A Rare Case of Type B Lactic Acidosis in Setting of HTLV-1 T-Cell Lymphoma

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INTRODUCTION

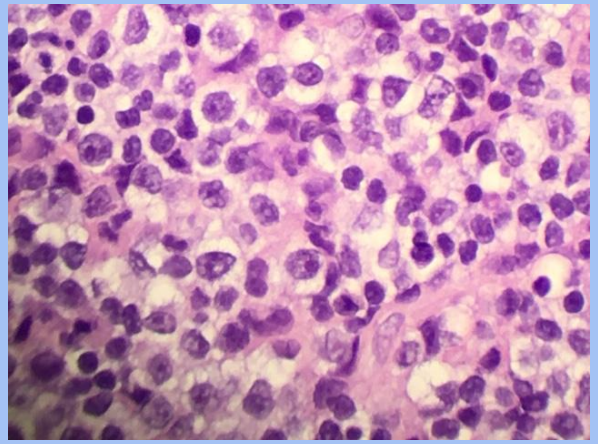
- Lactic acidosis results when there is excessive tissue lactate production or impaired hepatic lactate metabolism. There are two commonly seen types: Type A and Type B.
- Type A is associated with impaired tissue perfusion and hypoxia.
- Type B occurs under non-hypoxic conditions, is usually seen in hematological malignancies and rarely in solid tumors such as T-cell lymphoma, and is associated with a poor prognosis with a mortality rate as high as 80% after 1 month of treatment[3,6].
- T-cell Lymphoma is a rare but known complication of HTLV-1 infection, with a 20-30 year latency period after initial infection.

EPIDEMIOLOGY

- HTLV-1 infects 5-10 million people worldwide.
- HTLV-1 is a retrovirus endemic to the Caribbean and Asia.
- In the United States, infection is rare (less than 1%).
- A majority of those infected will remain asymptomatic, however others may develop associated diseases such as Adult T Cell Leukemia/Lymphoma (ATL), reported at less than 5%.
- There is a 20-30 year latency period before ATL develops after HTLV-1 infection, with patients commonly in their 60s at presentation and highest in black Americans.
- ATL is an aggressive malignancy with a median survival rate of 6 months for acute-type ATL and 10 months for lymphomatous-type ATL[9].
- There are few cases of reported Adult T-cell lymphoma-associated B-type lactic acidosis.

CASE DESCRIPTION

- 67-year-old African American male with hypertension who presented with progressive worsening weakness and poor oral intake >1 month.
- In the ED, patient was afebrile, mildly tachycardic and hypoxemic with oxygenation in the low 90's. White blood cell count of 15 with 48% lymphs, elevated lactic acid of 3.1, elevated creatinine, transaminitis, hyperbilirubinemia and severe hypercalcemia at 16.9. COVID test was negative.
- CT abdomen/pelvis- innumerable large lymph nodes throughout the mesentery, retroperitoneum and within the bilateral inguinal areas. Liver was mildly enlarged with no focal, cystic, or solid lesions. CT chest- right lower lung nodular infiltrate. CT brain- no significant intracranial pathology.
- Admitted to the respiratory care unit.
- Pan-cultures were negative. Labs ordered (treponema, HIV, legionella, strep pneumonia, respiratory viral panel and hepatitis panel) were negative.
- He had persistent lactic acidemia (max of 5.3) and later developed an anion gap metabolic acidosis despite intravenous fluids, broad spectrum antibiotics, antivirals and antifungals, suggesting a Type B lactic acidosis rather than Type A.
- Flow cytometry- abnormal T cell population expressing CD3, CD2, CD4 and CD5 with aberrant loss of CD8 and CD7, suspicious for T cell lymphoma.
- HTLV -1 antibodies and immunoassay- positive, with a reactive HTLV gp46-1 protein and a nonreactive gp46-II protein, signifying a HTLV-1 T cell lymphoma.
- Biopsies of right and left axillary lymph nodes and left iliac bone marrow core biopsy- confirmed diagnosis of Adult T-Cell Lymphoma.
- He was started on methotrexate, cytarabine, cyclophosphamide and dexamethasone pulse for tumor debulking.
- Patient's condition eventually declined despite pharmaceutical interventions and the family opted for cessation of chemotherapy and hospice care where the patient sadly expired.



Abnormal T-cell lymphocytes from biopsy of patient.

DISCUSSION

- Review of the literature reveals only 27 reported cases of solid tumors presenting with lactic acidosis, of which nearly all of them had extensive liver metastases[4, 5].
- This case highlights the rare presentation of adult T-cell lymphoma associated with B-type lactic acidosis without liver involvement.
- It further confirms that the presence of this type of lactic acidosis is a marker for poor prognosis and increased mortality despite chemotherapy.
- Considering that malignancy was suspected fairly early due to the results of the CT scan and treatment was initiated upon confirmation of the malignancy, there was not much that could have been done differently.
- However, this case is a learning opportunity for physicians to become familiar with the risk factors for developing this condition, including racial, gender and age distribution.
- It serves as a reminder to place malignancy higher on the differential should a patient present with elevated lactic acid levels despite an unremarkable sepsis work-up and not to delay diagnosis and treatment.

REFERENCES

References available upon request