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CASE STUDY

Primary plasma cell leukemia discovered during a case of acute anemia following gastrointestinal bleeding

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Abstract

Plasma cell leukemia can occur in undiagnosed patients with myeloma. The existence of anemic syndrome with intolerance symptoms following massive gastrointestinal bleeding can mislead the diagnosis. Careful reading of blood smears is essential, especially in regions of the world with a weak technical platform. In this case, abnormal plasma cells were found on the blood smear. The myelogram revealed a bone marrow infiltration by dysmorphic plasma cells. An immunophenotypic analysis discovered circulating plasma cells, which helped to establish the diagnosis. A methodical identification of the etiology of anemia is needed to discover causes of anemia more easily.

Keywords

Leukemia, plasma cell, anemia, blood smear

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Introduction

Plasma cell leukemia can occur suddenly without warning signs of multiple myeloma [1]. Anemic syndrome should attract attention, especially in adult subjects. The case presented is an illustration of possible misdiagnosis due to ignorance of the importance of blood smear reading.

Observation

A 69-year-old patient with no particular medical history was admitted for anemic syndrome that progressed for a week following abundant rectal bleeding. He showed signs of intolerance anemia and no tumour syndrome. The blood count results performed in a secondary hospital, indicated normochromic normocytic anemia and hyperleukocytosis with hyperlymphocytosis (Red Blood Cells: 1.52 T/L; Haemoglobin: 50 g/L; Haematocrit: 14.5%; Mean Corpuscular Volume: 95.9 fl; Mean Corpuscular Haemoglobin: 32.8 pg; Mean Corpuscular Haemoglobin Concentration: 34.4 g/dL; White Blood Cells: 15.7 G/L; Neutrophils: 3.297 G/l; Eosinophils: 0.157 G/l; Lymphocytes: 11.618 G/l; Monocytes 0.628 G/l; Platelet count: 215 G/l). The patient underwent blood transfusion with transient clinical improvement. Kidney, heart and other tumour marker examination results were normal. Serum protein electrophoresis indicated hyperproteinaemia (138 G/L) and hypoalbuminaemia associated with hypergammaglobulinaemia (80.9 G/L) with a monoclonal peak (39.9 G/L). Hypocalcaemia (1.96 mmol/L) was also noted. These results prompted a second reading of the blood smear slides, and circulating plasma cells were observed (6.5 G/L) (figure 1). A myelogram revealed 45% dysmorphic plasma cells (figure 2). Lymphocyte immunophenotyping noted CD45+ cells with CD34- CD56+ cells, corresponding to plasma cells, and an increased CD4+ T lymphocyte count showing loss of CD7 and CD56. Plasma cell immunophenotyping revealed the presence of CD38+, CD138+, monotypic kappa, CD19-, and CD20- plasma cell populations expressing the aberrant CD56 marker compatible with pathological plasma cells. The diagnosis was plasma cell leukemia. The patient died two weeks after admission for acute hemorrage.

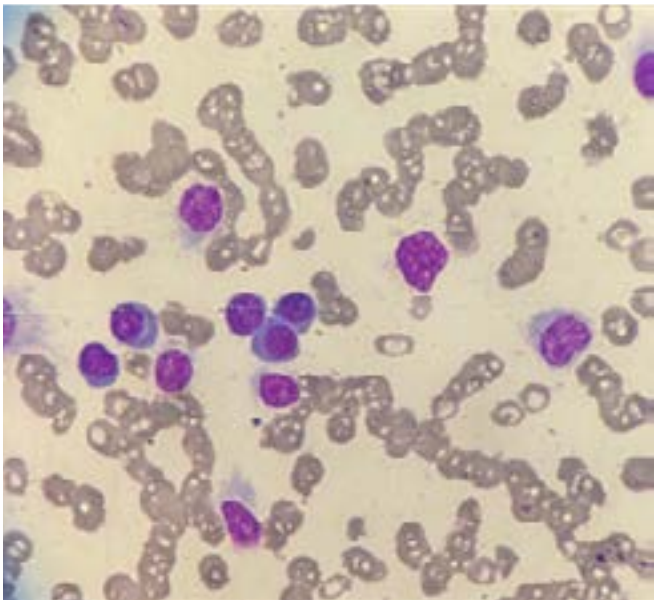

Fig 1: Wright–Giemsa-stained peripheral blood smear (×100). Circulating atypical plasma cells and red cell rouleaux formation in the background

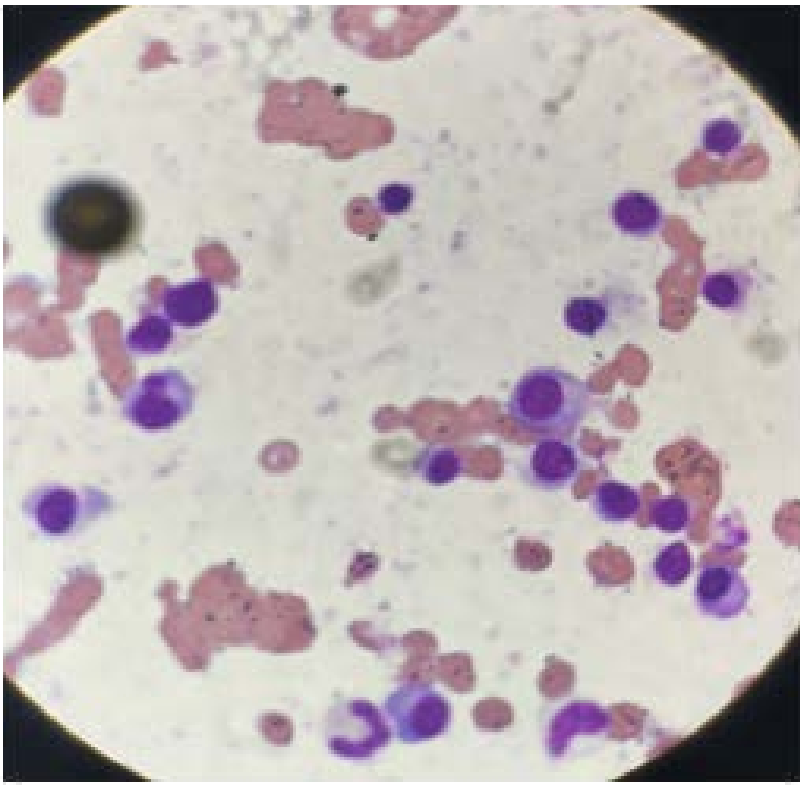

Fig. 2 Wright–Giemsa-stained bone marrow smear (×100). Atypical plasma cells

Discussion

The massive rectal bleeding presented by this patient was suggested to be the cause of his anemia. This theory misled the diagnostic approach by putting focus on a digestive origin.

The persistence of the anemia despite blood transfusions led to rereading the blood smear and investigations into an adequate diagnostic approach with a view to etiology. The patient did not know he was a carrier of a haematologic disease. The appearance of the signs was severe. Discovery in the blood smear of circulating plasma cells at more than 2 G/L, as well as bone marrow plasmacytosis and the presence of specific plasma cell markers, confirmed the diagnosis of plasma cell leukemia, as in the study by Bernasconi et al. [2]. Plasma cell leukemia is a pathology with a poor prognosis that clinically manifests as bone pain, anemia and haemorrhagic syndrome. Extramedullary damage, mainly hepatic, splenic, lymph node, pleuropulmonary, and digestive damage, has been reported [3-6]. Our patient presented with normochromic normocytic anemia, as described in most cases [3, 7]. Thrombocytopenia, which often co-occurs [3, 4], was not present in our case. This rare leukemia can be primary plasma cell leukemia or secondary to multiple myeloma [8]. In our patient, it was primary leukemia. This leukemia progresses rapidly towards death. This was the case for our patient, in whom we were unable to carry out a complete exploration by studying karyotypes.

This case should draw attention to the importance of careful reading of blood smears and the need to perform immunophenotyping studies in lymphocytosis, despite the limited technical platform. As myeloma is a lymphoproliferative pathology, it would be wise to systematically perform serum electrophoresis in cases of adult lymphocytosis.

Conclusion

Plasma cell leukemia, a rare pathology with a poor prognosis, can be identified by carefully reading blood smears for better diagnostic direction. Immunophenotyping of blood cells is essential.

Ethics Approval

Human Ethics and Consent to Participate declarations: not applicable.

"The patient was admitted to hospital in critical condition and died few days later."

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