

Case Report

Presentation of aggressive high-grade B cell lymphoma as venous thromboembolism

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ABSTRACT

Patient with no known past medical history who came to United States few years back and no established PCP noticed right groin swelling and discomfort for 3 days. In addition to right groin swelling and discomfort, she also noticed fatigue especially at work. Due to progressive symptomatology, she sought help at urgent care. On physical examination performed by urgent care doctor, patient found to have inguinal lymphadenopathy, which led to general surgery referral and subsequent lymph node biopsy a day afterwards. Curious surgeon followed pathology report, which turned out to be Burkitt's lymphoma. Subsequently, surgeon referred for survey which included CT scans abdomen and pelvis with contrast. Radiologist reading imaging called patient to go to ED STAT as she found massive B/L pulmonary embolism in main pulmonary arteries incidentally. Other findings included lymphadenopathy in the right inguinal, right pelvic and peri aortic locations. Mildly enlarged left pelvic lymph node. No lymphadenopathy in the chest. Patient was initiated immediately on heparin infusion on presentation to ED. Oncology consulted and ordered additional studies including ECHO. Patient received bone marrow biopsy and lumbar puncture as well. She was initiated on standard chemotherapy R-EPOCH regimen. Patient also received allopurinol, entecavir and bactrim. Subsequently, bone marrow biopsy results showed high grade B cell Lymphoma. Staging bone marrow negative. LP showed normal protein, borderline elevation of glucose, flow cytometry and cytology negative for involvement. C-myc translocation, phenotype of Burkitt's but with lower Ki67. Sites of disease included massive right inguinal adenopathy, peri aortic and left pelvic adenopathy. Patient was followed during the hospital course and had excellent recovery. Symptomatically, she no longer felt fatigued and leg swelling/groin mass significantly improved at time of discharge. She was discharged in stable condition with outpatient follow up with oncology. Aggressive high-grade B cell Lymphoma may present with venous thromboembolism and due to aggressive nature of lymphoma, venous thromboembolism can pose/present with significant clot burden before being diagnosed. Lymphoma should be considered as a causative disease in a patient even adult with venous thromboembolism. Aggressive evaluation and prompt treatment is needed for good results and recovery.

Keywords: Burkitt's lymphoma, Bone marrow biopsy transverse sinus, Echocardiogram, Lumbar puncture, Venous thromboembolism

INTRODUCTION

Burkitt Lymphoma is a highly aggressive B cell neoplasm characterized by translocation and de regulation of the c-Myc gene on chromosome.⁸ It presents in one of the three distinct clinical forms: endemic,

sporadic and immunodeficiency associated. Our case is an example of sporadic form.¹ Our case report suggests that it can present with venous thromboembolism and clinicians should have low threshold in obtaining studies to diagnose venous thromboembolism in such cases. Lymphoma should be considered as a possible causative disease in a patient even adult with venous

thromboembolism.² Aggressive evaluation and prompt treatment is needed for good results and recovery.

CASE REPORT

Patient with no known past medical history who came to United States few years back and no established PCP noticed right groin swelling and discomfort for 3 days. In addition to right groin swelling and discomfort, she also noticed fatigue especially at work. Due to progressive symptomatology, she sought help at urgent care. On physical examination performed by urgent care doctor, patient found to have inguinal lymphadenopathy, which led to general surgery referral and subsequent lymph node biopsy a day afterwards. Curious surgeon followed pathology report, which turned out to be Burkitt's lymphoma. Subsequently, surgeon referred for survey which included CT scans abdomen and pelvis with contrast. Radiologist reading imaging called patient to go to ED STAT as she found massive B/L pulmonary embolism in main pulmonary arteries incidentally. Other findings included lymphadenopathy in the right inguinal, right pelvic and peri aortic locations. Mildly enlarged left pelvic lymph node. No lymphadenopathy in the chest.

Patient, on presentation to the ED was in no acute distress and her complaints included right groin discomfort/and now right leg swelling. Other symptoms included generalized weakness and fatigue. Interestingly, for the clot burden she has, she appeared comfortable. She received further work up which included bilateral lower extremity venous duplex ultrasound showing right groin mass compressing venous structures and clots in femoral and popliteal veins. Patient was not aware of any of her diagnosis. Hospitalist, ED physician, oncology explained her diagnosis, management and answered her questions.

Patient was initiated immediately on heparin infusion on presentation to ED. Oncology consulted and ordered additional studies including ECHO. Patient received bone marrow biopsy and lumbar puncture as well. She was initiated on standard chemotherapy R-EPOCH regimen. Patient also received allopurinol, entecavir and bactrim. Subsequently, bone marrow biopsy results showed high grade B cell Lymphoma. Staging bone marrow negative. LP showed normal protein, border-line elevation of glucose, flow cytometry and cytology negative for involvement. C-myc translocation, phenotype of Burkitt's but with lower Ki67. Sites of disease included massive right inguinal adenopathy, peri aortic and left pelvic adenopathy.

Echocardiogram with EF greater than 50 percent tumor lysis prophylaxis with rasburicase and subsequently with allopurinol. Patient was followed during the hospital course and had excellent recovery. Symptomatically, she no longer felt fatigued and leg swelling/groin mass significantly improved at time of discharge. She was discharged in stable condition with outpatient follow up with oncology.

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

DISCUSSION

Burkitt Lymphoma is a highly aggressive B cell neoplasm characterized by translocation and de regulation of the c-Myc gene on chromosome.⁸ It presents in one of the three distinct clinical forms: endemic, sporadic and immunodeficiency associated. Although they are histologically identical and have similar clinical behavior, there are differences in epidemiology, clinical presentation, and genetic features between the three forms.³

More common in pediatric population, it compromises less than one percent of adult Non-Hodgkin lymphomas. Patients with Burkitt's lymphoma present with rapidly growing tumor masses and often have evidence of tumor lysis. Pathology of Burkitt's lymphoma tumor cells reveal monomorphic, medium sized cells with round nucleoli, and basophilic cytoplasm. Prominent cytoplasmic lipid vacuoles are usually evident on imprints or smears. There is an extremely high rate of proliferation, as well as a high rate of apoptotic cell death.⁴

Diagnosis is based upon the pathologic evaluation of involved tissue, commonly an abdominal mass. Differential diagnosis includes other tumors that can present as abdominal masses and other types of non-Hodgkin lymphoma. Most likely to be difficult to differentiate from Burkitt lymphoma are lymphoblastic lymphoma, the blastic variant of mantle cell lymphoma, and diffuse large B cell lymphoma.⁴

Pretreatment evaluation both determines the bulk of disease and co morbidities evaluation. In addition to H and P, labs, unilateral bone marrow biopsy, lumbar puncture, cardiac function evaluation and imaging in all patients. Fertility counseling should be offered to patients in child bearing years.

Standard of care has yet to be defined and enrollment in clinical trials is an option. However, intensive, short duration combination chemotherapy with central nervous system prophylaxis. Various intensive, short-duration combination chemotherapy regimens are available. These regimens are highly toxic and usually need prolonged hospital stay. Significant risk of tumor lysis syndrome and best prevented by appropriate treatment with IV hydration, rasburicase, and correction of any electrolyte abnormalities and elements of reversible renal failure.

Patients with HIV, cardiac disease, older adults, and those with CNS involvement at diagnosis require special attention. Patients, after completion of initial planned treatment, should be evaluated to determine the disease response to treatment and should be followed

longitudinally for relapse and long-term complications of disease and its therapy. As per New England Journal of Medicine literature review, mature aggressive B-cell lymphoma without a gene signature for Burkitt's lymphoma, chromosomal breakpoints at the myc locus were associated with an adverse clinical outcome.⁵

CONCLUSION

Aggressive high-grade B cell lymphoma may present with venous thromboembolism and due to aggressive nature of lymphoma, venous thromboembolism can pose/present with significant clot burden before being diagnosed

Lymphoma should be considered as a causative disease in a patient even adult with venous thromboembolism

Aggressive evaluation and prompt treatment is needed for good results and recovery

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