Multiple Myeloma in a Filipino Patient: Clinical Case Report and Review of Literature

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Abstract

Multiple myeloma is a lymphoproliferative disease of unknown etiology that involves plasma cells.(12) In the United States, (1) prevalence of this disease is more common in the Blacks(13) followed by whites but it is not a frequently diagnosed disease in Filipinos. In this article we describe a Filipino patient in North America who was found to be suffering from multiple myeloma.

INTRODUCTION

Multiple myeloma also called Plasma cell myeloma is a neoplasm of plasma cells which usually present with fatigue, bone pain, and recurrent infections ($_2$). It is primarily a disorder of old age and is more common in men and blacks. Incidence rates in men are approximately 50% higher than rates in women for all racial/ethnic groups, with the exception of Filipinos, where women have an 80% excess.($_3$) In women incidence rate is highest in blacks (7.4), followed by whites (3.2). Filipino women have a much lower incidence rate (2.6), compared to other ethnic groups. ($_4$) In this article we describe a patient of Filipino origin who presented with typical sign and symptoms of multiple myeloma and was diagnosed to be suffering from the same disease. This makes awareness of primary care physicians about multiple myeloma in races with lowest incidence rates very important.

CASE REPORT

A 61 year old female patient of Filipino origin presented with history of back pain, fatigue and muscle aches for 2 weeks. She had been well till 2 weeks ago when she started complaining of generalized fatigue and back pain. Pain started spontaneously after patient lifted a heavy object. It was not associated with numbness of legs or radiation of the pain. There was no history of fever, weight loss, poor or blurred vision, recurrent past infections, pains at other body sites, bleeding, nausea, vomiting, constipation, polydipsia, polyuria, nausea, anorexia or recent change in bowel habits. On examination only significant findings were increased blood pressure (152/85) and moderate tenderness over lumbar area. Other wise patient was well developed and in no distress. SLR was negative. There were no any other significant finding on history and examination.

Complete Metabolic Profile, Complete Blood Count and Lipid Panel studies revealed high serum protein level (11.2) with low serum albumin (3.5) and high total globulin (7.7). Patient was also found to have low RBCs count (3.68), Hemoglobin (11.6) and hematocrit (34.7). Platelets, Serum Alkaline phosphatase and Alanine aminotransferase were found above the normal range. Lipid panel showed increased TG (155) and low HDL cholesterol (28). All other lab results were within normal limits (Fig1).

Figure 1

TESTS	RESULT	REFERENCE INTERVAL
Complete metabolic panel		
Glucose, Serum	99mg/dl	65-99
BUN/Crt. Ratio	21	8-27
Sodium, Serum	141mmol/l	135-148
Potassium, Serum	5.2mmol/l	3.5-5.5
Chloride, Serum	101mmol/l	96-109
Calcium, Serum	10.2 mg/dl	8.5-10.6
Protein, Total, Serum	**11.2g/dl (High)**	6.0-8.5
Albumin, Serum	**3.5g/dl (Low)**	3.6-4.8
Globulin, Total	**7.7g/dl (High)**	1.5-4.5
A/G Ratio	**0.5 (Low)**	1.1-2.5
Billirubin, Total	0.3mg/dl	0.1-1.2
Alkaline Phosphatase, Serum	**195IU/L (High)**	25-165
AST(SGOT)	40IU/L	0-40
ALT(SGPT)	**51IU/L (High)**	0-40
CBC, Platelet		
WBC	5.8*10E3/UL	4.0-10.5
RBC	**3.68*10E3/UL (Low)**	3.90-5.50
Hemoglobin	**11.6 g/dl (Low)**	12.0-16.0
Hematocrit	**34.7% (Low)**	35.0-49.0
MCV	94fl	79-100
MCH	31.6pg	27.0-33.0
MCHC	33.5g/dl	32.0-36.0
RDW	14.6%	12.0-16.2
Platelets	**449*10E3/UL (High)**	140-440
Lipid Panel		
Cholesterol, Total	126mg/dl	100-199
Triglycerides	**155mg/dl (High)**	0-149
HDL cholesterol	**28mg/dl (Low)**	40-159
VLDL Cholesterol Cal	31 mg/dl	5-40
LDL Cholesterol Calc	67mg/dl	0-99

The patient returned with the abnormal lab results and complains of increased tiredness throughout the day and unable to sleep. Other than this there was no any significant change in the symptoms of the patient. Multiple myeloma was suspected and urinanalysis and protein electrophoresis were ordered. Patient was found to have proteinuria (1+), hematuria (1+) with RBCs of 4-10 along with epithelial cells, mucus threads and bacteria in the urine.

Figure 2

TESTS	RESULT	REFERENCE INTERVAL
Urinalysis, Routine		
Urinalysis Gross Exam	1.012	1.005-1.030
Specific Gravity	6.0	5.0-7.5
Urine-Color	Straw	Yellow
Appearance	Clear	Clear
WBC Esterase	Negative	Negative
Glucose	Negative	Negative
Protein	**1+ (Abnormal)**	Negative /Trace
Occult Blood	**1+ (Abnormal)**	Negative
Ketones	Negative	Negative
Billirubin	Negative	Negative
Urobilinogen, Semi-Qn	0.0mg/dl	0.0-1.9
Nitrite, Urine	Negative	Negative
Microscopic Examination		
WBC	0-5/hpf	0-5
RBC	**4-10/hpf(Abnormal)**	0-3
Epithelial Cells(Non Renal)	50-10/hpf	0-10
Epithelial Cells (Renal)	**0-10/hpf(Abnormal)**	None
Mucus Threads	**Present (Abnormal)**	None
Bacteria	**Few (Abnormal)**	None

Protein Electrophoresis disclosed presence of M-spike along with very high beta globulins

Figure 3

TESTS	RESULT	REFERENCE INTERVAL
Protein Electrophoresis Serum		
Protein, Total, Serum	**10.7 g/dl (Alert)**	6.0-8.5
Albumin	3.5g/dl	3.2-5.6
Alpha-1-Globulin	0.2g/dl	0.1-0.4
Alpha-2-Globulin	0.8g/dl	0.4-1.2
Beta Globulin	**5.2g/dl (High)**	0.6-1.3
Gamma Globulin	1.0g/dl	0.5-1.6
M-Spike	**4.4g/dl(Alert)**	Not observed
Globulin, Total	**7.2 (High)**	2.0-4.5
A/G Ratio	**0.5g/dl (Low)**	0.7-2.0

Random urine was sent for protein electrophoresis and was found to be positive of Bence Jones Protein-Kappa light chain type which confirms the diagnosis of Multiple Myeloma.

Additionally, X-ray of the lumbar spine revealed compression fractures of at T9 and T11. Patient was referred to an oncologist and subsequently chemotherapy was started.

DISCUSSION

The immune system is composed of several types of cells that work together to fight infections. Lymphocytes, which are main cell type of immune system, are of two types, T cells and B cells. B cells respond to infection by maturing into plasma cells which subsequently produce antibodies to attack invading organisms. When plasma cells grow out of control, they can produce a tumor ([5]). If there is only one tumor, it is called plasmacytoma, but usually plasma cell tumor is spread throughout the bone marrow and then they are called Multiple Myeloma.

This overgrowth of plasma cells can interfere with function of other blood cells, leading to anemia, which causes fatigue, bleeding, leucopenia, infections, weakened and even fractured bones leading to bone pains ([6]) and high blood calcium level leading to excessive thirst, urination, constipation, nausea, anorexia and confusion. ([7]). These patients can also have impaired kidney function ([8]).

Typically, a large gap between the total protein and the albumin levels observed on an automated chemistry panel suggests a problem. An abnormal protein produced by the plasma cells, called a monoclonal (M) protein ([14]) can be found in the blood or urine of almost all patients with multiple myeloma, and helps establish the diagnosis([9]). Bone marrow usually has abnormally increase number of plasma cells and x-ray shows typical round areas of bone erosions ([11]). The incidence of multiple myeloma has a great racial/ethnic variation with age-adjusted annual incidence is 4.3 cases per 100,000 white men, 3 cases per 100,000 white

women, 9.6 cases per 100,000 black men, and 6.7 cases per 100,000 black women.([10]). Filipino women have very low incidence of multiple myeloma with less than 0.3 per 1000,000 persons per year (described by International Agency for Research on Cancer 1992).

This makes multiple myeloma a very uncommon diagnosis in patients who belong to the races with low prevalence of multiple myeloma (as in patients of Filipino and Chinese descent) especially in the offices of private practitioners. Due to this low incidence, this disease is usually not on the top of differential diagnosis in non-black patients who present to private practitioners with only complaints of backache and fatigue. In the above mentioned case a Filipino patient who presented with only history of backache and fatigue was ultimately found to be suffering from multiple myeloma.

In conclusion, Since Multiple myeloma usually presents as a disease of African Americans and is uncommon in non-black population in the USA, this case report demonstrates that even in ethnic populations with low incidence of multiple myeloma, level of suspicion should be kept high in patients who present with only complaints of back pain and generalized fatigue.

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