patient who has undergone vascular reconstructive surgery.7

One can expect to encounter upper gastrointestinal hemorrhage from aortoenteric fistulas more often as vascular reconstructive surgery becomes more common. The complication is lethal if not recognized and treated promptly.

Upper gastrointestinal fiberoptic endoscopy can be used to make an early diagnosis, at the same time excluding other sources of hemorrhage. Endoscopy is a rapid, safe diagnostic tool that can be used in the seriously ill patient while supportive measures are being instituted.

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Endoscopic visualization of nodular lymphoid hyperplasia

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Chronic gastrointestinal complaints and morphologic abnormalities of the small intestine are common in adult immunodeficiency syndromes. Patients with acquired idiopathic hypogammaglobulinemia frequently have a distinctive macroscopic appearance of the small bowel designated as nodular lymphoid hyperplasia,1 which is commonly associated with Giardia lamblia infestation. We have recently seen a patient with total serum IgA deficiency in whom the diagnosis of nodular lymphoid hyperplasia was confirmed endoscopically.

CASE REPORT A 43-year-old man was in good health until 4 months before admission when he experienced the first of 3 attacks of crampy lower abdominal pain lasting several minutes. In the 3 to 4 months preceding hospitalization, he had had 3 to 4 loose, non-bloody bowel movements daily. Investigation at another hospital revealed total absence of serum IgG, serum albumin 4.4 gm, and a normal d-xylose test (2-hour serum level of 55 mg and a 5-hour urine excretion of 5.3 gm). Serum immunoglobulin determination by radio-immunodiffusion revealed absent IgA, a normal IgG of 730 mg, and a low normal IgM of 36 mg. Multiple stool examinations for ova and parasites were negative. Radiographs (Figure 1) showed multiple, small, filling defects typical of nodular lymphoid hyperplasia uniformly distributed throughout the small bowel. A duodenal aspirate was negative for Giardia lamblia.

Endoscopy was performed to confirm and further identify the radiologic findings and to detect possible Giardia lamblia infection. The esophagus and stomach were normal. Starting in the distal duodenal cap and extending to the limit of vision 15 to 20 cm into the duodenal loop, the mucosa was covered with innumerable soft polypoid excrescences ranging from 1 to 3 mm in diameter (Figure 2). Duodenal biopsies revealed typical nodular lymphoid hyperplasia. Microscopic examination of a duodenal aspirate showed many Giardia lamblia trophozoites.

Treatment with metronidazole, 750 mg daily for 10 days, relieved the diarrhea. When the patient was seen 4 months later, he had had no recurrence of abdominal symptoms. Repeated endoscopy showed no change in the macroscopic appearance of the duodenum. A duodenal aspirate was negative for Giardia lamblia.

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Figure 1. Small bowel radiograph showing innumerable well-defined filling defects.

Figure 2. Endoscopic view of the second portion of the duodenum showing the typical polypoid lesions of nodular lymphoid hyperplasia.
DISCUSSION In 1966, Hermans et al. delineated a distinctive clinical entity of (a) increased susceptibility to respiratory infections; (b) gastrointestinal complaints of abdominal pain, diarrhea, and occasional steatorrhea; (c) frequent intestinal infection with *Giardia lamblia*; (d) deficiency or absence of serum IgA and less frequently of IgM and IgG; and (e) hyperplastic lymphoid follicles in the small intestine appearing as polyloid projections into the bowel lumen. Subsequent reports have confirmed the original observation, and additional associations have been described. Patients with acquired immunoglobulin deficiency have an increased incidence of various disorders including thyroiditis, pernicious anemia, intestinal villous atrophy, and solid tumors. Particularly striking is a recent description of 50 patients with immunodeficiency, 12 of whom developed neoplasms, including 5 gastric carcinomas, 4 thymomas, and 2 lymphomas.

Other authors have reported a low yield of fecal examination in the detection of *Giardia* infection, such as was seen here. In addition, the symptomatic improvement following metronidazole therapy in our patient, without resolution of the nodular lymphoid hyperplasia, parallels the experience of others. The lesions of nodular lymphoid hyperplasia are usually confined to the small intestine, as in our case, although there have been rare reports of concomitant involvement of the stomach or rectum.

Endoscopic examination of our patient served several purposes. First, it provided a definitive method of confirming the diagnosis of nodular lymphoid hyperplasia. In addition, endoscopy demonstrated *Giardia* infestation, justifying treatment with metronidazole, an agent which is effective in symptomatic treatment of patients with IgA deficiency only in the presence of documented giardiasis. We conclude that upper gastrointestinal endoscopy may be useful in selected cases of immunodeficiency associated with gastrointestinal complaints.

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Leiomyosarcoma of the duodenum

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Leiomyosarcoma of the duodenum is an infrequently encountered tumor of the small bowel. Literature reviews in the past have emphasized the tendency of this type of submucosal tumor to undergo necrosis and ulceration and present as an occult source of gastrointestinal blood loss. The last review of duodenal leiomyosarcoma was published before the availability of sophisticated contemporary panendoscopes that allow visualization of regions of the gastrointestinal tract previously inaccessible. Fiberoptic endoscopy was recently shown by Wald and Milligan to be an invaluable tool in the evaluation of duodenal neoplasms. Of the 11 cases they reported, 7 were malignant, but none were smooth-muscle origin. We are aware of only 1 previously published endoscopic photograph of a duodenal leiomyosarcoma. A patient recently presented to the University of California Davis-Sacramento Medical Center with several episodes of massive gastrointestinal bleeding and was endoscopically found to have a lesion in the distal duodenum which proved at surgery to be a leiomyosarcoma. The endoscopic features of this tumor, as well as the difficulty in establishing this diagnosis, prompted this case report.

CASE REPORT A 73-year-old man, had been in excellent health until December 1974 when he presented to his private physician with painless hematochezia and syncope. After stabilization, endoscopy was performed and revealed blood in the second portion of the duodenum, but no discrete lesion was seen either in the esophagus, stomach, or visualized portions of the duodenum. Surgical exploration also failed to locate the source of bleeding, and a vagotomy and pyloroplasty were performed for presumed peptic disease. The patient's immediate postoperative course was uneventful. Upper gastrointestinal radiography performed after discharge showed post-surgical changes but was otherwise negative. Four days later, the patient returned because of acute midabdominal pain lasting an hour after his evening meal, followed by several bloody stools. His hematocrit, 35% at the time of discharge, had fallen to 22% by the time of admission. He was then transferred to UCD-Sacramento Medical Center for further evaluation and treatment.

There was no history of nausea, vomiting, dysphagia, or weight loss. Physical examination revealed an alert, elderly man whose blood pressure was 140/70 and whose pulse was 88. There was no icterus. The abdomen was soft, scaphoid and nontender; no masses or enlarged organs were encountered. Blood transfusions were given, and panendoscopy was performed. The esophagus and stomach were normal; deformity, edema, and friability at the pyloric channel precluded passage.

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GASTROINTESTINAL ENDOSCOPY