0002-9270/92/8708-1040$03.00/0
THE AMERICAN JOURNAL OF GASTROENTEROLOGY

Vol. 87, No. 8, 1992
Printed in U.S.A.

Endoscopic Detection and Therapy of Colonic Actinomycosis

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Abdominal actinomycosis is a disease that is difficult to diagnose nonoperatively. Usual manifestations are abscesses and draining sinus tracts. Treatment is typically surgical and requires prolonged intravenous antibiotics. Presented is a patient who underwent surveillance colonoscopy after resection for colon carcinoma. Diagnosis of colonic actinomycosis and subsequent resolution was demonstrated endoscopically after lengthy oral penicillin therapy (2 g/day for 1 yr). This case documents that resection may not be necessary to effect cure of abdominal actinomycosis.

INTRODUCTION

Abdominal actinomycosis is a disease that often is difficult to diagnose, especially nonoperatively. Usual manifestations are abscesses and draining sinus tracts. We describe a patient who had a colonic segmental resection and later developed an actinomycotic nodule at the anastomotic site. Diagnosis was made via the colonoscope, and resolution of the nodule was demonstrated endoscopically with prolonged penicillin therapy. The clinical and pathological features of the case, endoscopic resolution of the lesion, and specific features of gastrointestinal actinomycosis are discussed.

CASE REPORT

The patient was a 78-yr-old white female, referred in January 1988 for colonoscopy due to hemoccult-positive stools and a family history of colon carcinoma. The patient was asymptomatic with no abdominal complaints or change in bowel habits. The patient's weight had been stable, and she denied nausea or vomiting. The patient's medications included chlorpropamide for adult onset of diabetes mellitus and methyldopa for hypertension. The only past surgery was a hysterectomy with bilateral oopherectomy for a benign ovarian tumor in the 1940s. The patient's mother had died of metastatic colon carcinoma.

Physical examination and laboratory findings were unremarkable. On colonoscopy, the patient had a 2- to 2.5-cm sigmoid polyp which was removed, revealing an infiltrating well-differentiated adenocarcinoma arising out of a villous adenoma and extending into the base of the polyp. Due to that lesion, the patient underwent colonic resection which was complicated by an anastomotic leak that required prolonged hospitalization, intravenous hyperalimentation, blood transfusions, and intravenous antibiotics. Eventually, the anastomotic leak closed. Follow-up colonoscopy in August 1988 revealed minimal irregularity at the anastomotic site.

Biopsies of this area showed chronic inflammation only, and no evidence of recurrent malignancy. The patient underwent follow-up endoscopy in January 1989. At that time, the patient had a fairly large, 2- to 3-cm, circumferential, nodular lesion, with a central umbilication at the anastomotic site (Fig. 1). Biopsies of this lesion revealed benign, chronic, inflamed granulation tissue, containing colonies of microorganisms consistent with actinomycosis. PAS and Gram stain revealed colonies of Gram-positive elongated rod-shaped microorganisms (Figs. 2 and 3). CT scan of the

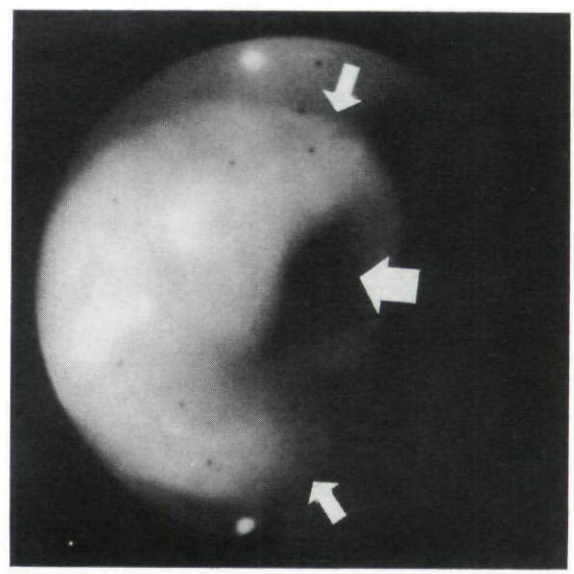

FIG. 1. Endoscopic photograph of actinomycotic nodule at time of diagnosis (*narrow arrows*, nodule; *wide arrow*, central umbilication).

Received Oct. 7, 1991; accepted Dec. 3, 1991.

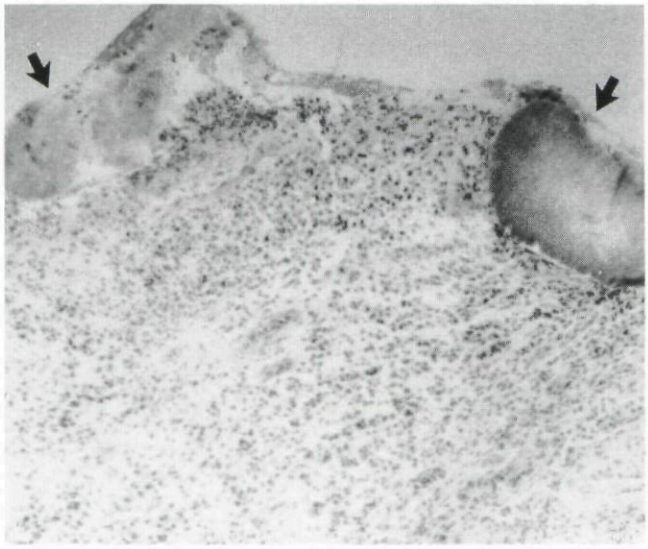

FIG. 2. Granulation tissue from biopsy at anastamotic site (hematoxylin and eosin, ×160). *Arrows,* two actinomyces colonies, "sulfur granules."

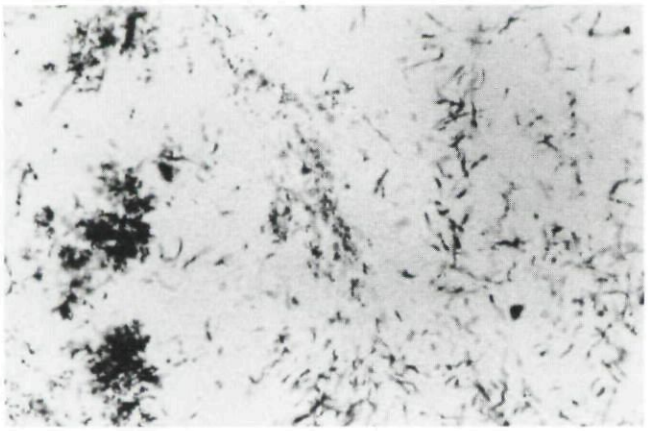

FIG. 3. High-power view of actinomyces colonies (Gram stain, ×1600). Note thin, Gram-positive beaded and branched filaments; the organisms were not acid fast with modified Kinyoun stain.

abdomen and pelvis was normal. Because the patient was asymptomatic, we decided to treat her with a prolonged course of high-dose oral penicillin therapy (penicillin V, 500 mg orally, 4 times/day). Photographs from the patient's subsequent endoscopic evaluations revealed slow resolution and virtual disappearance of the lesion (Fig. 4). The patient's oral penicillin therapy was stopped after 1 yr, in June 1990. The patient tolerated the medication well and has remained asymptomatic.

DISCUSSION

Actinomycosis is a chronic, granulomatous disease. It is caused by Gram-positive filamentous anaerobic bacteria. The most common pathogenic species is *Actinomyces israelii.* It is part of the normal endogenous anaerobic oral flora and causes disease usually only of

FIG. 4. Video endoscopic photograph, taken 16 months after therapy, demonstrating resolution of nodule *(arrow).*

damaged tissue (1). Three primary forms of actinomycosis have been described: *1)* cervicofacial actinomycosis comprises about 50% of the cases, *2)* abdominal actinomycosis 20% of the cases, and *3)* thoracic actinomycosis 15% of the cases (2, 3). Other sites have been described, including liver, bone, and pelvis. The last is frequently IUD related (4).

Abdominal actinomycosis usually is related to recent abdominal surgery, tumor, or perforation of a viscus (5, 6). Infection is postulated to occur as actinomyces infiltrate through minute defects in the intestinal mucosa. The organisms cause granulomatous inflammation, followed by necrosis and fibrosis. Discrete nodules of inflammation are often found. They have a center of necrosis with surrounding peripheral edema and fibrous tissue. Sinus tracts and abscesses frequently form.

Clinically, abdominal actinomycosis usually has an indolent course and presents a difficult diagnostic problem. Symptoms are frequently few or nonspecific, including abdominal cramps and pain, anorexia, and occasional fever or chills. On physical examination, a sinus tract is rarely visualized or an abdominal mass palpated. Any site in the gastrointestinal tract may be involved, but the highest prevalence has been in the appendix and ileocecal valve area. Other areas of the colon have been reported, including vesicocolic fistula and multiple isolated areas of the colon (2, 7, 8). The diagnosis usually is made at the time of exploratory surgery or postmortem by staining and culture of the infected material. Sulfur granules are frequently found. They are colonies of actinomyces which, microscopi-

cally, are found to branch and resemble mycelia. Other organisms may present with sulfur granules, including nocardia, some staphylococcal species, and *Aspergillus*. The primary differential is nocardia, but these organisms usually are acid fast, with modified tissue acid-fast stains, whereas actinomycosis is not. The definitive diagnosis can be made by anaerobic culture of uncontaminated tissue specimens and may take weeks to months to grow.

In our case, fungal culture was not obtained. Ideally definitive culture would be optimal; however, the organism was not anticipated at the time of endoscopy and cultures often are negative. Staining of the organism was done and this has been reported to be diagnostic (1).

The preferred therapy for abdominal actinomycosis is penicillin. In cases of abdominal abscess or draining sinus tracts, prolonged intravenous therapy is required. Because our patient had only a single localized nodule and minimal symptoms, treatment with a prolonged course of oral penicillin was undertaken. Slow resolution of the lesion was noted endoscopically. Previous case reports have described abdominal actinomycosis diagnosed by CT manifestations or exploratory surgery (9, 10). To our knowledge, this is the first case of endoscopic discovery and demonstration of resolution of the lesion on oral penicillin therapy, and documents that resection is not necessary to effect cure.

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