Acta Scientific MEDICAL SCIENCES (ISSN: 2582-0931)

Volume 7 Issue 3 March 2023

Case Report

A Rare Case of Typical Secretory Multiple Myeloma in a 21-Year-Old Man

Ahmad M Hassaneen[1,2]*

[1]*Sulaiman AlRajhi University, Al Bukayriyah, Kingdom of Saudi Arabia*

[2]*Clinical Pathology Department, Faculty of Medicine, Zagazig University, Zagazig, Egypt*

***Corresponding Author:** Ahmad M Hassaneen, Sulaiman AlRajhi University, Al Bukayriyah, Kingdom of Saudi Arabia and Clinical Pathology Department, Faculty of Medicine, Zagazig University, Zagazig, Egypt.

DOI: 10.31080/ASMS.2023.07.1496

Received: January 31, 2023

Published: February 27, 2023

Abstract

Introduction: Multiple myeloma is an important hematological malignancy in which plasma cells are increased in bone marrow. It is mainly a disease of elderly people ; the prevalence in patients younger than 40 years old is only 2%. However, in this case it has been diagnosed in a 21-year-old man which is considered a rare case report.

Method: A-21-year old Middle Eastern man presented to the author's institution with vague pain in the lumbar region. CT scan on vertebrae, urine testing for Bence Jones protein and serum protein electrophoresis (SPEP) have been done. Bone marrow aspiration has been done to detect plasma cells.

Results: CT scan showed multiple osteolytic lesions in the lumbar vertebrae. Urine was positive for Bence Jones protein and serum protein electrophoresis (SPEP) demonstrated M band.

Examination of bone marrow smears showed infiltration with 35% plasma cells, hence the diagnosis of multiple myeloma was established.

Conclusion: This report presents a rare case of typical secretory multiple myeloma in a 21-year -old man, which has been suspected clinically then confirmed by laboratory and radiological investigations. Suspecting this malignancy in young people is of clinical significance so that these cases will not be missed and early diagnosis and start of therapy can be achieved.

Keywords: Case Report; Multiple Myeloma; Plasma Cells; 21 Years Old

Introduction

Multiple myeloma is a hematological malignancy in which plasma cells are increased in bone marrow and they secrete an abnormal immunoglobulin causing monoclonal gammopathy. The abnormal immunoglobulin can be formed of both heavy and light chains or it can be a light chain only and usually it can be also detected in urine [1].

Multiple myeloma may be preceded by a condition known as monoclonal gammopathy of undetermined significance (MGUS) in which clonal plasma cells are present but without an evidence of organ damage [2]. Multiple myeloma is characterized by anemia, osteolytic bone lesions, hypercalcemia, and renal failure [3].

The incidence varies from 2 to 15/100.000, and it is more common in African origin population, the mean age at diagnosis

is 65 years [4]. It is a disease of elderly, the prevalence in patients younger than 40 years old is 2% [5].

Case Presentation

A 21-year-old man had a complaint of vague bone pain in the lumbar region. He received two types of NSAIDs with no improvement. After that, he has been re-evaluated by orthopedics specialist. Computerized tomography (CT) scan revealed multiple osteolytic lesions in the lumbar vertebrae. Accordingly, he was referred for further investigations to clarify the diagnosis of suspected multiple myeloma.

In our laboratory, the following tests have been done:

- **Complete blood count (CBC):** Venous blood sample was taken in vacutainer tube with Ethylene diamine tetra acetic acid (EDTA) and was processed using Sysmex SF 3000 automated cell counter. Also, fresh blood smears were prepared and then stained with Leishman's stain. The CBC showed that hemoglobin level is 9.6 g/dl, hematocrit is 28.8%, platelets count is 125,000/ul and white blood cells count is 13,500/ul. On peripheral blood smear examination, rouleaux formation of RBCs was detected.
- Urine examination for Bence Jones protein by heat-precipitation method using glacial acetic acid, and it showed a positive result (+++)
- Biochemical tests revealed impaired kidney function with serum creatinine 194.5 umol/L, urea 18.92 mmol/L and uric acid 518.25 umol/L.
- Serum protein electrophoresis (SPEP) was performed on cellulose acetate strips by the use of a ready made buffer (pH 8.6), it demonstrated an M-band (Figure 1). The abnormal immunoglobulin was found to be of IgG type by Immunofixation electrophoresis.
- **Bone marrow aspiration:** Microscopic examination of stained bone marrow smears showed hypercellular marrow with presence of 35% plasma cells. The plasma cells showed the characteristic eccentric nucleus with perinuclear halo (hoff). Some cells showed anaplastic features such as mitotic figures, larger size and irregular shape (Figure 2).
- These findings together with protein electrophoresis and CT results confirmed the diagnosis of Multiple myeloma.

Figure 1: Serum protein electrophoresis demonstrated an M-band (monoclonal hypergammaglobulinemia).

Figure 2: Bone marrow preparation showing heavy infiltration with plasma cells with eccentric nucleus and characteristic perinuclear hoff . Many anaplastic forms are seen.

Discussion

Multiple myeloma is very rare in people aged less than 30 years, accounting for about 0.3% of all cases. However, in this age group, the presenting clinical features and response to therapy are reported to be similar to that for patients of all ages who

have multiple myeloma [6]. In the present case, the patient was 21-year-old which is considered a rare case, and the diagnosis was suspected based on clinical symptoms and bony lesions in CT.

Non-secretory myeloma is a rare type of multiple myeloma (2% to 4% of all cases) [1]. In the case of non-secretory myeloma, plasma cells do not secrete immunoglobulin (serum and urinary protein electrophoresis are negative for M-band and free light chains can not be detected) [7].

Serum protein electrophoresis shows either the presence of a sharp peak in the gamma globulin zone for secreting myeloma, or hypogammaglobulinemia associated with Bence-Jones proteinuria in case of light chain myeloma [8]. In the present case, monoclonal immunoglobulin was detected in serum and free light chain was detected in urine, so this case is proved to be secretory MM.

Plasma cells are characterized by the presence of an eccentric nucleus and perinuclear Hof or clearing of the cytoplasm. The morphology of malignant plasma cells may range from small mature cells to anaplastic or plasmablastic morphology [9]. In this case report, bone marrow preparations showed these typical features of malignant plasma cells including some anaplastic forms with large size and irregular shape.

Diagnosis of MM can be done if there are more than 10 percent plasma cells in bone marrow with signs of organ damage or more than 60 percent plasma cells without any signs of organ damage. The signs of organ damage include the acronym CRAB (hypercalcemia, renal failure, anemia and lytic bone lesions) [10]. The investigations done for the present case fulfilled these diagnostic criteria which confirmed the diagnosis of multiple myeloma in this young man as a rare case report.

Conclusion

Suspecting multiple myeloma in young people is of clinical significance so that these cases will not be missed and early diagnosis and start of therapy can be achieved.

Authors' Contributions

The corresponding author diagnosed the case and prepared the manuscript. The author read and approved the final manuscript.

Funding

All diagnostic methods and investigations done in this study were funded by the author.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any relevant images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing Interests

The author declares that he has no competing interests.

Bibliography

1. Lonial S and Kaufman JL. "Non-secretory myeloma: a clinician's guide". *Oncology (Williston Park)* 27.9 (2013): 924-928, 930.

2. Dimopoulos M., *et al*. "Consensus recommendations for standard investigative workup: report of the International Myeloma Workshop Consensus Panel 3". *Blood* 117 (2011): 4701-4705.

3. Mondita Borgohain., *et al*. "Multiple Myeloma Presenting as Spinal Cord Compression: A Report of Five Cases". *International Journal of Contemporary Medical Research* 4.4 (2017): 837-839.

4. Kazandjian D. "Multiple myeloma epidemiology and survival: a unique malignancy". *Seminar on Oncology* 43 (2016): 676-681.

5. Kyle RA., *et al*. "Review of 1027 patients with newly diagnosed multiple myeloma". *Mayo Clinic Proceedings* 78 (2003): 21-33.

6. Huynh Van Man and Phu Chi Dung. "A Case of Multiple Myeloma in a 17-Year-Old Girl Treated with Autologous Hematopoietic Stem Cell Transplantation (ASCT)". *American Journal of Case Reports* 20 (2019): 1623-1629.

7. Durie BG., *et al*. "International uniform response criteria for multiple myeloma". *Leukemia* 20 (2006): 2220.

8. Charlot-Lambrecht I., *et al*. "Myélome multiple EMC 2011-01-01". 6.4 1-12.

9. M Srija., *et al*. "Plasmablastic myeloma presenting as rapidly progressive renal failure in a young adult". *Indian Journal of Nephrology* 24.1 (2014): 41-44.

10. Rajkumar SV., *et al*. "International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma". *Lancet Oncology* 15.12 (2014): e538-548.