Bain BJ. Russell bodies and Mott cells. *Am J Hematol.* 2009;84(8):516.
2. Zhang J, Li M, He Y. White rodlike crystals in multiple myeloma cells. *Hematol Med Oncol.* 2017;2(5).
3. Metzgeroth G, Back W, Maywald O, et al. Auer rod-like inclusions in multiple myeloma. *Ann Hematol.* 2003;82(1):57–60.

How to cite this article: Cantoni S, Galitzia A, Mancini V, Cafro AM, Cairoli R. Myeloma's multiple morphologies. *eJHaem.* 2023;1–2. <https://doi.org/10.1002/jha2.813>