

A CASE OF VENOUS THROMBOEMBOLISM IN A PATIENT WITH CHRONIC LYMPHOCYTIC LEUKEMIA/SMALL LYMPHOCYTIC LYMPHOMA

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Background

Chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL), like many other hematologic malignancies, is associated with an increased risk for development of venous thromboembolism (VTE). A 2018 study quantifying VTEs in CLL/SLL demonstrated an incidence of 8.2 per 1000 person-years. Individuals with secondary cancers or high-grade lymphomas are more likely to develop DVT (2). Most cases are associated with upper or lower extremity DVT that develop during treatment. We present the case of an individual with indolent CLL/SLL, who developed acute subclavian VTE.

Case Presentation

An 88-year-old man with history of prostate cancer status-post radiation therapy, bladder cancer status-post resection, hypertension, and diabetes. He was diagnosed in 2016 with CLL/SLL confirmed and staged via right axillary lymph node and bone marrow biopsy (positive for CD38 and zap70). He was under observation for CLL/SLL. He presented to the emergency department one-month prior with complaints of intermittent left upper extremity swelling and pain that self-resolved. On routine clinic visit, he was noted to have new bilateral mobile cervical (2-4 cm) and 5 cm axillary lymphadenopathy with swelling, coolness, and erythema in the left hand. Review of symptoms was positive for worsening fatigue, frequent subjective fevers, and recently improved ambulation.

Labs were significant for a uric acid of 8.3 mg/dL, an LDH of 270 U/L, and chronic normocytic anemia. Urinalysis was consistent with a urinary tract infection. Urine culture grew *Proteus Mirabilis*. A left upper extremity doppler ultrasound showed a non-compressible, echo poor thrombus material not fully occlusive in the subclavian vein extending to the axillary.

He was admitted and initiated on therapeutic enoxaparin with rapid resolution in both swelling and pain. Given the patient's presentation, there was increasing concern for Richter's transformation of his CLL/SLL. Typically, Richter's transformation is a complication of long standing CLL, however, it can occur soon after diagnosis. He underwent biopsy of a cervical node for re-staging which showed CLL/SLL without Richter's transformation. He was also treated for possible sepsis and grew out ESBL in his urine.

Discussion

The differential for subclavian vein thromboses includes upper extremity cellulitis, lymphedema, acute limb ischemia, and mechanical injury to the upper extremity. The incidence of VTE in CLL/SLL is approximately equal to that of other hematologic malignancies (2). Cancers as well as their treatments are thought to promote a pro-inflammatory state with elevated acute-phase reactants and various prothrombotic factors. This, combined with hemodynamic compromise and patient deconditioning leading to augmented blood stasis contributes to the overall development of a hypercoagulable state (1).

This patient was hypercoagulable from his CLL/SLL and had stasis caused by his enlarging lymphoma. This coupled with inflammation from his UTI forms a complete Virchow's triad which contributed to the overall development of his subclavian thrombus.

The American Society of Clinical Oncology guidelines on VTE prophylaxis and treatment in patients with cancer supports the use of low molecular weight heparins as the primary form of anticoagulation in this subset of patients based on multiple studies demonstrating decreased mortality, risk of bleeding, and re-thrombosis (3).

Citation

1. Caine GJ, Stonelake PS, Lip GY, Kehoe ST. The hypercoagulable state of malignancy: pathogenesis and current debate. *Neoplasia*. 2002;4(6):465-473. doi:10.1038/sj.neo.7900263
2. Gade IL, Riddersholm SJ, Christiansen I, et al. Venous thromboembolism in chronic lymphocytic leukemia: a Danish nationwide cohort study. *Blood Adv*. 2018;2(21):3025-3034. doi:10.1182/bloodadvances.2018023895
3. Key, N. S., Khorana, A. A., Kuderer, N. M., Bohlke, K., Lee, A. Y., Arcelus, J. I., Wong, S. L., Balaban, E. P., Flowers, C. R., Francis, C. W., Gates, L. E., Kakkar, A. K., Levine, M. N., Liebman, H. A., Tempero, M. A., Lyman, G. H., & Falanga, A. (2020). Venous Thromboembolism Prophylaxis and Treatment in Patients With Cancer: ASCO Clinical Practice Guideline Update. *Journal of Clinical Oncology*, 38(5), 496–520. <https://doi.org/10.1200/jco.19.01461>

