

1-14-2014

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Shalini, R-K and J Rush Pierce Jr. "Clinical vignette: Burkitts lymphoma mimicking ovarian cancer'." (2014).
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BURKITT LYMPHOMA MIMICKING OVARIAN CANCER

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CASE PRESENTATION

A 50 year-old Asian woman with no significant past medical history and no history of alcohol use presented with four days of abdominal discomfort and progressive distention. Her physical examination was remarkable for normal vital signs and a distended, non-tender abdomen with a fluid wave but without hepatosplenomegaly. Complete blood count and liver tests were normal. Abdominal ultrasound revealed ascites and an echogenic liver consistent with hepatic steatosis or cirrhosis, which was initially suspected. Viral hepatitis studies, human immunodeficiency virus antibody, ceruloplasmin, anti-mitochondrial antibody, alpha-1 antitrypsin, anti-smith antibody and antinuclear antibodies were negative. CA-125 was markedly elevated at 301 U/ml (normal < 22). Transvaginal ultrasonography revealed normal ovaries. Computerized tomography of the abdomen and pelvis revealed stranding and infiltration throughout the mesenteric fat and omentum and a moderate-to-large volume of ascites. Ascitic fluid examination revealed 42,900 total nucleated cells/cu mm of which 88 % were mononuclear cells, 5 % neutrophils and 7 % lymphocytes. Her serum ascitic-albumin gradient was less than 1. Further analysis of ascitic fluid showed abnormal B-cells expressing CD 19, CD 20, CD 10, FMC 7, and CD 45; FISH analysis showed MYC/IgH fusion associated with translocation of t (8;14) (q24;q32) characteristic of Burkitt lymphoma. Her serum LDH was 910 U/L (normal 82 – 310). Serum uric acid was normal. Bone marrow biopsy and lumbar puncture were both negative for Burkitt lymphoma involvement. Aggressive hydration was started to prevent tumor lysis syndrome. She was treated with HyperCVAD (Cyclophosphamide, Vincristine, Doxorubicin and dexamethasone alternating with high dose methotrexate and cytarabine + rituximab). She tolerated this regimen well without neutropenia or any significant side effects.

BACKGROUND

History. Burkitt lymphoma was first described in 1958 by Dennis Burkitt, an Irish surgeon working in central Africa. He initially described a patient with what he felt was a sarcoma but three years later, it was found to be a malignant lymphoma. Burkitt lymphoma is defined by the World Health Organization as a highly aggressive mature B cell neoplasm with several subtypes, all of which share a genetic translocation of the c-myc gene, most commonly a t(8;14) mutation.

Clinical manifestations. A sporadic form usually presents with extra nodal disease, most commonly in the abdomen. Patients may present with nausea, vomiting, diarrhea and even an acute abdomen-like picture which may be mistaken for intussusception. Gastrointestinal bleeding may also be a presenting feature. Bone marrow involvement is seen in 30-35% of the cases and central nervous system involvement in 13-17% of adults. Occasionally, patients may present with spontaneous tumor lysis syndrome. Presentation as malignant ascites is rare. Unlike the sporadic form, the endemic form is associated with Epstein Barr virus and presents with jaw and renal involvement. Interestingly, the immunodeficiency subtype presents among Human Immunodeficiency Virus patients with CD4 count higher than 200.

Diagnosis. Diagnosis relies on histopathology showing monomorphic medium sized cells with basophilic cytoplasm and a high proliferation fraction with Ki-67 fraction approaching 100 %. The classic "starry sky appearance" is due to the abundant proliferative rate, frequent apoptosis and numerous macrophages containing ingested apoptotic cells. Translocation of the c-myc gene on chromosome 8 is a characteristic feature. The malignant cells express Ig M, Bcl-6, CD19, CD20, CD22, CD10 and CD79a. Immunophenotyping and cell surface analysis by flow cytometry are important steps in the diagnostic process. Cytogenetic studies with FISH demonstrate the (8;14) translocation of the c-myc gene, or bcl2; bcl6 gene rearrangements.

Treatment and prognosis. HyperCVAD or CODOX-MIVAC(Cyclophosphamide, Doxorubicin and Vincristine with intra thecal methotrexate and cytarabine followed by high dose methotrexate, +/- Rituximab) are two of the commonly used regimens. CNS involvement being very common, CNS prophylaxis is required for all patients and is accomplished with high dose methotrexate, intra thecal chemotherapy or high dose cytarabine. Autologous stem cell transplant is also being incorporated in some of the treatment regimens. Treatment related mortality is as high as 8 %, with the most common side effect being neutropenia. Advanced age, poor performance status, CNS or bone marrow involvement are poor prognostic factors. Failure to achieve a complete response within 4-6 weeks is also predictive of a poor outcome. With the current treatments the response rate for adults is as high as 65-100 %.

TEACHING POINTS

1. This woman presented with malignant ascites, the most common cause of which is ovarian cancer. This was initially assumed to be the diagnosis because of her elevated CA-125. CA-125 may be elevated in Burkitt lymphoma.
2. The correct diagnosis was established by careful pathologic evaluation of ascitic fluid, showing monomorphic medium sized cells with basophilic cytoplasm and a high proliferation fraction with Ki-67 fraction approaching 100%.
3. Translocation of the c-myc gene on chromosome 8 is characteristic of Burkitt's lymphoma; this translocation is not unique to Burkitt lymphoma.
4. Burkitt lymphoma is rare, constituting less than 1% of B-cell lymphomas. It is more common in males and usually presents with masses or tumor lysis syndrome. Less commonly it may present with ascites. This form may have a rapidly progressive course with bowel obstruction and/or gastrointestinal bleeding.
5. We are aware of only one previous case of Burkitt lymphoma presenting with ascites and an elevated CA-125.
6. Burkitt lymphoma cells have a high growth fraction with a doubling time of 24 hours. Viable malignant cells may re-enter the cell cycle and grow rapidly between chemotherapy cycles leading to development of resistance. Thus there is urgency to initiate treatment.

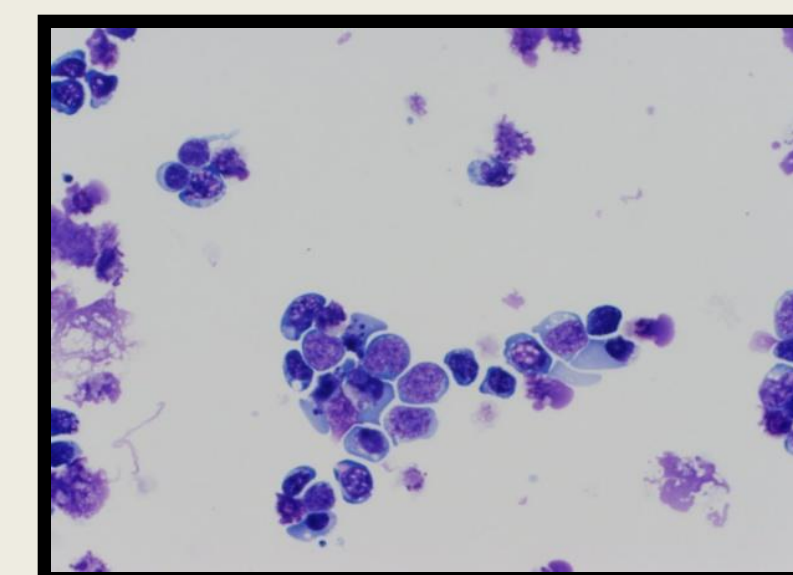
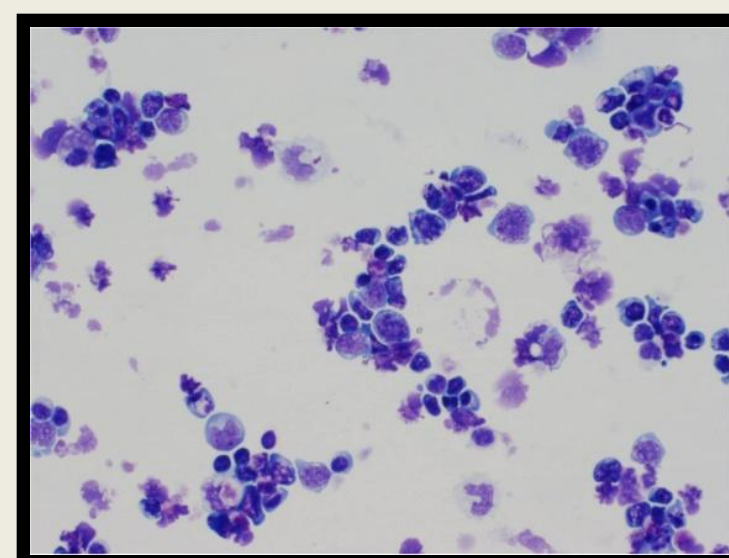
CONCLUSIONS

This case illustrates a rare cause of malignant lymphomatous ascites masquerading as ovarian cancer. Careful cytologic analysis of ascitic fluid cells led to the correct diagnosis.

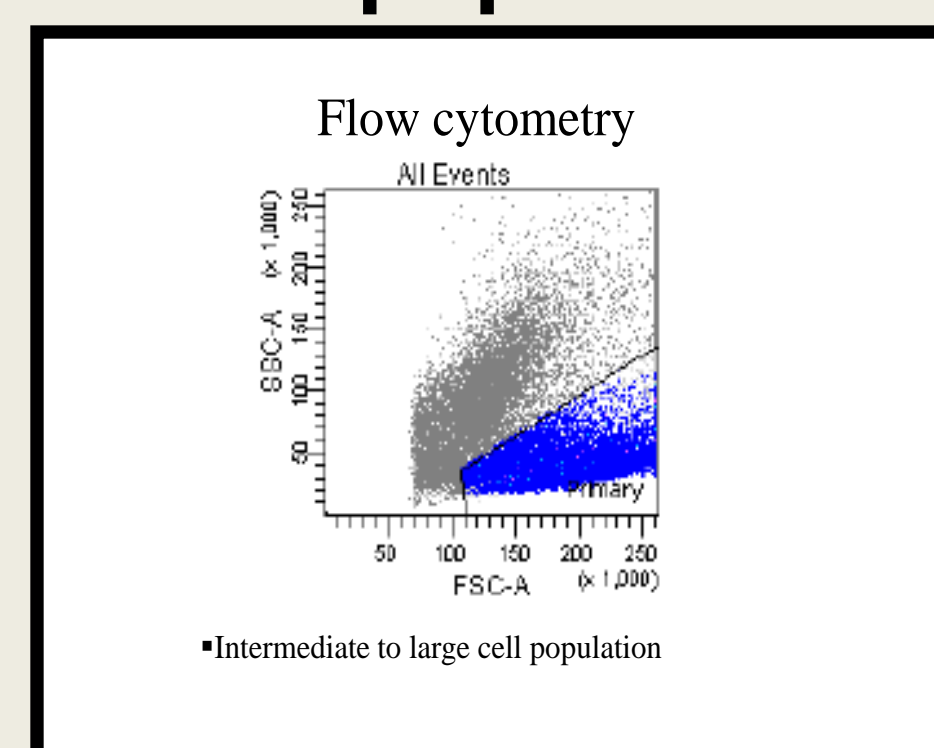
REFERENCES

1. Blum KA, Lozanski G, Byrd JC. Adult burkitt leukemia and lymphoma. *Blood*. 2004;104(10):3009-3020.
2. Glasheen JJ, Sorensen MD. Burkitt's lymphoma presenting with lactic acidosis and hypoglycemia - a case presentation. *Leuk Lymphoma*. 2005;46(2):281-283.
3. Horger M, Muller-Schimpfle M, Yirkin I, Wehrmann M, Claussen CD. Extensive peritoneal and omental lymphomatosis with raised CA 125 mimicking carcinomatosis: CT and intraoperative findings. *Br J Radiol*. 2004;77(913):71-73.
4. Friedberg JW, Perkins AS. Chapter 104. Burkitt Lymphoma. In: Lichtman MA, Kipps TJ, Seligsohn U, Kaushansky K, Prchal JT, eds. *Williams Hematology*. 8th ed. New York: McGraw-Hill; 2010.

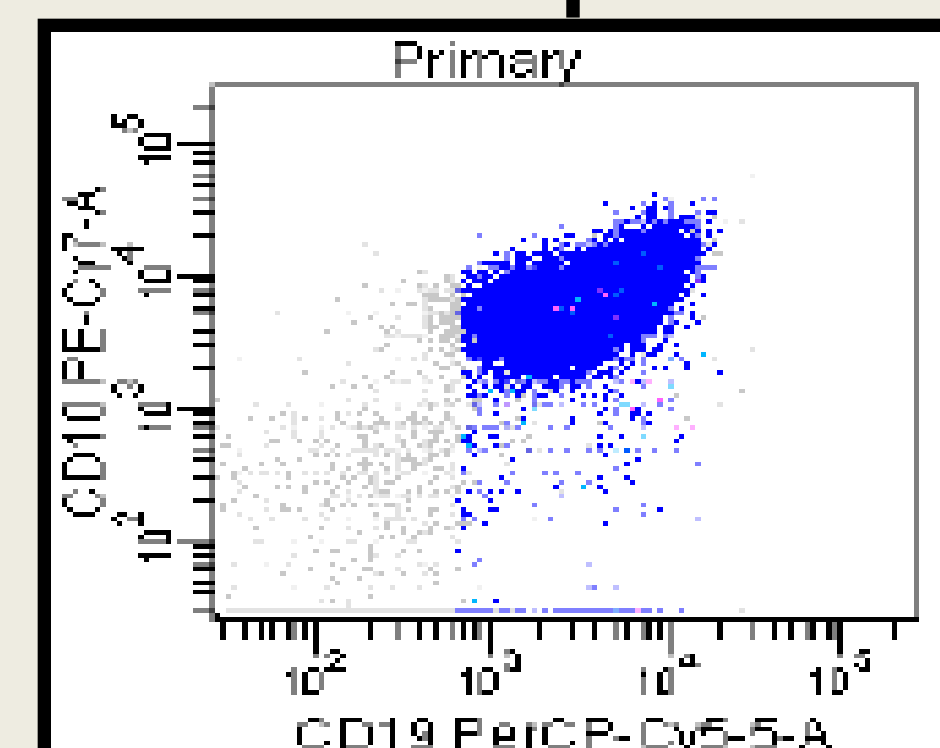
Ascitic fluid cytospin showing atypical lymphoid cells



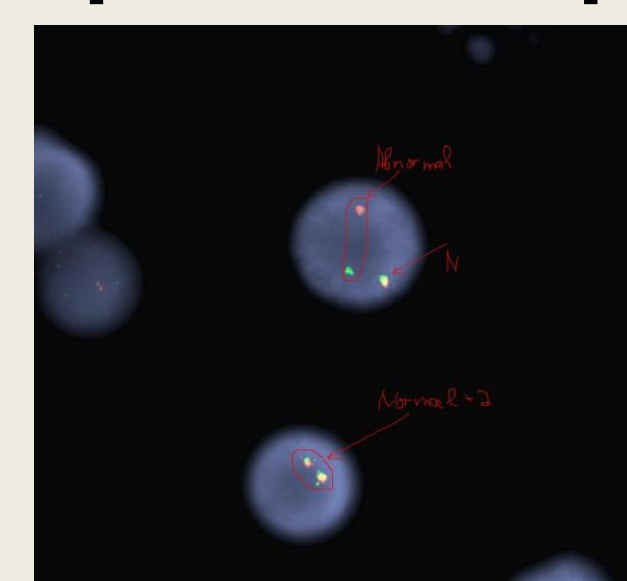
Intermediate to large cell population



B cells found to be CD 19, 20, FMC7 and CD45 positive



8q24 break apart



t(8;14) c-MYC

