

## ACUTE LEUKEMIA PRESENTING AS ACUTE PANCREATITIS

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### ABSTRACT

A pediatric patient presented with acute pancreatitis, was found to have acute leukemia. Leukemic nodules was shown in the liver and kidneys by CT scan. The pancreas was diffusely enlarged and had low density which suggested acute inflammatory process and leukemic deposition was likely the cause of pancreatitis. Acute leukemia should be in a differential diagnosis of the pediatric patients who present with acute pancreatitis.

### INTRODUCTION

Acute pancreatitis is an inflammation of the pancreas which may go on to suppuration, necrosis or hemorrhage (1,2). The final diagnosis of pancreatitis is usually based on the presence of a typical clinical syndrome consisting of upper abdominal pain, elevation of serum or urine amylase levels (25-30% over upper limit of normal), an amylase creatinine clearance ratio of 4% or greater, exclusion of other causes of abdominal pain and a response to therapy specific for pancreatitis (3). Acute leukemia is the result of a malignant event, or events, occurring in an early hematopoietic precursor. Instead of proliferating and differentiating normally, the affected cell gives rise to progeny that fail to differentiate and instead continue to proliferate in an uncontrolled fashion. As a result, immature myeloid cells (in acute myelogenous leukemia) or lymphoid cells (in acute lymphocytic leukemia); often called "blasts" rapidly accumulate and progressively replace the bone marrow, leading to diminished production of normal red cells, white cells, and platelets. This loss of normal marrow function in turn give rise to the common clinical complications of leukemia: anemia, infection and bleeding. With time, the leukemic blasts pour out into the bloodstream and eventually occupy the lymph nodes, spleen, and other vital organs (4). Acute pancreatitis is

occasionally a manifestation of leukemic or lymphomatous involvement of the pancreas (5,6).

### CASE REPORT

A 5-year-old boy, had abdominal and back pain for one week. She was found to have hepatomegaly, tender epigastric region and swelling of both eyelids. A mass was noted at his left submandibular region for a month. The serum amylase one week after the onset of the epigastric pain was 533 unit, urine amylase 15,240 unit, alkaline phosphatase 423 unit. Bone marrow aspiration revealed acute lymphocytic leukemia. She was given Vincristine and endoxan and lost follow up.

CT scan at the admission time showed leukemic nodules in the liver, and kidneys (Fig. 1). The pancreas was diffusely enlarged and had low density (Fig. 2).

### DISCUSSION

The etiology of most leukemic gastrointestinal complications is believed to be threefold:(1) primary invasion by leukemic cells to the bowel and related structures, causing bowel obstruction; diffuse mucosal ulceration and hemorrhage; infarction and rupture of the liver and spleen; portal hypertension with ascites and varices; obstruction of

biliary and pancreatic duct systems; protein losing enteropathy; and pneumatosis intestinalis (2) altered immune state causing increased susceptibility to common infections appendicitis; wound infections, perianal inflammation, abscess formation, peritonitis, septicemia; opportunistic infections-esophageal and gastric candidiasis, pseudomembranous enterocolitis, typhlitis, toxic megacolon (3) direct and indirect toxicity of antileukemic therapy-profound nausea and vomiting, severe adynamic ileus; vincristine-induced megacolon; peptic ulcer disease, tissue necrosis in bowel wall, pancreatitis and hemorrhagic colitis (7).

Massive invasion by leukemic cells may cause bowel, biliary and pancreatic duct obstruction which produces acute pancreatitis (7). Malpica (6) reported a case of plasma cell leukemia in an old age patient who had clinical acute pancreatitis. Diffusely enlarged pancreas was found at surgery and diffuse infiltrate of typical and atypical plasma cells was found at autopsy.

Patients whose immune systems have been compromised either through disease processes or for therapeutic reasons are highly susceptible to infection by viruses. Viral infection could create acute pancreatitis, e.g. mumps, hepatitis A, hepatitis B, coxsackie B, Epstein-Barr, adenovirus (7,8). It was suggested that a primary adenovirus infection to the gastrointestinal tract ascends to and involves the pancreatic parenchyma via the pancreatic ducts (9). The viral antigen could be found in acinar cells, pancreatic duct cells and duodenal mucosal epithelium in the case of adenoviral pancreatitis.

The acute pancreatitis in this leukemic patient was probably caused by leukemic infiltration

of the pancreas. The lack of fluid in the anterior pararenal space in the presence of acute pancreatitis was quite unusual and was not mentioned in the literature.

## REFERENCE

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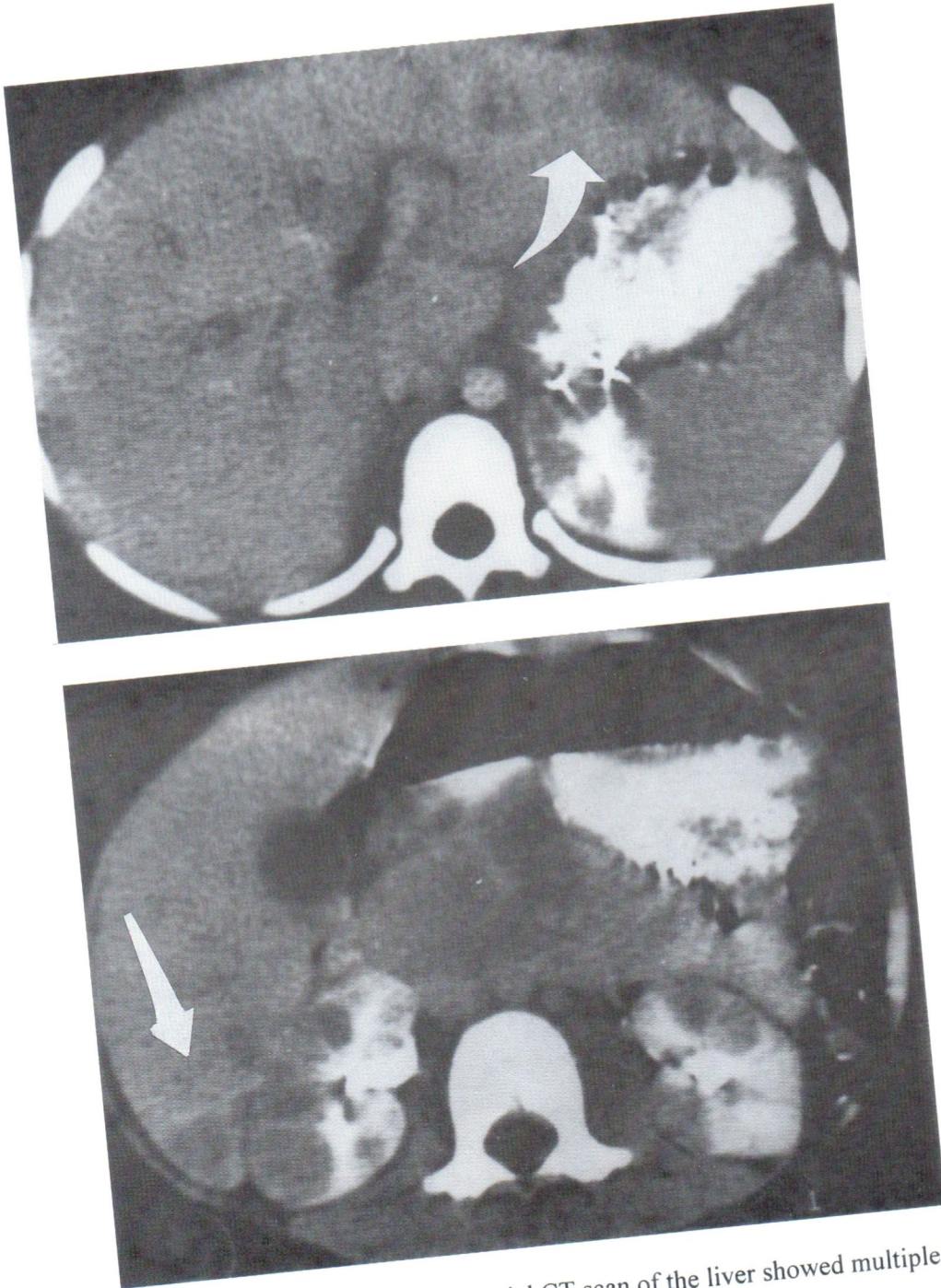


Fig. 1A. I.V. contrast enhanced axial CT scan of the liver showed multiple low density leukemic nodules.



Fig. 1B The same study showed multiple low density leukemic nodules in both kidneys.



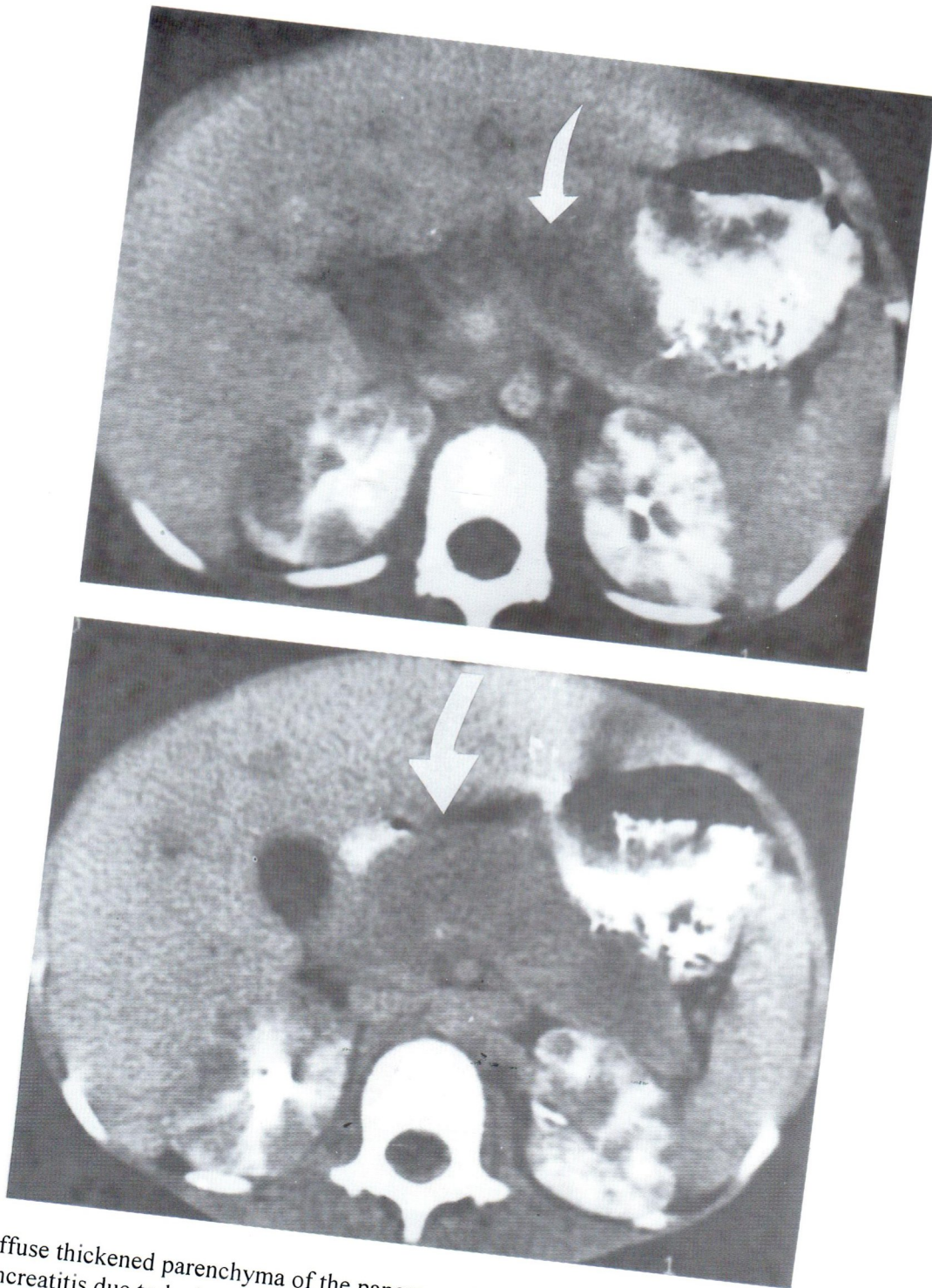


Fig. 2 Diffuse thickened parenchyma of the pancreas with diffuse low density which suggest acute pancreatitis due to leukemic deposition. Lack of fluid in the peripancreatic space is quite unusual for the process of acute pancreatitis.