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HISTIOCYTIC CELL PHAGOCYTOSIS AND PANCYTOPENIA IN A CHILD WITH HODGKIN'S DISEASE*

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Pancytopenia in Hodgkin's disease is the result of bone marrow fibrosis and/or infiltration by atypical cells. Recently, pancytopenia due to intramedullary phagocytosis has been described in an adult patient. We present here a child with Hodgkin's disease who showed erythrophagocytosis in the liver, spleen and lymph nodes. As far as we know this is the first case of pancytopenia due, in part at least, to histiocytic cell phagocytosis in a child with Hodgkin's disease.

Case Report

A five-year old boy was admitted to hospital with complaints of fever, pallor, fatigue and swelling of the legs and abdomen. Two years prior to admission he had developed pallor, and fatigue, and his abdomen had become protuberant. His growth and development history was normal. Physical examination revealed a well-developed boy with marked paleness. His temperature was 37.8 °C. Liver and spleen were 8 and 10 cm palpable below the respective costal margins and he had pretibial pitting edema. The Hb was 7.5 g/dl, the white blood cell (WBC) count 5600/mm^3 and the platelets appeared to be adequate on the peripheral blood smear. A differential count showed 46% PMN, 48% lymphocytes, 3% bands, 3% eosinophils. Hb, WBC and platelet values dropped to 3.5 g/dl, 400/mm^3 and 30,000/mm^3 respectively, in a short period of time. With the exception of total protein (5 g/dl) and bilirubin levels (total 2.8 mg/dl, direct 1.8 mg/dl), the findings of liver and kidney tests were within normal limits. Coombs' test and febrile agglutination tests were negative, blood urine yielded no growth and throat cultures produced no pathogenic bacteria.

Immunologic studies showed: negative delayed hypersensitivity in skin test; response to mumps, Candida and PPD antigens; decreased serum immunoglobulin levels (IgG 450 mg/dl, IgM 15 mg/dl, IgA 15 mg/dl). Bone marrow samples ob-

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tained by needle aspiration and surgical biopsy were found to be very hypocellular and fibrotic. The smear from the splenic aspiration showed many histiocytes with erythrophagocytosis. A percutaneous liver biopsy showed a mild degree of fibrosis, focal round cell infiltration and necrosis in portal spaces.

The patient ran a febrile course despite therapy with various antibiotics and multiple blood transfusions. The liver and spleen were enlarged, 12 and 17 cm at the respective costal margins. With these clinical and laboratory findings and because of the progressive course of the symptoms, a lymphoreticular malignancy was considered; prednisolone was introduced in addition to supportive therapy. The patient's condition deteriorated, epistaxis occurred, and he died 50 days after being admitted to the hospital.

At autopsy, the peripancreatic lymph nodes were markedly, and others moderately, enlarged. Spleen, liver and kidneys were larger than were to be expected for the age. Microscopic examination of the lymph nodes, spleen and liver showed the presence of diffuse fibrosis and large atypical multinucleated cells, probably histiocytic in origin. Erythrophagocytosis by histiocytes was observed in the liver, spleen and lymph nodes. Typical Reed-Sternberg cells were observed in the liver. The spleen contained very few lymphoid cells. Bone marrow was completely fibrotic. In view of these findings, Hodgkin's disease (of the lymphocyte depletion type) was diagnosed (Figure 1).

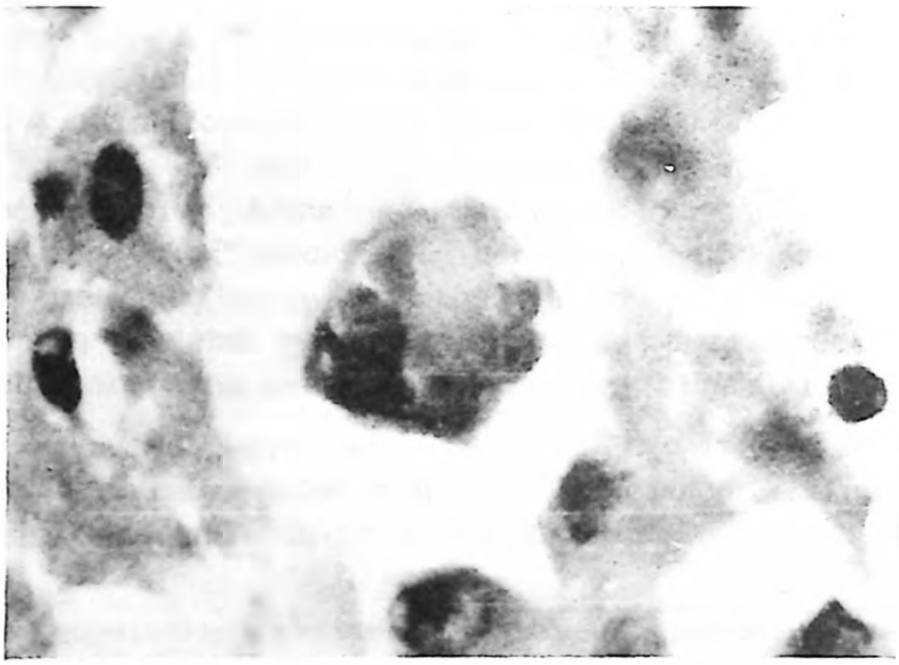

Figure 1.

Histiocytic erythrophagocytosis in the liver (HE X 1000).

Discussion

In this brief report we have presented the case of a child with Hodgkin's disease, in which the pancytopenia was probably due, at least in part, to histiocytic cell phagocytosis as demonstrated in the liver, spleen and lymph nodes. Immune thrombocytopenia[2], hemolytic anemia[3], sarcoidosis[4], and familial malignant histiocytosis[5] are disorders associated with histiocytic phagocytosis. A similar picture has also been described in sepsis[6]. In our patient we were not able to demonstrate the above mentioned causes either in antemortem or in postmortem studies. In our case Hodgkin's disease was probably the cause of the erythrophagocytosis. Massive phagocytosis has been reported in a 62-year-old man with lymphocyte depletion type Hodgkin's disease, and pancytopenia was attributed to intramedullary phagocytosis in that patient[1]. In the light of these findings it was thought that pancytopenia may be related to fibrosis of the bone marrow and phagocytosis of atypical histiocytes of the liver, spleen and lymph nodes.

Since phagocytosis as the cause of the pancytopenia was not considered premortem, further investigations were not carried out. The absence of phagocytosis in the bone marrow has been accounted for on the grounds that it was examined in fibrotic samples in our patient[7]. Cellular and humoral immune deficiencies were considered to be secondary to Hodgkin's disease.

Summary

Lymphocyte depletion type Hodgkin's disease was diagnosed in the postmortem examination of a five-year-old child. Massive erythrophagocytosis by normal histiocytes in the liver, spleen and lymph nodes was observed. We suggest that this phagocytic cell activity may have been partly responsible for the pancytopenia observed in this patient.

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