Intraabdominal Actinomycosis in a Patient Presented with Prolonged Fever and Epigastric Mass

Ratiporn Bansong, M.D., Ploenchan Chetchotisakd, M.D.
Division of Infectious Diseases, Department of Medicine, Faculty of Medicine, Srinagarind Hospital, Khon Kaen, Thailand.

ABSTRACT
We report a case of 61-year-old man with underlying colonic polyps presented with prolonged fever and epigastric mass for 1 month. Whole abdominal computerized tomography (CT) scan demonstrated a tumor mass at gastric antrum with local invasion to omentum and transverse colon. He was provisionally diagnosed with gastric cancer. Histopathology of the gastric and colonic polyps showed no definite tissue diagnosis. Exploratory laparotomy revealed intraabdominal mass with abdominal wall abscess. Distal gastrectomy, gastrojejunostomy and transverse colectomy were performed. Pus Gram stain revealed pleomorphic gram-positive rod with branching consistent with Actinomycetes. Tissue pathology showed actinomycotic abscess at the abdominal wall, stomach, and colon. Abdominal actinomycosis was diagnosed. He was treated with penicillin G sodium 18 mU/day for 4 weeks and switched to oral amoxicillin 2,000 mg/day for 6 months with improvement. (J Infect Dis Antimicrob Agents 2013;30:85-8.)

Note: This case had been presented and discussed in the Interhospital Case Conference on Infectious Disease (ICCID) on 16 August 2012, Bangkok, Thailand.

INTRODUCTION
Human actinomycosis was first described in 1878 by James Israel and Wolfe. Of the 14 Actinomyces species, only 6 species may cause diseases in humans including Actinomyces israelii, A. naeslundii, A. odontolyticus, A. viscosus, A. meyeri and A. gerencseriae. Three pathogenic Actinomyces species are anaerobic or microaerophilic filamentous, pleomorphic, gram-positive rod that colonize in the mouth, colon and vagina. The disease occurs in both healthy and immunocompromised individuals. Disruption of the mucosal epithelium is what leads to the pathogenesis of disease. Subacute to insidiously chronic onset is common. Three clinical presentations that should prompt consideration of this unique infection include (1) the combination of chronicity, progression across tissue boundaries, and mass-like features, which mimic malignancy; (2) the development in the sinus tract, which may spontaneously resolve and recur; and (3) a refractory or relapsing infection after a short course of therapy. Most common manifestations of actinomycosis are cervicofacial, thoracic, and abdominal disease respectively.
Successful treatment needs a long term and high dose medication. Surgery is needed in some conditions.

CASE REPORT

A 61-year-old Thai male presented with prolonged fever, epigastric mass and significant weight loss of 7 kilograms for 1 month. Two weeks prior to admission, his epigastric mass developed redness and tenderness. He was admitted to a provincial hospital in which a whole abdominal computerized tomography (CT) scan was performed. The result showed a tumor mass at gastric antrum with local invasion to omentum, transverse colon, and suspected gastric cancer. He was transferred to Srinagarind Hospital.

He was diagnosed colonic polyps 8 years ago, when he was presented with chronic diarrhea. He underwent colonic polyp biopsy and the pathology showed hyperplasia. He refused subtotal colectomy. His diarrhea was subsided and he was lost to follow up until this admission. On examination, the patient was a co-operative man. His vital signs shown as follows; body temperature 38°C, blood pressure 130/80 mmHg, respiratory rate 16/minute, and pulse rate 110/minute, regular. Physical examination revealed a 5-cm diameter erythematous mass at epigastrium with smooth surface, firm consistency and mild tenderness.

The initial hemoglobin concentration was 11.9 g/dL, white blood cell count was 14,200 cell/mm³ (neutrophils 82%, lymphocytes 9%, monocytes 5%, and eosinophils 2%), platelet count was 412,000/mm³, and normochromic normocytic red blood cells. The renal function was normal (blood urea nitrogen 8.1 mg/dL and creatinine 0.8 mg/dL) and electrolytes were normal. The liver function test showed the following; cholesterol 135 mg/dL, albumin 3.1 g/dL, globulin 5.3 g/dL, total bilirubin 0.4 mg/dL, direct bilirubin 0.2 mg/dL, SGPT 20 U/L, SGOT 21 U/L, and alkaline phosphatase 123 U/L. Anti HIV antibody test was negative. Two blood culture specimens showed no growth. Esophagogastroduodenoscopy revealed mucosal fold thickening at gastric antrum and pylorus. A gastric biopsy was achieved. Colonoscopy showed multiple polyps throughout the entire colon. Pathology of the stomach showed chronic inflammation with focal atypical epithelium and histopathology of colon was adenomatous polyps.

He underwent exploratory laparotomy and intraoperative findings revealed intraabdominal mass with abdominal wall abscess. Distal gastrectomy, gastrojejunostomy, and transverse colectomy were performed. Pus Gram stain demonstrated a gram-positive rod with branching and pleomorphic morphology consistent with Actinomycetes as shown in Figure 1. Aerobic pus culture showed no growth. Unfortunately, an anaerobic culture was not performed. Tissue pathology revealed actinomycotic abscess at abdominal wall, stomach, and colon. He was diagnosed abdominal actinomycosis. He was treated with penicillin G sodium (PGS) 18 million units/day (3 million units every 4 hours) for 4 weeks and then switched to oral amoxicillin 500 mg four times a day for at least 6 months. His was improved at 6 months of follow up.

DISCUSSION

The differential diagnosis in a patient presented with prolonged fever, epigastrium mass, and significant weight loss including intraabdominal malignancies and chronic infections. In our case, we suspected colonic malignancy with local invasion because he had underlying colonic polyps. However, from abdominal CT, the mass was adjacent
to the stomach, therefore, gastric cancer could not be ruled out. For chronic infection, the differential diagnosis includes tuberculosis, actinomycosis and invasive mycoses. There is no specific clue to distinguish the difference between malignancies and chronic infections. Therefore tissue histopathology is needed for definite diagnosis. Our patient underwent exploratory laparotomy and abdominal actinomycosis was finally diagnosed by histopathological findings. The pathogenesis of abdominal actinomycosis is the invasion of colonized saprophytic *Actinomyces*. It penetrates through the mucosa causing an inflammatory response leading to the formation of pseudotumors and abscesses. The abscess grows slowly and becomes symptomatic when it penetrates near by structures and fistulizes. In our case, the disease might have originated from colonic polyps and extended to the stomach and abdominal wall.

Abdominal actinomycosis can be presented with various clinical manifestations including abdominal wall abscess,7 abdominal mass,8 gastric actinomycosis,9 liver abscess,10,11 renal abscess,12 splenic abscess,13 intraabdominal abscess post cholecystectomy,14 and pelvic abscess in patients with IUD.15 Successful treatment of actinomycosis needs a long duration and high dose of proper antibiotics. The antimicrobial of choice is penicillin G sodium with a dose of 18-24 million units per day intravenously for 2-6 weeks with a continuation of oral penicillin or amoxicillin for 6-12 months. Alternative drugs for penicillin-allergic patients are tetracycline, erythromycin, doxycycline, and clindamycin. Some cases have been treated successfully with imipenem16 and ceftriaxone.17 Mild cervicofacial actinomycosis may be adequately managed with a 2-month course of oral penicillin v or tetracycline without surgical intervention.18 However, surgical intervention is essential in the management of actinomycosis. Surgery is usually indicated in a patient who is not responsive to conservative treatment in order to obtain clinical specimens, to drain abscesses and to repair anatomical defects.6

Figure 1. Gram stain of the gastric tissue reveal gram-positive rod with branching, and pleomorphic morphology.
In summary, we reported a case of abdominal actinomycosis with a previous history of colonic polyps. Two important keys about this disease are (1) it can mimic malignancy and tissue pathology is needed for definite diagnosis and (2) it needs a long duration of high-dose antibiotic treatment. Surgical intervention is associated with a successful outcome.

References