Apnea of Prematurity. Pediatr 1974; 55: 584-585.

11. Yeh JF, Pildes RS. Transplacental aminophylline toxicity in a neonate. Lancet 1977; 1:910.

12. Shannon M, Wernovsky G, Morris C. Exchange Transfusion in the treatment of severe theophyline poisoning. Pediatrics 1992; 89: 145-147.

Intussusception at the Onset of Acute Lymphoblastic Leukemia in a Child

T. Priya Kumari
S. Vijaya Mohan
Shanavas A.
P. Kusuma Kumari

Surgical complication can occur in a child with acute lymphoblastic leukemia (ALL) even at the initial presentation or during treatment and appropriate surgical intervention could be often life saving. Intra abdominal surgical problems can occur in these children while on treatment, due to the disease itself or due to the chemotherapeutic drugs used or due to both(l). Intussusception in ALL has been reported in patients who are receiving chemotherapy. The present report concerns a child presenting with intussusception as the initial clinical manifestation of ALL.

From the Department of Pediatric Oncology, Regional Cancer Centre, Trivandrum 695 011.

Reprint requests: Dr. P. Kusuma Kumari, Associate Professor, Department of Pediatric Oncology, Regional Cancer Centre, Trivandrum, 695 011.

Manuscript Received: July 31,1997;
Initial revised completed: September 25,*1997;*
Revision Accepted: October 28, 1997

Case Report

An eight-month-old female baby born to unrelated parents was brought to our center with the history of blood and mucous in stools, vomiting and intermittent crying of 1 day duration. Parents also noticed increasing pallor since 2 weeks for which they did not seek any medical advice.

On examination the child was weighing 8 kg, length was 64 cm and head circumference was 44 cm. She had marked pallor. General examination did not reveal any evidence of bleeding tendency. Small lymph nodes measuring less than 0.5 cm were palpable over cervical, axillary and inguinal region on both sides. Abdomen was protuberant. Liver (5 cm) and spleen (6 cm) were enlarged. A mass was palpable in the left lumbar region which was firm and non-tender. Per rectal examination showed blood stained mucous on the examining finger. Other systems were within normal limits.

The hemoglobin level was 5.1 g/dl, total leukocyte count was 2,52,000 cells/mm^3, differential count was 88% small lymphoblasts and 12% segmented cells. Platelet count was 40000 cells/mm^3 and ESR was 125 mm/1 hr. The chest X-ray was normal.

Examination of bone marrow confirmed the diagnosis of ALL FABL1 type. Liver function tests and renal function tests were within normal limits.

Abdominal radiograph showed increased gas shadows in the small intestine and radiography following barium enema showed positive evidence of intussusception. Barium enema reduction was attempted but was not successful.

A diagnosis of ALL and intussusception was made and the patient was immediately given transfusion of platelets and red cells and therapy with prednisolone 2 mg/kg was started. The following day, laparotomy and reduction of intussusception was done; an ileo-ileo colic intussusception with apex at sigmoid reduced with difficulty. The lead point of intussuception was found to be a hematoma. No other primary lesion was found out.

Treatment with prednisolone and antibiotics was continued throughout an uneventful postoperative course. Induction chemotherapy with Injection Vincristine, Leunase, Adriamycin and Steroids were started, 12 days after surgery. The patient tolerated chemotherapy well and attained remission after 5 weeks of chemotherapy. Presymptomatic central nervous system therapy was given with intrathecal methotrexate alone. The patient was put on maintenance chemotherapy after consolidation therapy.

Discussion

Acute leukaemia is the most common malignant disease in childhood accounting for one third of the cancers among children. The symptomatology of acute leukemia varies little with the cell type. Vague abdominal pain is a common presenting symptom reported in about 19% of cases in one series and it presumably results from areas of inflammation or nodal involvement within the intestinal tract(2). Thrombocytopenia leading to various bleeding manifestations has been reported in about 50% of cases, but hematoma of ileum as sole manifestation of bleeding tendency has not been reported previously.

Surgical complication in patients on chemotherapy and at the onset of leukemia must be considered to be an important part of the disease. These complications can occur in as many as 6% of patients(3). There are many cases of abdominal emergencies that are almost unique to the immuno compromised host(4). Derangement of gastrointestinal tract (GIT) from leukemic infiltration has been known for years. The GIT was reported infiltrated with leukemia cells in 13-25% of patients at autopsy(5). Four distinct types of bowel lesions has been described in patients with leukemia: (z) Hemorrhagic necrosis usually involves mucosa; *(ii)* Leukemia infiltrates which can become necrotic following chemotherapy; such lesions may be responsible for intestinal obstruction and intussusception; *(Hi) A* granulocytic necrosis such as seen in typhlitis which may be a form of pseudomembranous colitis; and *(iv)* Fungal lesions in the bowel(6). Gastrointestinal lesions have been reported to occur in 20-25% of patients with leukemia(7).

Intussusception in infants is very often idiopathic. Henoch Schonlein purpura in children can produce generalized purpura and occasionally it may produce intussusception. In the presently reported case eventhough the patient was thrombocytopenic there was no other evidence of bleeding except the small hematoma in the ileum which was producing the intussusceptin. All other regions of intestine were looking normal. At surgery, resection of intestine was not considered and only reduction of intussusception was

done. Hence it was not possible to establish whether the intestine was infiltrated with leukemia or not.

Digilio *et ah* have reported a child with acute lymphoblastic leukemia who presented with intestinal obstruction at the onset and the cause of obstruction was volvulus(8). Intussusception at the presentation of leukemia has not been reported previously. In our case, the diagnosis of acute leukemia was made prior to any form of surgical intervention and supportive measures with blood transfusion, platelet transfusion and steroids were given to improve the general condition. This might have helped the patient to withstand the surgery.

In conclusion, rarely acute leukemia may present with signs and symptoms of intussusception and appropriate therapeutic strategy must be adopted to overcome such a situation.

REFERENCES

1. Versteeg K, LaSalle A, Retner I. Appendicits in acute leukemia. Arch Surg 1979; 114: 632-633.
2. Schaller RT Jr, Schaller JF. The acute ab domen with immunologically compro mised child. J Pediatr Surg 1983; 18: 937-944.
3. Sherman NJ, Williams K, WooleyMM. Surgical complications in the patient with leukemia. J Pediatr Surg 1973; 8: 235-244.
4. Fernbach DS. Natural history of acute leu kemia. *In:* Clinical Pediatric Oncology. Eds. Sutow WW, Fernbach DS, Vietti TJ. Missouri, C.V. Mosby Company, 1984; p 349.
5. Gunz F, Baikie AG. Pathology of leuke mia tissue. *In:* Leukemia. New York, Grune and Stratton, 3rd edn, 1974; pp 249-252.
6. Dewar GJ, Lim CN, Michal Y, Shyn B. Gastrointestinal complication in patients with acute and chronic leukemia. Can J Surg 1981; 24: 67-71.
7. Prolla JC, Dissner JB. The gastrointestinal lesions and complications of leukemia. Ann Intern Med. 1964; 61:1084-1088.
8. Digilio GMD, Multari GMD, Werner MD. Intestinal obstruction at the onset of acute lymphoblastic leukemia in a child. Am J Pediatr Hemat/Oncol 1990; 12: 187-189.