BIOCHEMICAL STUDIES TO CONFIRM A MISSED CASE OF MULTIPLE MYELOMA IN A SEVENTY YEAR OLD MALE

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ABSTRACT

Routine investigations of a 70 year old male led to provisional diagnosis of anemia. However further investigations suggested the possibilities of carcinoma of stomach associated with pernicious anemia, multiple myeloma and megaloblastic anemia. Finally serum protein electrophoresis supported by the clinical suspicion confirmed multiple myeloma.

KEY WORDS : Multiple myeloma, Gamma M-Spike.

A seventy year old male clinically presented with complaints of easy fatigability, loss of appetite, and general body-ache for three months. The symptoms began gradually and progressed rapidly. He was otherwise well. His general examination revealed pallor 1+, pulse was weak and 72/minute, blood pressure was 130/80mmHg. On systemic examination, no significant findings were recorded. A provisional diagnosis of anemia was made based on the investigations in table 1, which were carried out for the evaluation of the etiology of anemia.

Table 1. Preliminary investigations report of the patient

Investigation	Result	Normal Range
Hemoglobin	5.2gm/dl	13-18gm/dl
Total count	2300/ μ l	4000-11000/ μ l
Differential count	Neutrophils (N) 32 Lymphocytes (L) 18/50 cells	N 40-75%, L 20-45%
Platelet Count	1.5 Lakhs/ μ l	1.5-4.1 Lakhs/ μ l
Blood Urea	107 mg/dl	10-50 mg/dl
Serum Creatinine	2.8 mg/dl	0.6-1.3 mg/dl

Peripheral smear showed a normocytic, hypochromic blood picture with oval macrocytes and a leucopenia with hypersegmented neutrophils.

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At this stage a differential diagnosis of carcinoma of stomach associated with pernicious anemia, multiple myeloma, megaloblastic anemia was arrived at, considering the age, decreased hemoglobin, renal failure and hypersegmented neutrophils (1). Results of additional investigations are given in table 2.

Based on this high index of clinical suspicion, serum protein electrophoresis was carried on Titan gel (Helena Laboratories) and scanned using computerized densitometer (Fig.1). Bone marrow aspiration cytology was done, the results of which are given in table 3.

Table 2. Additional investigations report of the patient.

Investigation	Result	Normal Range
Total serum proteins	7.0 g/dl	6.0-8.0 g/dl
Serum albumin	3.9 g/dl	3.2-5.5 g/dl
A/G Ratio	1.2	1.0-1.5
x-ray Spine (lateral)	Cervical Vertebrae collapse	
Chest x-ray	Cardiomegaly	
Urine Bence-Jones Protein	Negative	

Table 3. Report on the bone marrow cytology and electrophoresis of serum proteins.

1.	Bone Marrow Cytology	:	Hypocellular marrow with plamocytosis and moderate increase in reticulin fibrosis.
2.	Serum Protein Electrophoresis	:	M –Spike seen in the Gamma region suggestive of multiple myeloma. (Fig. 1)
3.	Urine Electrophoresis	:	Monoclonal band seen in the Gamma region

At this stage considering collapse of the cervical vertebrae, the possibility of multiple myeloma (2) as the cause was still high in the differential diagnosis, overlooking the absence of Bence-Jones protein in the urine and that the total protein was in the normal range.

The above findings clearly pointed towards the diagnosis of multiple myeloma (3). The recommended further investigations for staging of the disease are : Quantitative Immuno-globulin assay of IgA and IgG and serum beta 2 microglobulin (4).

Fig. 1. Densitometric scanning of serum protein electrophoresis showing the presence of M-Spike in the Gamma region.

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