

AGGRESSIVE MULTIPLE MYELOMA IN A YOUNG ADULT: A CASE REPORT

Khadija Bellahammou^{*,1}, Asmaa Lakhdissi^{*}, Othman Akkar^{*}, Narimane Salmi^{*}, Fatima Zahra Zakkouri^{*}, Souhail Dahraoui^{**},
Fadoua Rais^{***}, Hind M'rabti^{*} and Hassan Errihani^{*}

^{*}Department of Medical Oncology, National Institute of Oncology, Rabat, Morocco, ^{**}Department of Biology, Military Hospital, Mohamed V, Rabat, Morocco, ^{***}Department of Radiotherapy, National Institute of Oncology, Rabat, Morocco

ABSTRACT

Multiple Myeloma is a blood cancer type B characterized by clonal proliferation of malignant plasma cells. The median age at diagnosis is 70 years. Cases among younger patients are rare, and less than 0,3% patients are younger than 30 years in most series.

We report a case of a 25-year-old women. She was suffering from a sacred pain radiating towards the left lower limb and fatigue for three months. A magnetic resonance imaging for dorso-lumbar spine showed an extensive process and multiple osteolytic lesions in second, third and fourth sacred vertebras. She underwent a laparotomy that revealed a dense mass invading the sacrum and the rectum. The histological examination with immunocytochemistry analysis showed a plasmocytoma and the diagnosis of symptomatic multiple myeloma stages III established than she received two courses of chemotherapy.

Despite the rarity of multiple myeloma among young patients, this diagnosis should be evoked when clinical, biological and radiological signs are in favor. It appears that there is no difference between younger and elderly patients on the presentation of the disease, although a longer survival reported among young patients.

KEYWORDS multiple myeloma, young, aggressive

Introduction

Multiple Myeloma is a blood cancer type B characterized by clonal proliferation of malignant plasma cells that accounts for about 10% of all hematological malignancies [1]. The risk of multiple myeloma increases with age, peaking at about 70 years [2]. Cases among younger patients are rare. We report an aggressive case of multiple myeloma arising in a 25-year-old woman.

Case Report

A 25-year-old woman accused, for three months, a sacred pain radiating towards the left lower limb and asthenia. Magnetic resonance imaging for dorso-lumbar spine showed an extensive process and multiple osteolytic lesions in 2nd, third and fourth sacred vertebras (Figure 1). She underwent a laparotomy that revealed a thick mass invading the sacrum and the rectum. The surgical debulking was impossible, and the patient underwent a colostomy with biopsy. The histological examination with immunocytochemistry analysis revealed a plasmocytoma (CD3 +, CD20 -, pancytokeratin -, anti-PS100 - and CD138 +). The diagnosis of symptomatic multiple myeloma stages III of Durie and Salmon planned in front of the presence of a medullary plasmocytose superior to 10%, of multiple osteolytic lesions (Figure 2), of monoclonal IgG Kappa gammopathy in the immunoelectrophoresis-serum protein analysis (Figure 3) and the presence of a Bence Jones proteinuria. The patient had anemia (hemoglobin level at 7g/dl). The serum creatinine

Copyright © 2018 by the Bulgarian Association of Young Surgeons
DOI:10.5455/ijsm.multiplemyeloma

First Received: April 5, 2016

Accepted: April 28, 2016

Manuscript Associate Editor: George Baytchev (BG)

Editor-in Chief: Ivan Inkov (BG)

Reviewers: Franciszek Burdan (PL); Masoud Sadeghi(IR); Abdul Sattar (PK)

¹Khadija Bellahammou, Department of Medical Oncology, National Institute of Oncology, Rabat, Morocco Email:khadija.bellahammou@gmail.com

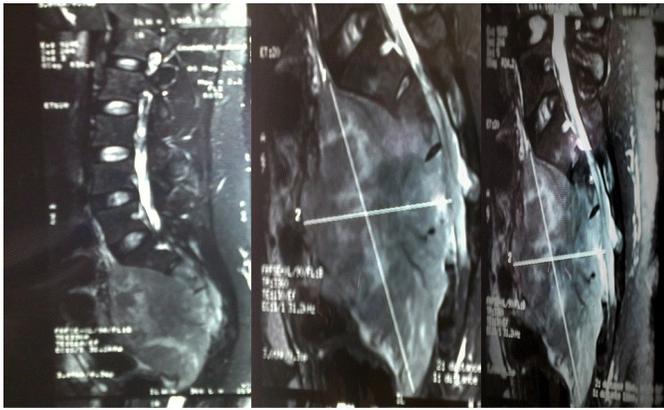


Figure 1: post gadolinium axial weighted magnetic resonance images of dorso lumbar spine revealing an expansive mass with multiple osteolytic lesions in 2nd, 3rd and 4th sacral vertebrae.

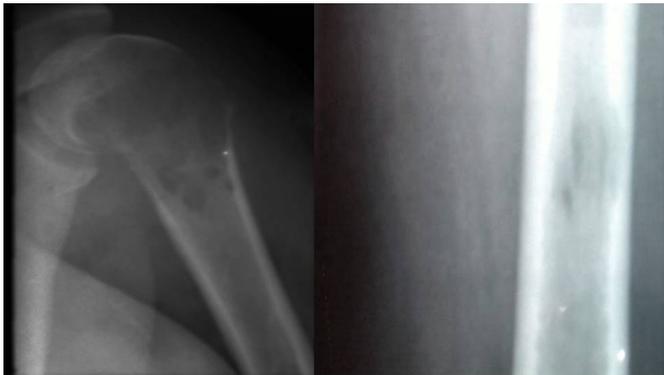


Figure 2: X-Rays showing lytic lesions involving the right humerus and the left tibia

and calcium were normal. Serum β_2 microglobulin was high (5,5mg/L).

High-dose chemotherapy followed by autologous stem cell transplantation was indicated in our case, but seen the lower socioeconomic level of the patient. She treated with chemotherapy VAD (vincristine, doxorubicin, and dexamethasone) with bisphosphonates, she received two courses. Unfortunately, she was lost to follow-up.

Discussion

Multiple Myeloma is the second most common hematological malignancy in the United States of America after non-Hodgkin lymphoma. The American Cancer Society has estimated 26,850 new cases in 2015, the risk of multiple myeloma increases with age. The median age at diagnosis is about 62 years for men and 61 years for women [3]. Cases among younger patients are rare with less than 2% of patients younger than 40 years in most series [4]. Multiple myeloma occurring in patients under the age of 30 is even rarer, our patient had 25 years-old at diagnosis which considered as a highly rare condition. Hewell et al. [5] has described the first well-documented cases of young patients with multiple myeloma and reported a frequency of 1% Blade et al. [4] reviewed the records of 3278 patients treated for multiple myeloma at the Mayo clinic between 1956 and 1992. The incidence of Multiple myeloma in patients younger than 40 and

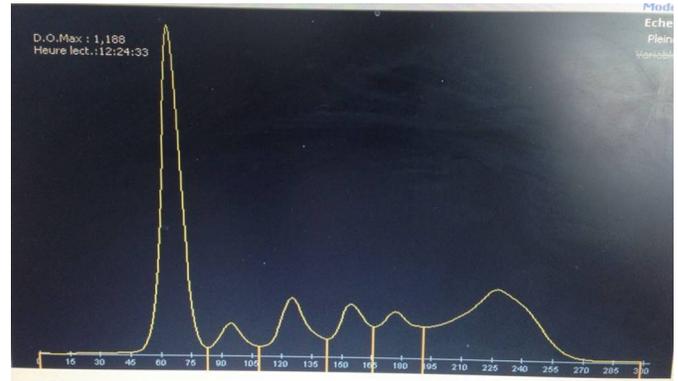


Figure 3: Monoclonal gamma globulin peak in the serum protein electrophoresis.

30 years was 2.2% and 0.3%, respectively.

In another study conducted by the National Cancer Institute, 3815 patients with multiple myeloma were included and only seven patients were under the age of 30 with a frequency of 0.18% [6].

Patients with symptomatic multiple myeloma are mostly presenting bone pain, fatigue and the diagnosis confirmed in the presence of $>$ or $=10\%$ clonal plasma cells on bone marrow examination or a biopsy proven plasmocytoma and the evidence of end-organ damage, such as hypercalcemia, renal insufficiency, anemia, and bone lesions, in addition to the detection of monoclonal protein. The monoclonal protein component, found in serum and/or urine, is most commonly IgG, followed by IgA, then κ or λ light chain [7].

The clinical and biological characteristics of multiple myeloma among young patients are as the same as in elderly patients in most series, but some difference also reported; Usha et al. [8] reported in one study conducted in a period of 7 years (1993-1999), 14 cases of myeloma in young patients (<40 years) out of 178 cases, 60% of those patients presented symptoms, including a backache, pain in pelvis, lower spine and weakness, anemia noted in all the cases, and myeloma typing revealed IgG myeloma in 10 cases as was noticed in our patient.

The Bence Jones proteinuria rarely reported among young patients. Blade et al. [4] have reported the presence of Bence Jones proteinuria in 5 out of 10 patients, in our patient the Bence Jones proteinuria was also present.

Renal function impairment and hypercalcemia reported in 30% and 20% of patients, respectively in the study conducted by Blade et al. [9] It was not observed in our patient.

Radiologically, our patient had multiple osteolytic skeletal lesions which described as frequent among young patients in most series, especially in those under the age of 30. Blade et al. [9] have found osteolytic lesions in 6 out of 10 patients in one report, the radiological examination in the study of Usha et al. [8] has revealed lytic lesions in almost all the cases with fracture femur and rib in 28.57% of cases. The extramedullary component also reported among young patients with multiple myeloma [4, 10].

Since the end of the 90s, high-dose chemotherapy with autologous stem-cell transplantation has become the standard treatment in younger patients with multiple myeloma, with a median overall survival of about five years [11]. Vincristine, doxorubicin, dexamethasone used for many years as a pretransplantation induction therapy. However, this protocol is no longer

recommended as initial therapy for the introduction of several newer induction regimens [12]. The most common induction regimens used today are thalidomide–dexamethasone, bortezomib-based regimens, and lenalidomide–dexamethasone, three to four courses recommended before proceeding to stem cell collection [13].

The median duration of survival of patients with multiple myeloma in all the age groups usually varies from 2-3 years. However, it seems that multiple myeloma occurrences in young patients do not appear associated with a worse prognosis or survival.

Blade et al. [4] reported a longer median survival among patients younger than 40 years of 54 months, in another analysis conducted by the International Myeloma Working Group [14], the presenting features and survival in 1689 patients with multiple myeloma aged younger than 50 years compared with 8860 patients 50 years of age and older, survival was significantly longer in young patients (5.2 years versus 3.7 years; $P < .001$).

Besides, an aggressive clinical course has also been reported in very few cases of young patients [15], our patient also had an aggressive clinical presentation at diagnosis; unfortunately, we could not assess the further evolution.

Conclusion

The clinical, radiological and laboratory features, among young patients, are similar to elderly patients, with longer survival. Thus, multiple myeloma should be evoked even in young patients.

Acknowledgements

The case report was written by Bellahammou Khadija. All authors have read and agreed to the final version of this manuscript and have equally contributed to its content and the management of the case.

Disclosure Statement

There were no financial support or relationships between the authors and any organization or professional bodies that could pose any conflict of interests.

Competing Interests

Written informed consent obtained from the patient for publication of this case report and any accompanying images.

References

1. Kyle RA. Rajkumar SV. Multiple myeloma. *Blood*. 2008; 111: 2962–2972.
2. Antonio P. Kenneth A. Multiple myeloma. *The NEJM*, 2011; 364, 1046-1060.
3. Siegel RL. Miller KD. Jemal A. Cancer statistics, 2015. *CA Cancer J Clin* 2015; 65:529.
4. Blade J. Kyle RA. Greipp PR et al. Presenting features and prognosis in 72 patients with multiple myeloma who were younger than 40 years. *Br J Haematol*, 1996; 93: 345-51.
5. Hewell G.M and Alexanian R. Multiple myeloma in young persons. 1976 *Annals of internal medicine*, 84,441-443.
6. Young JL. Percy CL. Asire AJ et al. Surveillance, epidemiology and end result. US department of health and human services. National Cancer Institute Monograph, 1981;57.
7. P, Moreau J, et al. Multiple myeloma: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. *Annals of Oncology*.2013; 24: vi133–vi137.
8. Usha Agarwal N.Kumar P et al. Myeloma in young age. *Indian J Pathol Microbiol*, 2005; 314-7.
9. Blade J. Kyle RA. Greipp PR. Multiple myeloma in patients younger than 30 years: report of 10 cases and review of the literature. *Arch Intern Med*, 1996; 156: 1463-1468.
10. Kapoor R. Bansal M. Sastri GS. Sandhu MS. Garg M. Sharma SC. Clinical spectrum and prognosis of multiple myeloma in patients younger than 30 years: is it different from the elderly? *JK Science*. 2006, 8:228.
11. Vincent Rajkumar S and Sonneveldb P. Front-line treatment in younger patients with multiple myeloma. *Semin Hematol*. 2009, 46:118–126.
12. Harousseau JL. Attal M. Avet-Loiseau H et al. Bortezomib plus dexamethasone is superior to vincristine plus doxorubicin plus dexamethasone as induction treatment prior to autologous stem-cell transplantation in newly diagnosed multiple myeloma: results of the IFM 2005-01 phase III trial. *J Clin Oncol* 2010; 28: 4621-629.
13. Vincent Rajkumar S.and Shaji Kumar. Multiple myeloma: diagnosis and treatment. *Mayo Clin Proc*. 2016; 91:101-119.
14. Heinz Ludwig et al. Myeloma in patients younger than age 50 years presents with more favorable features and shows better survival: an analysis of 10 549 patients from the International Myeloma Working Group. *Blood*.2008, 111:4039.
15. Clough V.Delamore IW.Whittaker JA. Multiple myeloma in a young woman. *Ann Intern Med*. 1977; 86: 117-18.