

SMOOTH-MUSCLE TUMORS IN CHILDREN WITH AIDS

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ABSTRACT

Images of multiple hepatic smooth-muscle tumors in a 42-month-old girl and of multiple smooth-muscle tumors of the gastrointestinal tract in a 34-month-old boy are described. Both children were perinatally human immunodeficiency virus (HIV) positive.

INTRODUCTION

Gastrointestinal manifestations of the acquired immunodeficiency syndrome (AIDS) in children are seen when they have opportunistic infections, lymphoproliferative disease, or cancer.¹ In children with AIDS and cancer, cases of lymphoma outnumber cases of Kaposi's sarcoma. Since 1990 smooth-muscle tumors (leiomyomas and leiomyosarcomas) have been reported in children with AIDS.²⁻⁴ We describe images of two children with smooth-muscle tumors and HIV infection.

CASE REPORT

CASE 1. - A 42-month-old girl perinatally HIV positive was referred for a CT examination of the chest because of persistent infiltrates in her right lung. She had had frequent episodes of otitis media, diarrhea, oral candidiasis, herpetic stomatitis, *Salmonella* bacteremia, and pneumonia. Physical examination revealed generalized lymphadenopathy and hepatosplenomegaly. The CT scan showed patchy infiltration in both lungs. A hypodense mass about 3 cm in diameter was noted in her left liver lobe (Fig. 1). Abdominal ultrasonography showed two hypoechoic masses with hyperechoic centers ("target" lesions) in the liver (Figs. 2 and 3). Enlarged periportal lymph

nodes and peripancreatic lymph nodes were also seen. A fine needle aspiration biopsy was performed to check for liver abscesses. The specimen had spindle cells.

Follow-up CT examination at 5 months showed that the two hepatic masses had increased and had hypodense centers, which might have been necrotic tissue (Figs. 4 and 5). Two additional masses were also seen in the left liver lobe (Fig. 6). At this time, a fine needle aspiration biopsy of the right chest revealed acute suppurative inflammation. No organisms were found.

One month later, she developed scalp infection from *Staphylococcal aureus*, which subsided after an antibiotic. She has not returned to the hospital since then.

CASE 2. - A 34-month-old boy was admitted because of intermittent abdominal pain and hematochezia. His father had died from AIDS. He had been tested to have HIV-positive at another hospital one year before. Physical examination revealed multiple cervical lymphadenopathy. On palpation, there was no tenderness of the abdomen. He had mild hepatosplenomegaly. A barium enema showed multiple polypoid filling defects mostly about 5 mm in diameter in the rectum, sigmoid and colon (Fig. 7). There was a lesion about 3 cm in diameter in the ascending colon.

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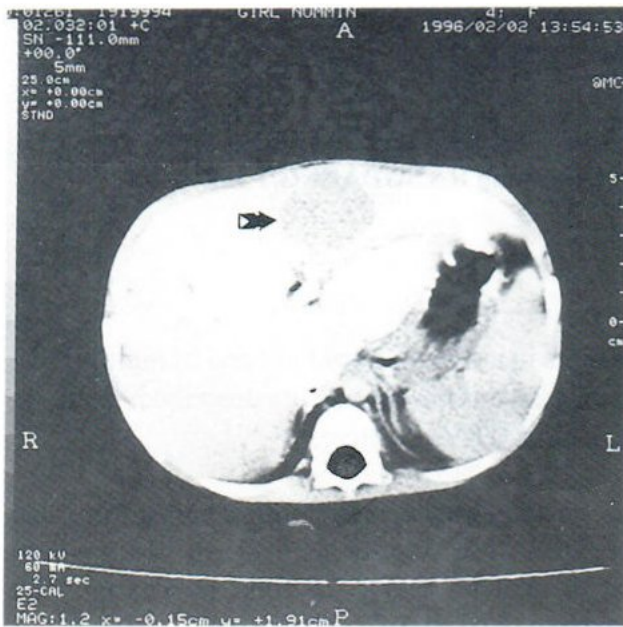


Fig 1. Contrast-enhanced CT scan shows a hypodense mass (arrow) in left liver lobe.

Malignant change of this one was suspected. Colonoscopy was done and showed to have multiple polypoid lesions, about 3-5 mm in diameter, scattered throughout the colon. The largest was in the ascending colon. A colonoscopic biopsy of this lesion showed to be a leiomyosarcoma. An upper GI study showed a few polypoid filling defects in the stomach and multiple lesions in the duodenum. The patient did not undergo surgery because the lesions were scattered throughout his gastrointestinal tract. He has not returned to the hospital since then.

DISCUSSION

Smooth-muscle tumors can arise in any tissue that contains smooth muscle. They are rare in pediatric patients.⁵ In the gastrointestinal tract frequent symptoms are abdominal pain, gastrointestinal bleeding, and intestinal obstruction.⁶ All the reported cases in

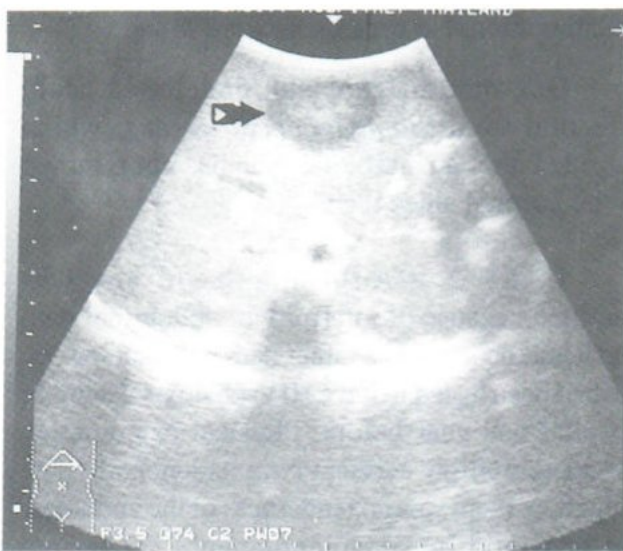


Fig 2. Transverse sonogram shows a "target" lesion (arrow) in left liver lobe.

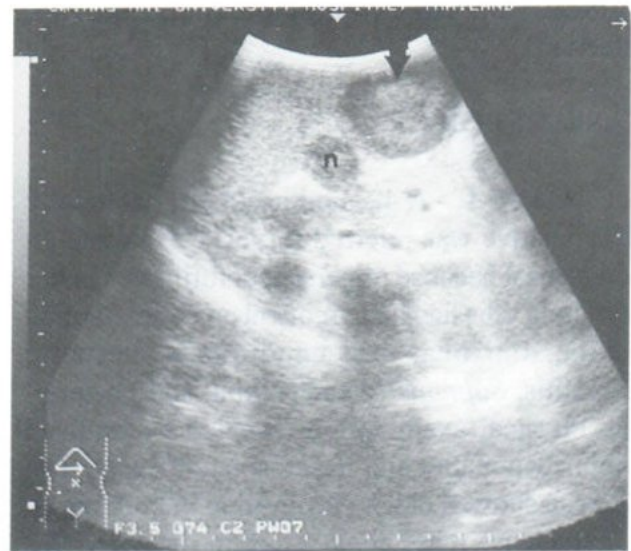


Fig 3. Transverse sonogram shows a "target" lesion (arrow) in caudate lobe of liver. Note enlarged lymph node (N) adjacent to the head of pancreas.

immunocompetent patients have had only one lesion.⁷

In children with AIDS smooth-muscle tumors have been reported in the gastrointestinal tract,²⁻⁴ tracheobronchial tree,² lungs,² and liver.^{4,8} Most patients, particularly those with tumors in the gastrointestinal tract, have had multiple lesions.

Smooth-muscle tumors in adults with AIDS have also been reported. One patient had multiple smooth-muscle tumors of the colon and a smooth-muscle tumor of the right adrenal gland.⁹ Another patient had two leiomyomas of the liver.¹⁰

Multiple factors are likely to predispose patients with AIDS to develop cancer, such as defective immunosurveillance, the presence of multiple coinfecting organisms, chronic antigenic stimulation with unregulated polyclonal B-cell expansion, abnormal regulation of various growth

factors and cytokines, and oncogenesis by the HIV itself.² Recently it has been reported that Epstein-Barr virus may contribute to the development of leiomyomas and leiomyosarcomas in patients with AIDS.¹¹

The ultrasonography of hepatic smooth-muscle tumors has been well-circumscribed hypoechoic masses in patients with AIDS.^{8,10} Some of these masses have had circumferential halos.¹⁰ CT scans of hepatic smooth-muscle tumors in patients with AIDS have shown a hypodensity mass,⁸ a homogeneously enhanced mass surrounded by an enhancing halo on a delayed scan,¹⁰ and for a large tumor inhomogeneous enhancement with a hypodense center.⁸ The ultrasonograms of our first case were different; the tumors had "target" lesions. The differential diagnosis of "target" lesions in the liver includes lymphoma, metastatic tumor, and abscess. The CT scans of our case were similar to

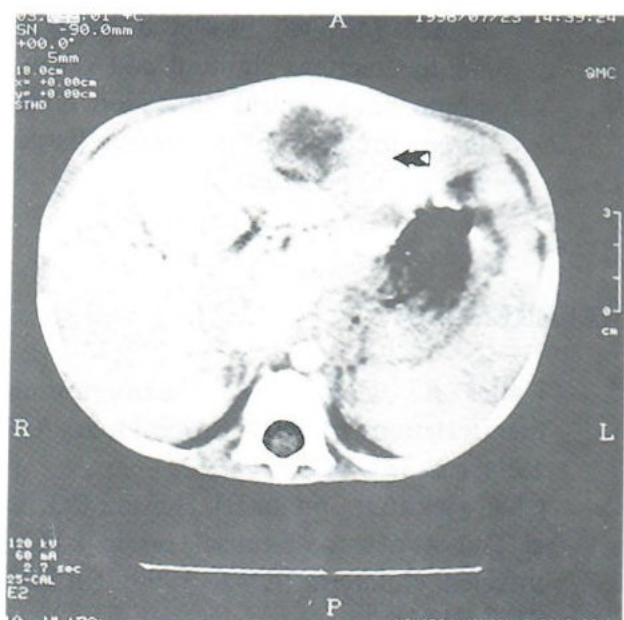


Fig 4. Follow-up CT scan with larger mass in left liver lobe (arrow). Note hypodense center.

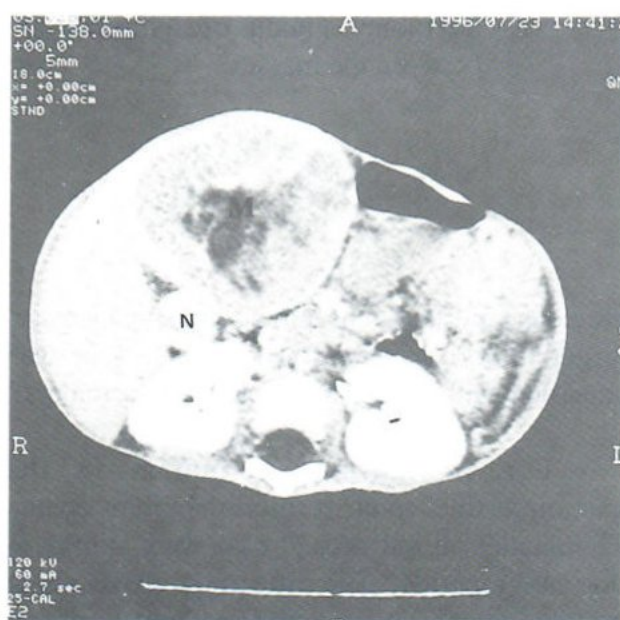


Fig 5. Follow-up CT scan shows a 6-cm mass (M) in caudate lobe. Note rim enhancement, hypodense center, and enlarged lymph node (N).

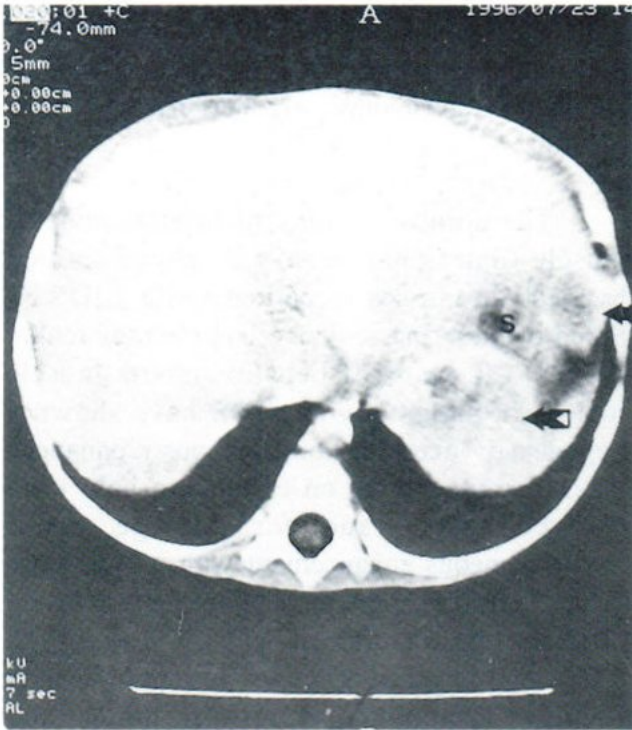


Fig 6. Contrast-enhanced CT scan shows two additional masses (arrows) in left liver lobe. Fundus of stomach (s) is between the masses.

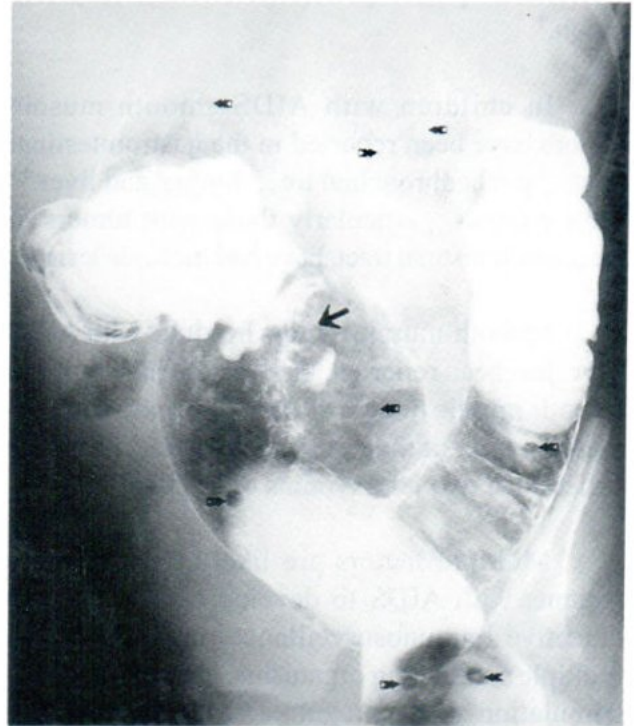


Fig 7. Barium enema (RPO projection) shows multiple polypoid filling defects (arrows). Scattered throughout the rectum, sigmoid and colon. Some have central ulceration. Note large irregular filling defect (large arrow) in ascending colon.

previous reports. Small tumors had hypodensity; larger tumors had central necrosis. This was consistent with the gross pathology of the tumors.⁵

For smooth-muscle tumors in the gastrointestinal tract, results of barium enema examination in our second case were similar to one case reported.⁹ The differential diagnosis of multiple colonic polyps with or without ulceration in a patient with HIV infection includes Kaposi's sarcoma and lymphoma.

Smooth-muscle tumors have been seen with increasing frequency in HIV positive children. They should be suspected when a mass or, especially, multiple masses are seen.

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