



## Actinomycosis of the transverse colon: A case report

### KEYWORDS

Abdominal pain; acute appendicitis; Transverse colon; Actinomycosis; Right hemicolectomy

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### ABSTRACT

**Introduction:** Actinomycosis is a chronic suppurative bacterial infection which spreads to contiguous tissues and has the tendency to form external sinuses that may drain characteristic sulfur granules composed of a matrix of calcium phosphate, colonies of actinomycetes, cellular debris and associated organisms<sup>(1)</sup>. The most common pathogen in humans is *Actinomyces israelii*, named after Israel who was first to describe the microorganism in a human autopsy specimen<sup>(2)</sup>. This is a gram-positive, non-spore forming anaerobic bacterium which is a commensal in the mucosa of the oral cavity and upper gastrointestinal tract, but able to cause opportunistic infections<sup>(18,4)</sup>. Cervicofacial actinomycosis is the most common clinical form, comprising up to 60% of cases. Abdominal actinomycosis is rare and reported only in about 20% of cases<sup>(3)</sup>. We reported a case of transverse colon actinomycosis accidentally discovered in 23 years old who was operated for acute appendicitis.

**Case report** A 23 years old Asian man was presented to our hospital with two days' history of acute right Iliac fossa pain with high grade fever (39 c). Clinical examination revealed typical rebound pain with abdominal guarding in Rt iliac fossa that together with superficial abdominal ultrasonography examination and peripheral leukocytosis ( $12.2 \times 10^3$  mm) confirmed the clinical diagnosis of acute appendicitis. Surgical history was unremarkable as well as the family history. Patient's past history was remarkably positive for recurrent vague upper central abdominal pain with changes in bowels habits, recurrent low grade fever and mild tolerable nausea. He is a well-known amphetamine's addict (4 tablets /week), heterosexual relationship 5 years ago and occasionally alcohol drinker with negative history for immunosuppressive or corticosteroid drugs. Apart from peripheral leukocytosis, preoperative laboratory works up assessment were unremarkable with negative hepatitis markers, negative HIV antibodies with normal liver, renal functions and random blood glucose. Abdominopelvic ultrasonography examination confirmed acute appendicitis with no mention for the transverse colon mass. Preoperative CT abdomen and pelvis was not done as the case was straight forward clinically and radiologically for acute appendicitis. surgeon was requested, confronted the case and he decided opened appendectomy. in the operative room, the appendix was found severely inflamed with periappendicular collection but the ileocecal region was free. Surprising, exploration of the colon revealed a large (12x7 cm) amalgamated suppurative mass with areas of calcifications encroached and incorporated into the mid-transverse colon with involvement of the mesocolon and momentum adhesion Right hemicolectomy, ileotransverse anastomosis with ileostomy together with appendectomy were done and whole sectioned colon and appendix were sent to histopathology. Postoperative course was smooth, Intravenous antibiotic were initiated for 4 days and the patient start oral feeding on the 3<sup>rd</sup> day. Histopathology examination of the resected colonic mass confirmed presence of *Actinomyces iseraial* in transverse colon. A course of tetracycline and erythromycin for two weeks were started and the patient was safely discharge with ileostomy. Follow up CT abdomen and pelvis done 4 weeks after the operation revealed no recurrence, strictures or colonic masses.

### DISCUSSION

Actinomycetes are normally not capable of invading the intact intestinal mucosa. However, under certain circumstances, deeper invasion can occur. Unlike our patient who had no predisposing factors, for abdominal actinomycosis which include immunosuppression (HIV, diabetes), appendicitis, diverticulitis, bowel perforation, foreign bodies and neoplasia, however, no predisposing factors are noted in about 50% of cases<sup>(3,5,8)</sup>. The bacterium is found in up to 25% of cervical smears performed on

women with an intrauterine device and this may explain a higher incidence of infection in these patients<sup>(6,7,12)</sup>. Once outside the intestine, the infection usually spreads locally with only a rare incidence of hematogenous or lymphatic spread<sup>(9)</sup>. Unlike our case, the ileocecal region is most commonly involved region and the transverse colon is rarely reported to be affected<sup>(11,15)</sup>. Hepatic involvement accounts for 5%-15% of cases and is often associated with multiple small abscesses<sup>(16)</sup>. Other reported sites include the stomach, gallbladder, pancreas, small bowel, anorectal region, pelvis and abdominal wall<sup>(5)</sup>. Involvement of retroperitoneal organs may result from hematogenous dissemination or direct extension<sup>(17,18)</sup>. Typically, colonic actinomycosis usually presents as a slowly growing mass which may be associated with altered bowel habits, nausea, vomiting and recurrent vague and unrecorded passed unnoticed pain. Constitutional symptoms are common and include anorexia, weight loss, fever and night sweats. Mild to moderate leukocytosis is often noted<sup>(3,9,10)</sup>. Occasionally, the disease may be latent for years and manifest itself in the form of multiple sinuses, fistulae, bowel stricture or hydro nephrosis<sup>(18)</sup>. A preoperative diagnosis is rarely considered and is established only in less than 10% of cases. The nature of the organism is generally identified from a surgically resected specimen, culture from abscesses or at autopsy<sup>(3,13)</sup>. Radiographic evidence is usually nonspecific. Barium studies may show signs of external bowel compression with a tapered narrowing of the lumen, but complete obstruction is rarely seen<sup>(6)</sup>. Colonoscopy is usually not useful in diagnosis as the disease is of extramucosal origin. However, endoscopy is important to exclude colitis or neoplastic disease and may reveal luminal narrowing or stiffness. A CT scan for the abdomen and pelvis is helpful in identifying the inflammatory mass and the organs involved as well as exclude other causes (was not done preoperatively in our case). Bowel thickening and inflammatory changes which cross fascial planes that involve multiple compartments are usually seen. CT or US-guided drainage of abscesses may also lead to identification of the microorganism Sulfur granules can be observed in the purulent material in 50% of cases, but these are not pathognomonic for the disease. In fact, *Nocardia*, *Streptomyces*, and some *Staphylococci* can produce comparable granules<sup>(4,19)</sup>. Culture is difficult because of the anaerobic characteristics and slow growth of *Actinomyces*. Laboratory tests may reveal a normocytic, normochromic anemia, leukocytosis and an elevated ESR and high sensitive CRP<sup>(20)</sup>. Gastrointestinal actinomycosis resembles other chronic inflammatory bowel diseases such as tuberculosis and Crohn's disease, particularly when fistula or sinus tracts are present. Also, bowel malignancy, diverticulitis, appendicitis and amoebiasis are part of the differential diagnosis<sup>(3)</sup>. If a diagnosis can be made without surgery and the disease is uncomplicated, the treatment of choice is an antibiotic. High-dose penicillin is the standard treatment, although

cephalosporin is often used as it can be administered on a less frequent dosing schedule. Other effective antibiotics include tetracycline, erythromycin, chloramphenicol, clindamycin and imipenem<sup>(3,21,22)</sup>. There is still controversy regarding the dosage and duration of antibiotic treatment. However, a long course for a period of at least 6 months or until disappearance or stabilization of the lesions is recommended, in consideration of the low penetration in the fibrotic area and the tendency of the disease to recur<sup>(5,13)</sup>. Surgical treatment is often required because of difficulty in diagnosis or in combination with antibiotics in the presence of extensive disease, necrosis, abscess, stricture or persisting sinuses and fistulae. Combined medical and surgical treatment achieves a cure in about 90% of cases<sup>(14)</sup>. In conclusion, abdominal actinomycosis is to be considered in the differential diagnosis of an abdominal mass.

Transverse colon mass (11 × 7 cm) with abscess formation



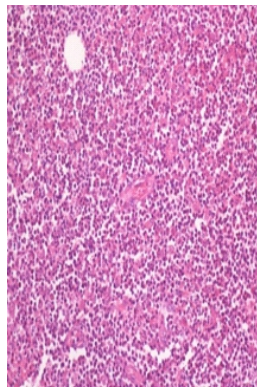
Mesocolon and omentum adhesions



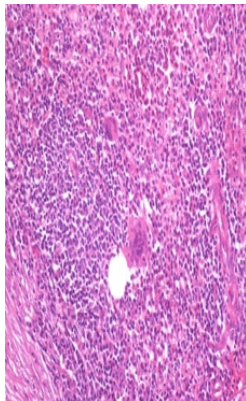
The mass with right hemicolectomy



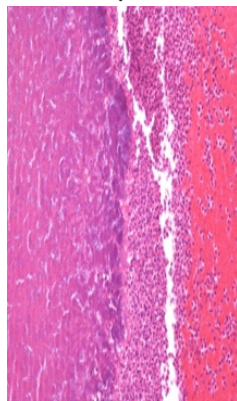
Acute mucosal inflammation



Abscess formation



Sever Actinomyces infestation



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