

Rapid acanthocytic schistocytosis and fulminant microangiopathic hemolysis as a preterminal event

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Abstract

Isolated schistocytosis is a hematological emergency. Clinically significant schistocytosis requires 1% red cell fragments in a high power field. These include triangular fragments, crescents, helmet cells, keratocytes, or microspherocytes.

1 | CASE DESCRIPTION

A 59-year-old woman presented to our hospital with a right-sided ulcerated breast mass (Figure 1, panel A). At admission, her CBC showed a white blood count of $17.9 \times 10^9/L$, hemoglobin at 141 g/L, and a platelet count of $70 \times 10^9/L$. Her reticulocyte count, lactate dehydrogenase, and unconjugated bilirubin were elevated ($215 \times 10^9/L$, 1479 U/L, and 209 $\mu\text{mol/L}$, respectively). Imaging showed multiple liver metastases, portal vein thrombosis, and possibly frank liver infarction. Her initial peripheral blood showed many echinocytes, occasional acanthocytes, and schistocytes (Figure 1, panel B, black arrows X 50 objective). Over the next two days along with a decreasing hemoglobin and progressive thrombocytopenia (84 g/L and $48 \times 10^9/L$, respectively), a

leucoerythroblastic picture, polychromasia, and significant schistocytosis developed in keeping with a brisk episode of microangiopathic hemolysis (Figure 1, panels C and D, respectively, X50 objective). Due to a fulminant hepatic failure, the patient shortly thereafter passed away. Possible causes of echinocytosis include storage and post-transfusion artifacts, liver/renal disease, lactic acidosis, and hemolytic uremic syndrome. In addition to congenital causes (eg., neuroacanthocytosis), acquired acanthocytosis is mainly due to liver disease. The International Council for Standardization in Hematology (ICSH) defines clinically significant schistocytosis as the presence of 1% red cell fragments seen in a high power field.¹ Schistocytes and variants include triangular fragments, small crescents, helmet cells, keratocytes, or microspherocytes.

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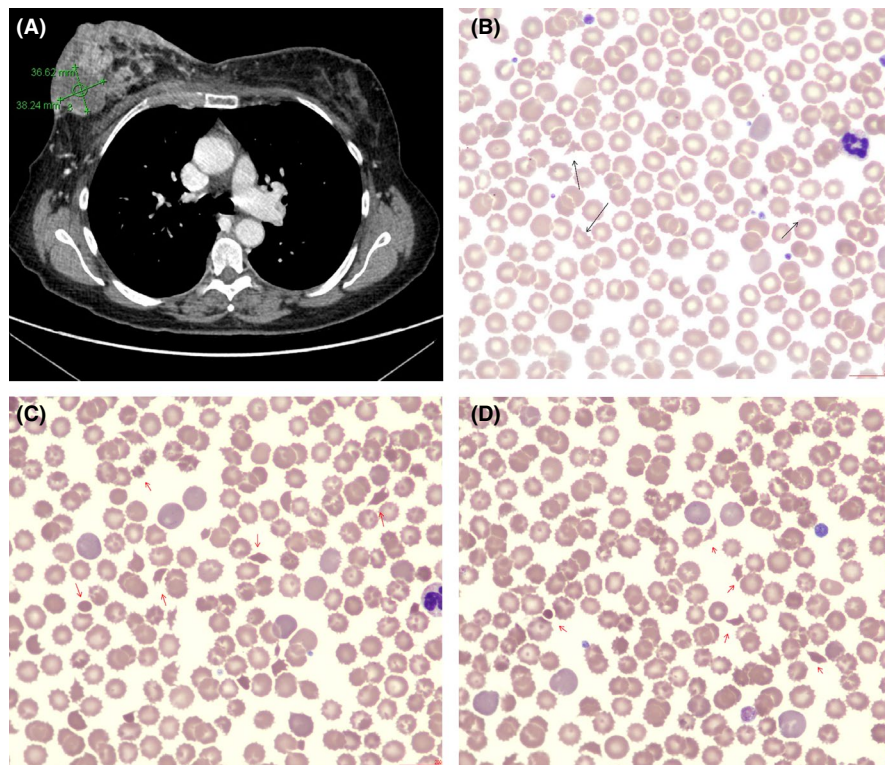


FIGURE 1 Morphological evidence of brisk cancer-associated microangiopathic hemolysis is seen. (Panel A) shows the computed tomography image of a right-sided ulcerating breast mass. At admission on day one (panel B), echinocytes, acanthocytes, and occasional schistocytes are seen. Over the next two days (panels C and D), significant red cell fragmentation developed just prior to patient's demise

AUTHOR CONTRIBUTIONS

HMR is the case pathologist. He prepared the manuscript and the figure. RY is the case pathologist. He reviewed and revised the manuscript.

DATA AVAILABILITY STATEMENT

Data sharing not applicable—no new data generated.

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How to cite this article: Moshref Razavi H, Yu R. Rapid acanthocytic schistocytosis and fulminant microangiopathic hemolysis as a preterminal event. *Clin Case Rep*. 2021;9:e04247. <https://doi.org/10.1002/ccr3.4247>