Indian Journal of Pathology and Oncology 2023;10(3):222–223

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Indian Journal of Pathology and Oncology

Journal homepage: www.ijpo.co.in

Editorial

Apoptotic cellular fragments mimicking platelets in tumor lysis syndrome

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ARTICLE INFO

Article history:
Received 20-07-2023
Accepted 17-08-2023
Available online 27-09-2023

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Sir,

Tumor lysis syndrome (TLS) is an onco-metabolic emergency arising from rapid cell death. TLS is generally seen as a consequence of tumor targeted therapy or spontaneously.[1]

Hematological malignancies constitute a diverse group in which abnormal metabolism leads to the marked derangement of a host's metabolism. TLS comprises a clinic-biochemical derangement of cellular metabolism, which can lead to severe renal impairment, cardiac arrhythmias, seizures, and death.[2] Cellular death is mediated by targeted chemotherapy or another pharmacological antitumor therapy, or by embolization of tumor or radiation therapy or spontaneous cellular death in rapidly dividing cancer cells (which is known as spontaneous TLS) that leads to an efflux of cellular material rich in potassium, phosphorus, and uric acid into the bloodstream. However, serum calcium levels decrease in patients with TLS because of its binding to excess phosphorus. These key metabolic derangements are responsible for the acute impairment of renal function, cardiac arrhythmogenicity, central nervous system toxicity, and ultimately death.[2,3]

An increase in lactate dehydrogenase (LDH) is seen in patients with TLS, probably because of anaerobic glucose metabolism. However, the elevation of LDH is not included in the laboratory definition of LDH and it is important to note that although LDH is a very sensitive biomarker but it is a quite nonspecific marker for TLS.[3]

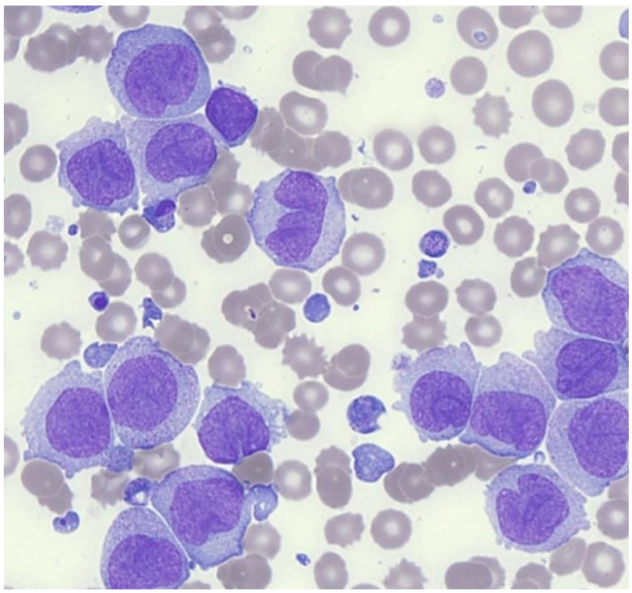

Fig. 1: Microphotograph of peripheral blood smear showing monocytic lineage of cells with broken cellular fragments. (Leishman stain; 1000X)

Due to increased and rapid turnover and subsequent lysis of these fragile apoptotic cells , cellular fragments can be seen on the peripheral blood smear. These cellular broken

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https://doi.org/10.18231/j.ijpo.2023.050
2394-6784/© 2023 Author(s), Published by Innovative Publication.

fragments mimic platelets and can cause spurious elevation of platelet count. This important finding must always be kept in mind whenever we are dealing with aggressive hematological malignancies with normal platelet counts.[4]

Here in we report a case of Acute monocytic leukemia with 90% monocytic lineage of cells on peripheral blood smear, confirmed on morphology and flowcytometry. Automated hematology analyser gave a platelet count of 3lacs/cumm. On peripheral blood smear numerous broken cellular fragments of neoplastic cells were found that mimicked platelets leading to spurious elevation of platelet count on hematology analyser. This phenomenon is generally seen when tumor lysis has started.

Hematopathologists should always keep this condition in mind whenever reporting hematological malignancies which have high cell count and a rapid turn over rate. These cellular apoptotic fragments should never be confused with platelets.(Figure 1)

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Cite this article: Jamal I. Apoptotic cellular fragments mimicking platelets in tumor lysis syndrome. *Indian J Pathol Oncol* 2023;10(3):222-223.