January 1995

Case of pelvic relapse in a child suffering from acute lymphoblastic leukemia

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Abstract

We describe here a case of an eight years old child suffering from acute lymphoblastic leukemia. She developed pelvic infiltration of leukemic cells while in bone marrow remission and receiving maintenance chemotherapy: She also developed leukemic infiltration of Central Nervous System and died of complications resulting from massive pelvic relapse. With greater number of children in bone marrow and CNS remission, the issue ofpossible greater predisposition to extramedullary relapse has been discussed. The need for greater vigilance towards pelvic surveillance has been stressed.

Introduction

Since the advent of combination chemotherapy and Central Nervous System (CNS) prophylaxis the prognosis of acute lymphoblastic leukemia has improved considerably. With more children in bone marrow and CNS remission the infiltration of leukemic cells into other extramedullary sites is becoming a cause of increasing concern. The testicles have become the most common site of extramedullary relapse in boys, occurring most often during periods of bone marrow remission[1]. At autopsy leukemic infiltration of ovary has been reported in 32.-36% of the girls who have died with acute leukemia[2]. Pelvic leukemic relapse in young girls who are in clinical remission is however, a rare phenomena[3]. Recently we came across an eight years old child who developed a pelvic relapse of lymphoblastic leukemia while she was in clinical remission and still on maintenance chemotherapy.

Case Report

This 8 years old female child presented to us in May, 1991 with one month history of fever and bone pains. She was to have a WBC count of 56,900 with 90% blast cells. Bone marrow examination confirmed diagnosis of acute lymphoblastic leukemia (Li type). She was started onchemotherapy comprising of Daunorubicin, Vincristine, Predmsolone and intrathecal Methotrexate for CNS prophylaxis. Bone marrow remission was documented after 4 weeks of therapy and she underwent reintensification therapy with Vincristine, Daunorubicin, Cytosine Arabinoside, Etoposide, Predmsolone and intrathecal Methotrexate. She remained in remission for 2 years during which she was continued on maintenance therapy with Vincristine, oral Methotrexate and 6-mercaptopurine and intrathecal Methotrexate. In July, 1993 she presented with complaints of urinary retention and examination revealed firm lobulated mass which bled on touch arising from upper 2/3 Of vagina. Biopsy revealed leukemic cell infiltrate (Figures 1 and 2).

Figure 1. True-cut biopsy of vaginal wall showing dense leukaemic nfiltrate. (H & E x 4)

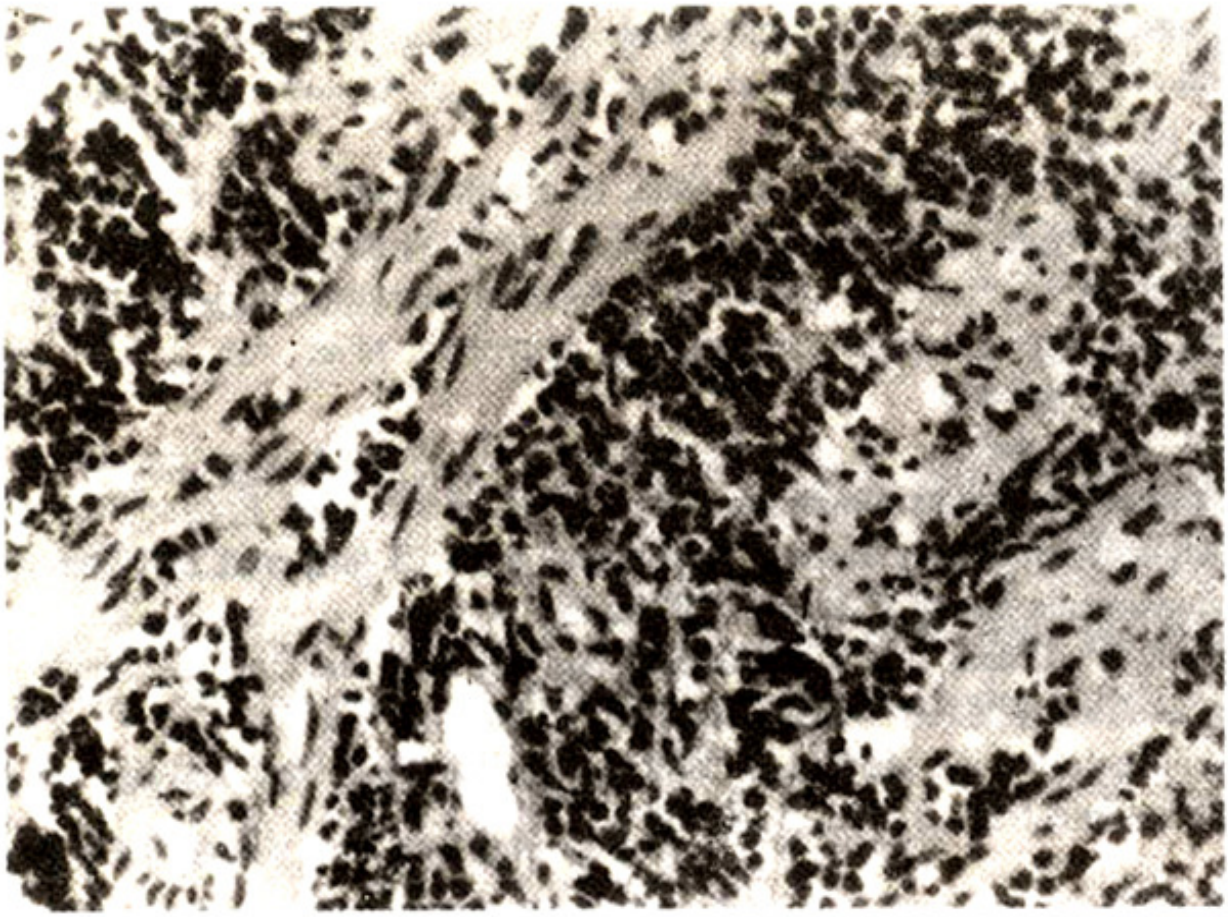

Figure 2. Dense infiltrate by small lymphoblastic leukaemic cells. (H & E x 40)

She received radiotherapy over lower abdomen, her urine retention was relieved and she received reintensification therapy and was started on maintenance therapy for leukemia as before. In January, 1994 she presented with complaints of headache and was found to be hypertensive. CSF examination showed atypical lymphoid cells suggesting CNS relapse. She received another course of reintensification therapy with weekly intrathecal Methotrexate, Cytosine and Hydrocortisonefor6 weeks. While barely recovered from the reintensification therapy and still on monthly injections of intrathecal Methotrexate, she presented with gross hematuria and flank pain. She had a palpable mass in the pelvis and ultrasound examination showed large mass in the lower abdomen displacing and distorting bladder anatomy. The mass was pressing onbothureters and causing bilateral hydronephrosis. It was evaluated as being inoperable and bilateral nephnstomes were introduced. She was started on a UKALL relapse protocol compnsing of Epirubicin, L-asparaginase, Vincristine and Dexainethasone. The tumor sluunk in size and nephmstomes could be removed. She however, developed severe pancytopenia and died of overwhelming sepsis in July, 1994.

Discussion

Hams and Scully[4] studied 27 cases of malignant lymphomas and granulocytic sarcoma involving the pelvic cavity. Twenty-one of these tumors appeared to originate from cervix, 4 in vagina and 2 in endometrium. Zutter and Gersell[5] subsequently described a case of 36 years old woman known to be. suffering from acute leukemia which was tenninal deoxynbonucleotidyl transferase positive and

involved the bone marrow and peripheral blood. Their patient developed relapse of the disease in uterus and cervix after remaining disease free for 2 years following induction therapy. Apart from few such case reports, involvement of female genital tract by hematologic ncoplasms is infrequent. Marcello et al[6] studied ovarianbiopsy specimen from 10 girls who had undergone antiblastic treatment for acute lymphoblastic leukemia and were in complete remission. Apart from cortical fibrosis, variable reduction of follicular component and impairment of maturation, they found no evidence of leukemic infiltrate. Still leukemic infiltration of the ovary has been found in 3.2-36% of girls at autopsy who died of acute leukemia compared to 29-92% incidence of testicular leukemic infiltration[2] . In his report of 4 young girls with pelvic relapse of acute leukemia, Cecalupo[3] found 3 to be arising from ovaries and forth had pre-sacral mass without ovarian disease. The unique features of these cases was that diagnosis was made antemortem, onset of relapse and presumably the growth of the mass were extremely rapid and no marrow involvement was present. One arguable explanation for such behaviour of leukemia is that testis or ovary constitute sanctuary areas[7]. These sites represent areas in which nests of leukemic cells have been present as metastatic spread from the time of initial malignant transformation and asymptomatic state during the course of ALL does not imply the complete absence of leukemia. Why is itthenthat testicular relapses are far more frequent than ovarian relapse? The explanation is either ovaries and testis are not equally favourable soil for leukernic cells or that chemotherapy is better at preventing or eradicating subclinical leukemic ovarian involvement than at preventing testicular involvement. Other hypothesis for such a difference in incidence is the temperature difference between the ovary and testis. In a leukemic patient with unilateral cryptorchidism, testicular relapse occurred only in the nonnally descended testis[8]. The effect of chemotherapy on malignant tissue has been shown to be more efficient at higher temperature[3]. The patient described here had extremely aggressive behaviour of leukemia. She first developed a vaginal mass, then a CNS relapse and later went on to develop massive recurrence in the ovaries. The frequency of relapse in female genital tract may increase with longer survival rates expected from new treatment protocols. This may necessitate a more vigilant attention to pelvic surveillance during the course of acute lymphoblastic leukemia in girls.

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