Scientific Research Publishing

International Journal of Clinical Medicine, 2022, 13, 489-493
https://www.scirp.org/journal/ijcm
ISSN Online: 2158-2882
ISSN Print: 2158-284X

Multiple Myeloma in a Patient with Rectal Cancer

Huimin Fan*, Caihua Tao

Department of Laboratory Medicine, Zhenjiang First People's Hospital, Zhenjiang, China
Email: *fanhuimin881223@163.com

How to cite this paper: Fan, H.M. and Tao, C.H. (2022) Multiple Myeloma in a Patient with Rectal Cancer. *International Journal of Clinical Medicine*, **13**, 489-493.
https://doi.org/10.4236/ijcm.2022.1311036

Received: September 27, 2022
Accepted: October 30, 2022
Published: November 2, 2022

Abstract

Multiple myeloma is characterized by the accumulation of clonal, malignant plasma cells in the bone marrow. Multiple lytic skeletal lesions in some tumor patients with multiple myeloma are easily considered as bone metastases secondary to tumors, resulting in a missed diagnosis of multiple myeloma. Herein, we report a rare case, in which rectal cancer with multiple myeloma was initially misdiagnosed with bone metastases secondary to rectal cancer, due to the symptoms of multiple lytic sketetal lesions, and ignoring the abnormal plasma cells in the peripheral circulating blood smear. The patient was finally diagnosed with coexistence of rectal cancer and multiple myeloma. The case focuses on the importance of the peripheral circulating blood smear detection.

Keywords

Multiple Myeloma, Multiple Lytic Skeletal Lesions, Plasma Cell

1. Introduction

Multiple myeloma (MM) is the second most common hematologic malignancy [1]. It is mostly observed in older adults with a median age of 66 to 70 years [2]. MM is characterized by the accumulation of clonal, malignant plasma cells in the bone marrow [3]. It can affect many areas of the body, such as the bones, kidneys, eyes, and nerves [4]. In the majority of patients, malignant proliferation of plasma cells causes the M protein (abnormal IgG, IgM, or IgA or rarely IgE or IgD) in the serum and/or urine [5]. Multiple myeloma cells also produce abnormal light chain proteins (κ or λ). Therefore, the multiple myeloma process causes an excessive M protein level which leads to hyperviscosity [6]. Many symptoms of MM are vague. Patients may feel tired, unexplained weight loss, get frequent infections. Some patients even have no symptoms [7]. The uncontrolled

growth of malignant plasma cells results in hypercalcemia, renal failure, anaemia, or destructive bone lesions ("CRAB") [8] [9]. Pathological fractures may occur in the skull, spine, pelvis rib cage and the long bones. Many patients will often present with new bone pains or pathological fractures [10]. However, for some patients with tumors, bone is the most frequent site for metastasis [11]. These patients may present bone destruction. Therefore, multiple lytic skeletal lesions in some tumor patients with multiple myeloma are easily considered as bone metastases secondary to tumors, resulting in a missed diagnosis of MM. Herein, we report a case, in which rectal cancer with MM was initially misdiagnosed with bone metastases secondary to rectal cancer, due to the symptoms of multiple lytic sketetal lesions, and ignoring the importance of the peripheral circulating blood smear detection.

2. Case Description

A 78-year-old man was diagnosed with rectal cancer at the local Hospital in 2017 and underwent radical surgery for rectal cancer, followed by postoperative chemotherapy for 6 rounds. He was referred to the respiratory department of our hospital due to fever and cough on July 15, 2021. CT showed multiple lytic skeletal lesions involving the spine, ribs and skull and vertebral compression fractures. Multiple postoperative bone metastases from the rectal cancer were diagnosed mainly involving the spine, ribs and skull. Routine blood specimens from this patient were tested in our laboratory. CBC showed a leukocyte count of 13.2 $\times 10^9$/L (reference value: 3.5 $\times 10^9$/L - 9.5 $\times 10^9$/L), a hemoglobin concentration of 63 g/L (reference value: 130 g/L - 175 g/L) and a platelet count of 60 $\times 10^9$/L (reference value: 125 $\times 10^9$/L - 350 $\times 10^9$/L). The peripheral blood smear showed plasma cells that contained round inclusions (Russell body), known as Motto cells (**Figure 1**). These changes are related to abnormal synthesis, trafficking or excretion of the immunoglobulin that is stored in excess within the cytoplasm [12]. Therefore, we suspected that the multiple lytic skeletal lesions were not bone metastases but were actually caused by multiple myeloma. Therefore, we continued to follow up on the other test results of this patient. Biochemistry showed total protein 131.60 g/L (reference value: 60 g/L - 80 g/L). Serum and urine electrophoresis demonstrated a monoclonal protein. Serum immunoglobulin showed IgG 135.00 g/L (reference value: 7.51 g/L - 15.6 g/L), IgA < 0.0667 g/L (reference value: 0.82 g/L - 4.53 g/L), IgM < 0.0417 g/L (reference value: 0.46 g/L - 3.04 g/L), β_2-microglobulin 9.35 mg/L (reference value: 0 - 2.8 mg/L), serum free λ light chain 164.00 g/L (reference value: 3.13 g/L - 7.23 g/L), serum free κ light chain 0.22 g/L (reference value: 6.29 g/L - 13.5 g/L), urine free λ light chain 115.00 mg/L (reference value: 0 - 3.9 mg/L), and urine free κ light chain < 6.940 mg/L (reference value: 0 - 7.1 mg/L). Multiple myeloma IgG-λ type was subsequently diagnosed.

3. Discussion

MM is a type of haematological bone marrow malignancy. According to typical

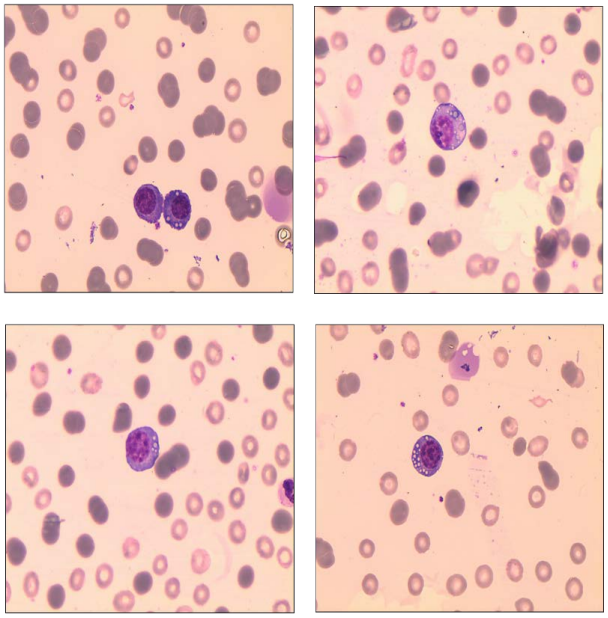

Figure 1. Motto cells containing round inclusions (Russell body) in different field of peripheral blood smear (×1000, Wright Giemsa).

symptoms and investigations, MM can be easily diagnosed for hematology specialists. However, for the non-specialist, MM or even coexistence of solid tumor and multiple myeloma is easily misdiagnosed or missed. Many patients with multiple myeloma initially present with bone pain involving long bones, rib skull, and pelvis. For many cancer patients, once cancer spreads to the bone, it is rarely cured and is associated with the symptoms including pain, increased risk of fracture, and hypercalcemia [13]. These symptoms are similar to the symptoms of MM. Therefore, multiple lytic skeletal lesions in some tumor patients with multiple myeloma are easily misdiagnosed with bone metastases secondary to tumors, resulting in a missed diagnosis of multiple myeloma. Herein, we report the case, in which rectal cancer with multiple myeloma was initially misdiagnosed with bone metastases secondary to rectal cancer, due to the symptoms of multiple lytic sketetal lesions, and ignoring the importance of the peripheral circulating blood smear detection. The abnormal plasma cells in the peripheral blood smear is a persuasive sign for a suspected diagnosis of MM. The presence of a high paraprotein and/or skewed imbalance of the κ/λ ratio is highly suggestive of diagnosis of MM.

4. Conclusion

In clinical practice, some tumor patients with multiple myeloma are easily misdiagnosed with bone metastases secondary to tumors, resulting in a missed diagnosis of multiple myeloma. However, the coexistence of more than two kinds of tumors is not common, which can easily lead to clinical neglect. Therefore, we should pay attention to the hematological examination while performing the imaging examinations. The examination of peripheral blood smears is not only

essential for diagnostics of hematological diseases but can also provide vital indications for the other diseases. By the systematic analysis of peripheral blood smears for alterations to blood cells, a blood smear test can make an important contribution to the formulation of a diagnosis [14]. Therefore, peripheral blood smears are an important screening method and should always be considered [15].

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Kazandjian, D. (2016) Multiple Myeloma Epidemiology and Survival: A Unique Malignancy. *Seminars in Oncology*, **43**, 676-681. https://doi.org/10.1053/j.seminoncol.2016.11.004

[2] Ravi, G. and Gonsalves, W.I. (2021) Current Diagnosis, Risk Stratification and Treatment Paradigms in Newly Diagnosed Multiple Myeloma. *Cancer Treatment and Research Communications*, **29**, Article ID: 100444. https://doi.org/10.1016/j.ctarc.2021.100444

[3] Cullis, J. (2019) Haematology: Multiple Myeloma. *Clinical Medicine* (*London*, *England*), **19**, 188-189. https://doi.org/10.7861/clinmedicine.19-2-188a

[4] Egan, P.A., Elder, P.T., Deighan, W.I., O'Connor, S.J.M. and Alexander, H.D. (2020) Multiple Myeloma with Central Nervous System Relapse. *Haematologica*, **105**, 1780-1790. https://doi.org/10.3324/haematol.2020.248518

[5] Nassar, S., Taher, A., Spear, R., Wang, F., Madewell, J.E. and Mujtaba, B. (2021) Multiple Myeloma: Role of Imaging in Diagnosis, Staging, and Treatment Response Assessment. *Seminars in Ultrasound, CT and MRI*, **42**, 184-193. https://doi.org/10.1053/j.sult.2020.08.019

[6] Nau, K.C. and Lewis, W.D. (2008) Multiple Myeloma: Diagnosis and Treatment. *American Family Physician*, **78**, 853-859.

[7] (2017) Multiple Myeloma. *American Family Physician*, **95**.

[8] Cowan, A.J., Green, D.J., Kwok, M., Lee, S., Coffey, D.G., Holmberg, L.A., Tuazon, S., Gopal, A.K. and Libby, E.N. (2022) Diagnosis and Management of Multiple Myeloma: A Review. *JAMA*, **327**, 464-477. https://doi.org/10.1001/jama.2022.0003

[9] Michels, T.C. and Petersen, K.E. (2017) Multiple Myeloma: Diagnosis and Treatment. *American Family Physician*, **95**, 373-383.

[10] Nandra, T.K., Devi, A. and Jones, J.R. (2022) Multiple Myeloma: What a Non-Haematologist Should Know. *Clinical Medicine* (*London*, *England*), **22**, 230-233. https://doi.org/10.7861/clinmed.2022-0144

[11] Coleman, R.E., Croucher, P.I., Padhani, A.R., Clezardin, P., Chow, E., Fallon, M., Guise, T., Colangeli, S., Capanna, R. and Costa, L. (2020) Bone Metastases. *Nature Reviews Disease Primers*, **6**, 83. https://doi.org/10.1038/s41572-020-00216-3

[12] Ribourtout, B. and Zandecki, M. (2015) Plasma Cell Morphology in Multiple Myeloma and Related Disorders. *Morphologie*, **99**, 38-62. https://doi.org/10.1016/j.morpho.2015.02.001

[13] Fornetti, J., Welm, A.L. and Stewart, S.A. (2018) Understanding the Bone in Cancer

Metastasis. *Journal of Bone and Mineral Research*, **33**, 2099-2113.
https://doi.org/10.1002/jbmr.3618

[14] Hoffmann, J., Michel, C., Schindler, T., Wollmer, E. and Neubauer, A. (2018) Rare Diseases Recognizable from Blood Smears. *Internist* (*Berl*), **59**, 1106-1113.
https://doi.org/10.1007/s00108-018-0467-5

[15] Al-Qudah, R. and Suen, C.Y. (2021) Improving Blood Cells Classification in Peripheral Blood Smears Using Enhanced Incremental Training. *Computers in Biology and Medicine*, **131**, Article ID: 104265.
https://doi.org/10.1016/j.compbiomed.2021.104265