



A Rare Peripheral Plasma Cell Finding in a Grenadian Woman with Multiple Myeloma: A Case Report

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Abstract

Multiple myeloma a plasma cell neoplasm typically presents with symptoms such as bone pain fatigue and weakness. It is a hematological malignancy characterized by the clonal proliferation of plasma cell in the bone marrow [1,2]. While the diagnosis of multiple myeloma is through bone marrow biopsy and serum protein electrophoresis [3], the presence of plasma cell in the peripheral blood smear is an uncommon finding [4]. The detection of rare plasma cell in the peripheral blood smear can provide critical diagnostic clues [5]. Here we present a case report of multiple myeloma in a 42 year old woman from Grenada in which plasma cell was identified in the peripheral blood smear.

Keywords: Myeloma; Plasma

Introduction

Multiple myeloma is a cancerous condition marked by an uncontrolled growth of plasma cells in the bone marrow, resulting in the excessive production of abnormal immunoglobulin [1]. This malignancy accounts for approximately 1% of all cancers and 10% of hematological malignancies globally [6]. This disease typically presents with symptoms related to bone marrow infiltration, such as anemia bone pain and renal impairment often summarized by the CRAB criteria (Hypercalcemia, Renal dysfunction, Anemia and Bone lesions) [7]. The diagnosis of multiple myeloma primarily relies on serum protein electrophoresis and bone marrow biopsy where the presence of more than 10% clonal plasma cell confirms the diagnosis [1,8]. The detection of plasma cells in the peripheral blood smear is a rare and atypical finding generally associated with more aggressive disease and poor prognosis [5,9].

In resource-limited settings like Grenada diagnostic delays may occur due to limited access to specialized healthcare services [10]. However simple tools such as peripheral blood smear examination

can sometimes provide early clues for clinicians [11]. In this case report we describe a rare presentation of multiple myeloma in a 42 year old Canadian woman where a rare plasma cell was identified in the peripheral blood smear prompting further investigation and diagnosis [4]. This case highlights the diagnostic and prognostic significance of peripheral plasma cell in multiple myeloma and the importance of early detection in regions with limited healthcare facilities [9,12].

Case Presentation

A 42 year old woman from Granada presented to the clinic with a six month history of generalized fatigue persistent bone pain and unintentional weight loss. She also reported occasional dizziness and difficulty walking. Physical examination revealed pallor; mild hepatosplenomegaly. She has skin lesions. The patient had no significant past medical history and her family history was non-contributory.

Laboratory tests revealed the following abnormalities.

Lab reports

Hematological tests	Patient values	Normal values
Hemoglobin	6.1 g/dl*	12 - 16 g/dl
RBC count	3.50 10 ⁶ /ul*	4.0 - 5.5 10 ⁶ /ul*
Hematocrit	24.1%*	37 - 47%
MCV	68.8 fL*	82 - 98 fL
MCH	17.3 pg*	26 - 34 pg
MCHC	25.2 g/dl*	31 - 38 g/dl
RDW	25.3%*	11.6 - 13.7%
MPV	11.9 fL*	7.8 - 11.0 fL
WBC count	4.8 10 ³ /ul	4.5 - 11.0 10 ³ /ul
Neutrophils	45.2%	40 - 70%
Lymphocytes	46.9%	20 - 40%
Eosinophils	0.5%	1 - 4%
Monocytes	7.1%	2 - 8%
Basophils	0.3%	0 - 1%
Platelets	205 10 ³ /ul	150 - 400 10 ³ /ul
ESR	120 mm/hr*	0 - 20 mm/hr

Table 1

Peripheral smear report

The red cells are decreased in number and are hypochromic and microcytic with increased anisopoikilocytosis. Few ovalocytes and occasionally a tear-drop cell and a pencil cell was noted. Red cells show occasional spherocyte forms. A significant degree of rouleaux formation is present. The total leukocyte count is normal in number. Rarely a plasma cell was noted, characterized by their eccentric nucleus and basophilic cytoplasm. Platelets are adequate.

The observed red cell changes strongly suggest the presence of iron deficiency.

The findings are suggestive of potential plasma cell dyscrasia or related disorder. Further investigations, including protein electrophoresis and bone marrow aspiration are recommended for a comprehensive diagnosis. This report serves as a preliminary assessment and clinical correlation is essential for a definitive diagnosis.

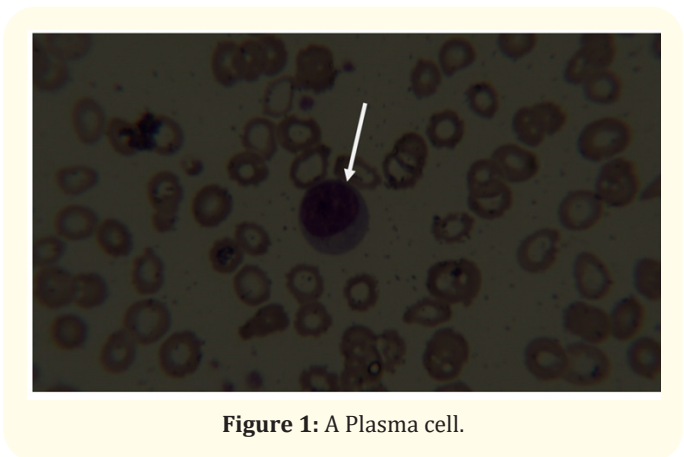


Figure 1: A Plasma cell.

Biochemistry tests	Patient values	Normal values
Glucose FBS	85.5 mg/dl	60 - 110 mg/dl
BUN	8.2	7 - 18 mg/dl
Creatinine	0.55 mg/dl	0.4 - 1.4 mg/dl
Uric acid	4.4 mg/dl	2.5 - 7.7 mg/dl
Total bilirubin	0.25 mg/dl	0.2 - 1.2 mg/dl
Direct bilirubin	0.04	0.0 - 0.30 mg/dl
Indirect bilirubin	0.2 mg/dl	0.0- 1.0 mg/dl
AST(SGOT)	28.6 IU/L	5 - 34 IU/L
ALT(SGPT)	10.4 U/L	4 - 36 U/L
Alkaline Phosphatase	66.4 IU/L	35 - 123 IU/L
GGT	6.9 U/L	9 - 39 U/L
Total protein	9.9 g/dl*	6.6 - 8.8 g/dl
Albumin	3.8	3.5 - 5.2 g/dl
Globulin	6.10 g/dl*	2.0 - 5.0 g/dl
A/G ration	0.6 Ratio*	1.1 - 2.5 Ratio
Iron	24.0 ug/dl*	37 - 145 ug/dl
TIBC	410.0 ug/dl	250 - 450 ug/dl
% Saturation	5.9%*	20 - 55%
Sodium	140.6 mmol/L	135 - 155 mmol/L
Potassium	5.35 mmol/L	3.6 - 5.5 mmol/L
Chloride	105.6 mmol/L	96 - 106 mmol/L
Calcium	9.0 mg/dl	8.6 - 10.3 mg/dl
Phosphorous	4.0 mg/dl	1.5 - 6.8 mg/dl
Total cholesterol	131 mg/dl	135 - 200 mg/dl
HDL	36.3 mg/dl*	>40 mg/dl
Triglycerides	81 mg/dl	40 - 140 mg/dl
Chol/HDL ratio	3.61 Ratio	<5.60 Ratio
LDL	79 mg/dl	<130 mg/dl
VLDL	16 mg/dl	0 - 40 mg/dl
HbA1c	5.1%	3 - 6%
Ferritin	6.42 ng/ml	5 - 148 ng/ml
Vitamin B12	<150 pg/ml*	174 - 878 pg/ml

Table 2

Given the clinical presentation and abnormal laboratory findings the patient was advised to do serum protein electrophoresis and bone marrow biopsy. However, due to financial difficulties, the patient declined to undergo these critical diagnostic tests [13], which are essential for confirming multiple myeloma [1,14].

Discussion

Multiple myeloma is often underdiagnosed in region with limited healthcare resources such as Grenada where access to advanced diagnostic tools may be challenging [10]. This case underscores the importance of through peripheral smear examination, particularly

in resource-constrained environments [9]. In this patient the early detection of plasma cell prompted timely diagnosis and intervention [4,15]. The identification of a plasma cell in the peripheral blood smear is a rare and significant finding in multiple myeloma [5,9].

Conclusion

This case highlights the unique presentation of multiple myeloma in a woman in Grenada where the presence of plasma cell in the peripheral blood smear served as a key diagnostic feature [4,9]. Although plasma cells are typically confined to the bone marrow their appearance in peripheral blood smear is indicative of advanced disease [8]. However this case highlights the constraints faced in resource-limited settings where access to advanced diagnostic tools and specialized treatment options may be restricted [10]. Early diagnosis and timely initiation of therapy are critical to improving patient outcomes in such settings [16]. Addressing these healthcare disparities particularly in the management of complex conditions like multiple myeloma remains a pressing concern for developing healthcare systems [17].

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