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Peripheral Blood Plasmacytosis Mimicking Plasma Cell Neoplasm

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Clinical Image

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ABSTRACT

Infectious diseases have the potential to produce an increase in the number of plasma cells in the blood. It may raise the possibility of a plasma cell neoplasm being present. We present the case of an elderly male patient with an infection-related plasmacytosis that mimicked a neoplastic process.

Keywords: Blood plasmacytosis; infectious diseases; plasma cell neoplasm.

CLINICAL CASE

A 67-year-old male came to the hospital with low-grade fever, backache, and generalized fatigue for three weeks. On examination, he had pallor, a fever of 99.4º F and tachycardia. There was no organomegaly or lymphadenopathy. Complete blood count (CBC) showed haemoglobin of 90 g/l, total leucocyte count of 26.8 x10^9/l and platelet count of 214 x10^9/l. In the white cell differential scatter plot, a large population of cells was identified in the high fluorescence region (Fig. 1). Blood film showed 39% plasma cells (Fig. 2) with round-to-ovoid shape, eccentrically placed nucleus with coarse chromatin arranged in a clock face pattern and a deep blue basophilic cytoplasm showing a pale perinuclear area. Suspecting a plasma cell neoplasm, an

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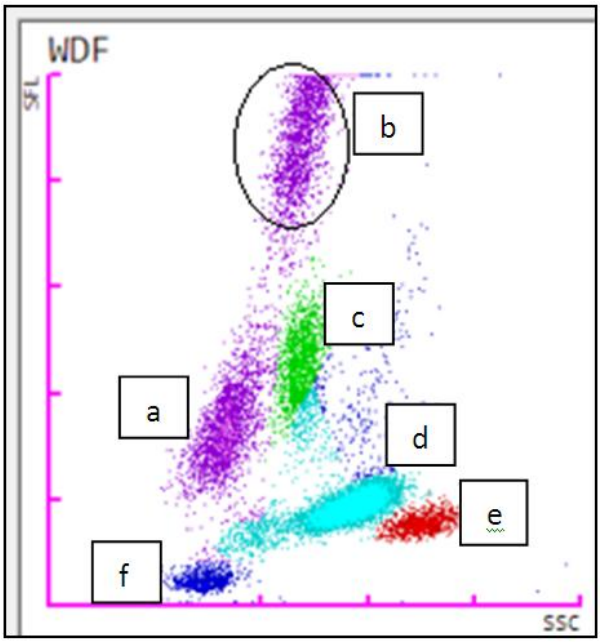

Fig. 1. White cell differential scatter plot (SFL vs SSC) on a Sysmex XN- series hematology analyzer shows a large population of cells (b and circled) in the high fluorescence region.
The lymphocytes (a), monocytes(c), neutrophils(d), and eosinophils(e) are depicted in clusters with respective colour coding: lavender, green, light blue, and orange. The dark blue population (f) at the scatterplot's base represents debris

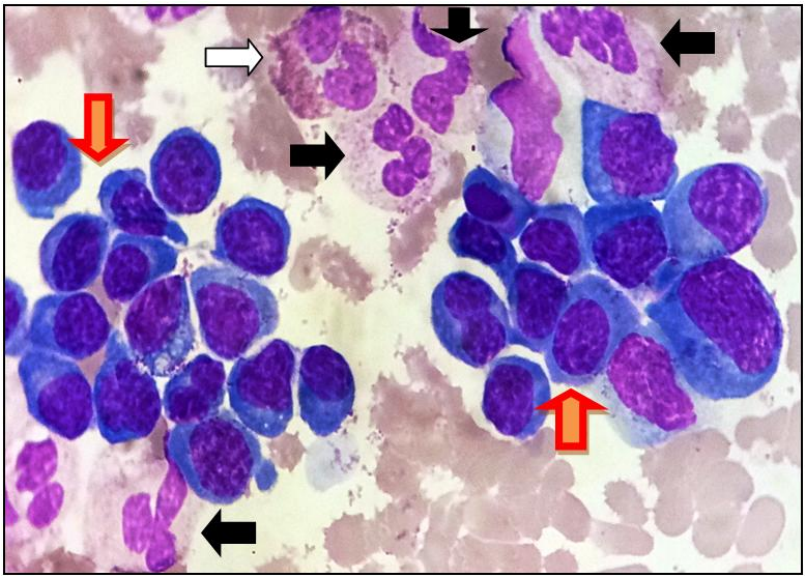

Fig. 2. Peripheral blood film shows 39% plasma cells (orange arrow) including a few neutrophils (black arrow), and an eosinophil (white arrow) (x1000 Leishman & Giemsa)

extensive evaluation was planned, including bone marrow examination (BME), imaging and flow cytometry. Serum creatinine was 1.2 mg/dl, serum calcium was 9 mg/dl, and total protein was 6.2 g/dl. BME showed well-formed histiocytic and epithelioid granuloma. There was no increase in the plasma cells. Flow cytometry evaluation and imaging studies were unremarkable. AFB was negative; however, the Widal test was positive for *Salmonella typhi* with a titre of >1:320. The blood culture-confirmed *Salmonella typhi* infection. He was started on intravenous antibiotics with a complete resolution of fever in three days. The plasma cells decreased in the

peripheral blood and subsequently disappeared. Reactive plasmacytosis may also be seen in a number of conditions such as infectious diseases, tumors and autoimmune disorders [1,2]. To conclude, the laboratory physicians and clinicians may consider infection-related plasmacytosis in the differential diagnosis of plasma cell dyscrasia, irrespective of the patient's age, before proceeding with an extensive and invasive evaluation like BME and other expensive tests, especially in finite resource settings.

CONSENT

It is not applicable.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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