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SPONTANEOUS COMPLETE REMISSION IN A CHILD WITH ACUTE LYMPHOBLASTIC LEUKEMIA*

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A five-year-old girl was admitted to the hospital with fever and tender lymphadenopathy. She was diagnosed with acute lymphoblastic leukemia (ALL-L_3). Because of infection she was given antibiotics and a blood transfusion. Her bone marrow was in remission after 15 days without chemotherapy. This case emphazes the role of transfusion and/or infection in obtaining complete remission without chemotherapy. *Key words: leukemia, spontaneous complete remission, blood transfusion, infection.*

Spontaneous complete remission (SCR) has been reported in a few cases of acute leukemia[1-3]. The definite cause of this very rare event is nearly always vague because of overlapping factors which are believed to be responsible for SCR. We report a case of acute lymphoblastic leukemia (ALL) who developed SCR probably as a result of blood transfusion and/or infection.

Case Report

A five-year-old girl was admitted to our hospital with a four-month history of asthenia, fever and poor appetite. On physical examination, high fever (38.5 °C) and tender cervical lymphadenopathy as large as 2 x 2 cm were observed. The liver was palpable 2 cm below the costal margin. Laboratory findings were as follows: hemoglobin (Hb) 5.68 g/dL, white blood cell count (WBC) 1 x 10^9/L with 95 percent lymphoblasts and thrombocytopenia (200 x 10^9/L). Bone marrow aspiration revealed mild hypocellularity with 80 percent lymphoblasts. According to the FAB classification, 83 percent of the bone marrow blasts were L_3 and 17 percent were L_2 subtype (Fig. 1). Immunohistochemical and immunophenotyping studies of blasts with sudanblack, periodic-acid Schiff stain and CD_2, CD_{14}, CD_{34},

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CD_{33}, Gp IIb/IIIa were found to be negative. Tdt and CD_{19} were positive. Serum electrolytes, calcium, phosphorus, protein, liver and kidney function tests assayed before chemotherapy were normal. Cultures of blood, urine and the throat were negative. Viral studies for Epstein-Barr and cytomegalovirus were negative. Because of anemia, neutropenia, fever and tender cervical lymph nodes, an infectious etiology was thought to be responsible and the patient was treated with a combination of methicillin and amikacin, and was given three blood transfusion. Although the patient showed some improvement in clinical and laboratory findings (Hb 10 g/dL, WBC 4.5×10^9/L, and on the peripheral smear 66% PNL, 28% lymphocytes and 6% monocytes), mild tenderness of the lymph nodes persisted. Since the peripheral blood was in remission on day 15, bone marrow aspiration was performed and was found to be in remission with normal cellularity. When the decision to start chemotherapy was made, the patient had enlarged lymph nodes, recurrence of fever, and enlarged liver and spleen (4 cm each), massive eruptions on the body. Although microbiological studies revealed no pathogenic microorganism, antistreptolysin-O was 333 Todd U, and C-reactive protein was (+). She was thought to have a deep cervical infection and was put on penicillin ornidazole and sulfamide therapy. On the 27^{th} day of hospitalization, she was healing with no physical signs. Her CBC was as follows: Hb 11.2 g/dL, WBC 6.3×10^9/L with 54% PNL and 46% lymphocytes, and platelet count 80,000/mm^3. She was given remission induction therapy with vincristine, L-asparaginase, duaunorubicin and prednisolone followed by consolidation and maintenance. As of this writing she had been making good progress for three years.

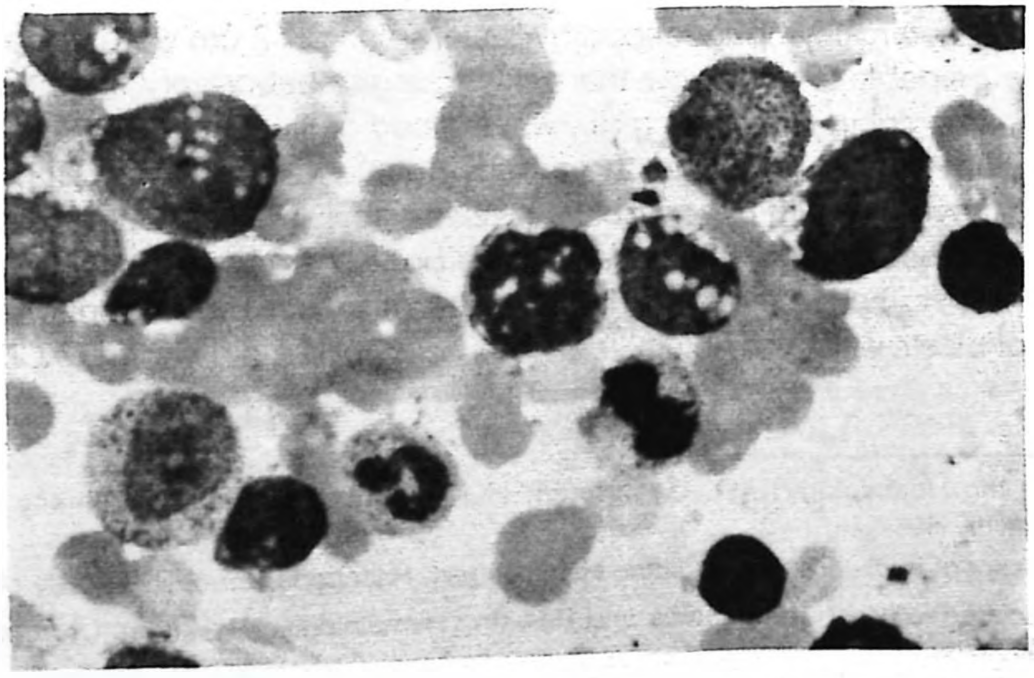

Fig. 1: First bone marrow aspiration of the patient showing L_3-type lymphoblasts.

Discussion

Cases of SCR in patients with acute leukemia have been known since 1878 and many cases had been reported by the year 1955[2]. Advanced chemotherapy and early treatment of patients immediately after diagnosis may gradually decrease the frequency of SCR. Here we reported a case of ALL who had SCR probably due to blood tranasfusions and/or infection. Some studies have suggested that infections and blood transfusion seem to be related to SCR; however, SCR was also reported in a patient with acute myeloblastic leukemia without infection or blood transfusion[3]. These two factors may cause spontaneous release of differentiation factors. In any state, the patient's condition allow for a normal response to stimulating factor. Preconditions such as subclinical graft versus host disease[4,5], white blood cell count, cellularity of bone marrow, type of leukemia and cytogenetic abnormalities may have important antileukemic effects. Our patient had leukopenia and mildly hypocellular bone marrow, the latter of which seems to be an important factor in the development of SCR. The patient's infection on admission led us to the conclusion that blood transfusion was the main cause of SCR. As far as we know, all of the patients with SCR that have been reported in the literature had relapses soon there after. For that reason, we put our patient on chemotherapy to keep her in remission even though SCR had been observed. This case emphasizes the importance of keeping the Hb level within the normal range during remission induction in patients with ALL.

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