Diagnostic Challenges of Plasma Cell Leukemia in Aged Patient

Kethia Phelizor[1], Josh Rosero[1], Brendan P Mackey[2], Patrick M Gill[2]

Department of Internal Medicine, Philadelphia College of Osteopathic Medicine, Philadelphia, PA[1]
Division of Internal Medicine, Jefferson Abington Hospital, Abington, PA[2]

INTRODUCTION

Plasma cell leukemia (PCL) is a rare yet aggressive form of multiple myeloma (MM) characterized by plasma cells circulating in the peripheral blood that can be detected on conventional peripheral blood smear examination. PCL can either originate de novo (primary PCL) or as a secondary leukemic transformation of MM (secondary PCL). It has a poor prognosis with a median survival of 6-month median. It is common among males, usually presenting between 55 and 65 years of age. It is diagnostically challenging due to complex symptoms and central nervous system involvement. Early detection is critical.

CASE PRESENTATION

A 76-year-old female with a history significant for anemia, vertebral osteomyelitis, and chronic back pain presented to the ED with generalized weakness and AMS. She was found to be hypercalcemic (Ca 12.2) and anemia (Hb 7.9). CT head was negative. The patient was admitted to the general medical floor. SPEP and bone marrow aspiration were tested. Free kappa was 10.2, free lambda was 618.7, free kappa/lambda ratio was 0.02, and bone marrow aspiration showed a monoclonal plasma cell population detected (28%). The results of the above study are significant for plasma cell leukemia.

FIGURES AND TABLES

Value	12/22/2023
Sodium	138
Potassium	3.7
Chloride	106
CO2	22
Anion Gap	10
Urea Nitrogen	13
Creatinine	0.64
eGFR	92
Glucose	95
Calcium	9.1
Protein	5.2
Albumin	3.2
Bilirubin, Total	0.6
Alkaline Phosphatase	249
AST	46
ALT	37
WBC	7.1
RBC	3.01
Hgb	9.4
Hct	27.4
MCV	91
MCH	31.2
MCHC	34.3
RDW	16.4
Platelet	147
MPV	13.4
Nucleated RBC's	0.0
Neutrophils %	70.3
Lymphocytes %	17.6
Monocytes %	7.7
Eosinophils %	3.1
Basophils %	0.6
Immature Granulocyte %	0.7
Neutrophils Absolute	4.99
Lymphocytes Absolute	1.25
Monocytes Absolute	0.55

Value	12/22/2023	1/12/2024	2/9/2024
Alpha 1 Globulin	0.2	0.3	0.3
Alpha 2 Globulin	0.6	0.7	0.6
Beta Globulin	0.6	0.6	0.5
Gamma Globulin	0.6	0.5	0.4
Monoclonal Protein, Serum	0.44	0.35	0.25
Pro Elec Phor A/G Ratio	1.6	1.3	1.7
Free Kappa, Serum	6.4	5.4	<4.1
Free Lambda, Serum	6.3	<6.1	<5.7
Free Kappa/Lambda Ratio, Serum	1.02	-	<0.72
IgA	<50	<50	<50
IgG	873	640	623
IgM	<25	<25	<25

Table 1. Lab results upon initial presentation and progression of plasma cell leukemia.

FIGURES AND TABLES

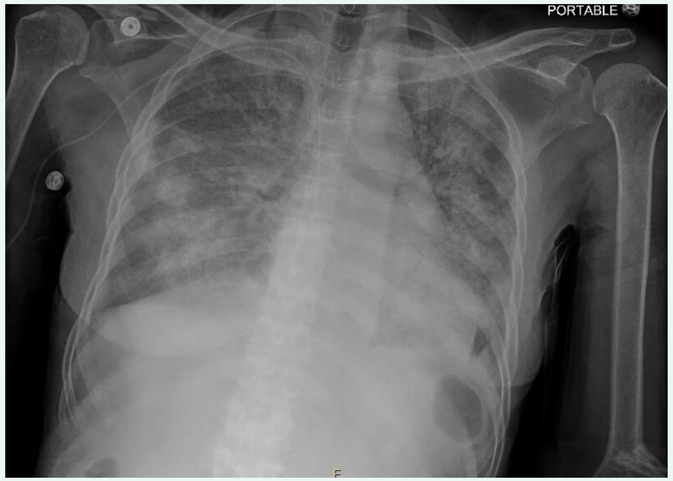

Table 2. Chest x-ray demonstrating plasma cell leukemia.

DISCUSSION

The patient received multiple blood transfusions, IV fluids, zoledronate, and decadron. She later developed hyperviscosity syndrome (HSV). The patient was transferred to the ICU for closer monitoring. The patient urgently transferred to Jefferson Main for plasmapheresis. Patient's symptoms improved with the above treatment. She was discharged home and instructed to follow up with a Hematology-Oncology outpatient for further management of her plasma cell leukemia.

ACKNOWLEDGEMENTS

We would like to acknowledge Dr. Gill, Philadelphia College of Osteopathic Medicine, and the department of Neurology at Jefferson Abington Hospital.