JACOBS PUBLISHERS

OPEN ACCESS

Jacobs Journal of Hematology

Case Report

Pulmonary Thromboembolism as a Manifestation of Paraneoplastic Disease in a Patient with Subclinical Hairy Cell Leukemia, a Challenge in Diagnosis and Treatment of Cancer

Habib Nourani Khojasteh*

Shiraz university of Medical Science, Nemazi Hospital, Shiraz –Iran

**Corresponding author: Dr. Habib Nourani Khojasteh, Hematologist –Oncologist, Shiraz university of Medical Science, Nemazi Hospital, Shiraz –Iran, E-mail:habib.noorani31@yahoo.com*

Received: 02-27-2015

Accepted: 03-25-2015

Published: 04-07-2015

Introduction

Thromboembolism in cancers is more common in advanced diseases and less common as an occult and in early phase of disease. Incidence of vascular thromboembolism is increased seven-fold when compared with non-cancer patients [1-3]. There is evidence that patients who developed thrombosis three months prior to or shortly after their diagnosis of cancer have poor prognosis [2]. In addition to venous thrombosis, arterial occlusion with stroke and anginal symptoms are relatively common among cancer patients and are possibly related to genetic predisposition. Cancer can affect mortality and morbidity even in very early phase, regardless of tumor volume, tumor type and stage. Other common causes of the thrombosis affect disease behavior, cancer patients with venous thrombosis do not have good prognosis, and also have an increased mortality compared with cancer patients without thrombosis [4-6]. The types of cancer with low volume starting thrombosis and thromboembolisms need to be defined, and their biologic and genetic features are not clear at this time.

The hemostatic components and the cancer biology are interconnected in multiple ways, cancer cells can activate the coagulation system, like microparticles, and the hemostatic factors play a role in tumor progression. It appears that activating the coagulation system can induce growth and progression of cancer cells [7].

In every phase of the diseases with cancer, the patient should be assessed for risk of thromboembolism [5]. In future, new anticoagulant without the need for checking coagulation profile and risk of bleeding will have a major role in the management of cancer and thrombotic risk [6]. At present, low molecular weight heparin is more effective than oral vitamin k anticoagulant drugs in controlling cancer-related thromboembolism and its morbidity and mortality [7].

Presentation of case

A 41 year- old woman, a known case of polycystic kidney disease and hypertension presented with dyspnea, and sudden onset respiratory distress was diagnosed as a case of pulmonary thromboembolism concomitant with left lower extremity deep vein thrombosis confirmed with perfusion scan and color Doppler ultrasounds, respectively. The disease was controlled with anticoagulation low molecular weight heparin. For finding occult cancer, negative work-up including spiral computerized tomography of abdomen and pelvis and mammography and gastrointestinal endoscopy were performed. Evaluation for congenital thrombophilia and other acquired causes for the thrombosis were also done, and anticardiolipin antibody, flow cytometry for CD55 and CD59 in relation with paroxmal nocturnal hemoglobinuria was ruled out. Protein S, protein C, factor V leiden, factor VIII, and factor IX, homocysteine, and antithrombin III level were normal. Serum D-dimer was negative.

The patient was treated for a prolonged period with warfarin for anticoagulation, but eight months after the anticoagulation therapy, a cytopenia and lymphocytes predominancy in differential cell count were detected. So a bone marrow aspiration biopsy was done which supported a diagnosis hairy cell leukemia. Morphologic studies and bone marrow aspira-

tion biopsy also indicated hairy cell leukemia. Immunochemical data was positive for CD11c, CD20, CD25, CD19, further confirming the diagnosis. ((Table -1), Figure 1(a-c)).

8 months before diagnosis	At the time of bone marrow diagnosis	8 months after diagnosis
White blood cell count 3950/mm^2 Hemoglobin 11gram/dl Platelet count 110000/mm^2	White blood cell count 1800/mm^2 Hemoglobin =8gram dl Platelet count 80000/mm^2	White blood cell count 4500/mm^2 Hemoglobin 12gram/dl Platelet count 240000/mm^2

Table 1. Blood cell changes during the course of disease.

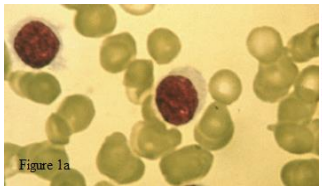
Figure 1a

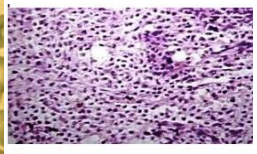
Figure 1b

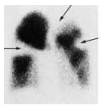
Figure 1c

Figure 1a. Blood smear showing abnormal hairy cells
Figure 1b. The bone marrow biopsy, hematoxylin-eosin stain
Figure 1c. Perfusion scan of patient showing filling defects with arrows.

The patient was considered for claudribine treatment 0.11mg/kg /7days, concomitant with anticoagulation treatment and went into complete remission but regarding the pulmonary thromboembolism and risk of fatality even with molecular relapse, the oral anticoagulation treatment was continued for an extended period to ascertain the future of molecular remission in this case, as a partial remission or relapse would not be safe in this case and discontinuing oral anticoagulation therapy was not possible.

There was no evidence of mass or paraaortic lymphadenopathy in the abdominal images to cause the mass effect to induce thrombosis in lower extremity.

Discussion

This case has some important points, the first is that for every thrombosis, especially life threatening type, searching and attention to finding a cancer in every age group as a cause is important [10-12]. The second is the fact that anticoagulation treatment cannot be stopped even after curing the patient because even subclinical molecular recurrence of the tumor can be present with the life threatening pulmonary thromboembolisms. The third point is that mild borderline cytopenia can be a trigger to search for the disease, such as hairy cell leukemia as a cause of the thrombosis. The fourth is that the link between cancer and hemostatic system is paradoxical, thrombosis can be seen in every phase of the disease from occult subclinical stage, or in the treatment course such as chemotherapy, [13,14]hormone therapy and surgery and in the active phase of the disease.[15-16] This is challenging for oncologists because postponing diagnosis and treatment of thrombosis can jeopardize the life of the patient.

In this case, , no mass was found by image studies , (rule of positron emission tomography is not clear in work-up of these types of early cancers and thrombosis)to cause the pressure effects so the paraneoplastic cause of the underlying disease was responsible for the thrombosis, and also no clinical evidence of extremity venous thrombosis was present, this indicates that early phases of some cancers can be fatal and reminds us that, at first, the cancer-induced thrombosis needs to be taken into consideration. Moreover, the treatment of tumor bulk is in the second part of cancer management, and presentation similar to our case would present a complex, dangerous and acute feature of the malignant disorders related to the biological property of the malignant systems, this is an important key point for clinicians and oncologists.

Conclusion

Biologic behavior of neoplastic disorders with presentation of thrombosis in early phase needs to be defined in future, as only early detection can decrease morbidity and mortality.

Conflict of interest

The author declares that he has no conflicts of interest.

References

1. Vancent T Devita,Theodore S Lawrence,Steven A Rosenberg. Devita, Hellman, Rosenberg Cancer principles and practice of Oncology. 2008, 2: 2635.

2. Amer MH. Cancer associated thrombosis, clinical presentation and survival. Cancer management and Research. 2013, 5: 165-179.

3. Lee AY, Peterson EA . Treatment of cancer associated thrombosis. Blood. 2013, 122(14): 2310-2317.

4. Paul L den Exter, Judith Kooiman, Tom Van der Hulle, Menno V Huiman. New anticoagulants in the treatment of patients with cancer associated thromboembolism. Clinical Hematology. 2013, 26(2: 163-169.

5. Gary H Lyman, ALoka A Khorana, NiCole M Kuderer, Agnes Y Lee,Juan Ignacio Arcelus et al. Venous Thromboembolism prophylaxis and treatment in patients with cancer: American Society of Clinical oncology Clinical practice Guidance update. JCO.2014,59: 7351.

6. Martin H Prins, Anthonie WA Lensing,Rupert Bauersachas, Bonno Van Bellen, Bounameaux et al. Oral rivaroxaban versus Standard therapy for the treatment of symptomatic venous thromboembolism a pooled analysis of the Einstein-DVT and PE randomized studies. Thrombosis Journal. 2013, 11: 21.

7. Agnes Y.Y. Lee, Mark N Levine. Venous thromboembolisms and cancer, risks and outcomes. Circulation. 2003,107:1-17-1-21.

8. Khorana A. cancer associated thrombosis updates and controversies. Hematology. 2012,1:626-630.

9. Moore RA, Adel N, Riedel E, Bhutani M, Feldman DR et al. High incidence of thromboembolic events in patients treated with cisplatin-based chemotherapy: a large retrospective analysis. J Clin Oncol. 2011, 29(25): 3466–3473.

10. Palumbo A, Rajkumar SV, Dimopoulos MA, Richardson PG, San Miquel J et al. Prevention of thalidomide- and lenalidomide-associated thrombosis in myeloma. Leukemia. 2008, 22(2): 414–423.

11. Caruso V, Augusti Di Castel Nuovo, Meschengieser S, Lazzari MA, de Gaetano G et al. Thrombotic Complications in adult patients with lymphoma. Blood. 2010, 115(26): 5322-5328.

12. Nash GF, Turner LF, Scully MF, AK Kakkar. platelet and cancer. Lancet Oncology. 2002, 3(7): 425-430.

13. Hilen HF. Thrombosis in cancer patients. Ann Oncol. 2000, 11(suppl 3): 273-276.

14. Shah MA, Capanu M, Soff G, Asmis T, Kelsen DP. risk factors for developing a new thromboembolisms in ambulatory patients with nonhematologic malignancies. J Throm Hemostasis. 2010,8(8): 1702-1709.

15. Sigrun Alba Johannesdottir Schmidt, Dóra Körmendiné Farkas, Lars Pedersen, Paolo Prandoni, Henrik Toft Sorensen. Venous thrombosis and risk of cancer in patients with arterial cardiovascular disease. Thrombosis Research. 2015,135(1): 96-101.

16. Hoffman R, Benz JE, Silberstein LE, Heslop H,Weits J et al. Hematology:Basic Principles and Practice. Anastasi. 2013,6th edition Elsevier: 2176-2182.