

Actinomyces masquerading recurrent carcinoma after hemicolectomy - A rare case report

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ABSTRACT

Abdominal actinomyces is a chronic suppurative infection caused by anaerobic bacteria, *Actinomyces* species. The ileocecal region is most commonly affected, while the left side of the colon is more rarely involved. The presentation may vary from non-specific symptoms and signs to an acute abdomen. We present the case of colonic actinomyces in a 74-year-old woman who had undergone left hemicolectomy due to carcinoma of the sigmoid colon and became infected with actinomyces at the anastomotic site, which mimicked local recurrence of cancer. The patient presented with intermittent colicky left-sided abdominal pain for 3 months' duration. Computed tomography of the abdomen showed a circumferential thickening of the wall of the sigmoid colon surrounded by inflammation. The patient underwent resection of the bowel including the anastomotic site. The macroscopic evaluation revealed mucosal irregularities with abscesses attached to the sigmoid colon and histopathological examination of the specimen revealed actinomyces of the sigmoid colon with no evidence of malignancy. We are presenting this case to illustrate the preoperative diagnostic difficulties of this rare disease and its ability to mimic malignancy.

Key words: Actinomyces, Colon cancer mimic, Colonic actinomyces, Colonic infection

Actinomyces is a chronic suppurative infection caused by Gram-positive bacteria, *Actinomyces*, which commonly colonize the oral cavity, urogenital tract, and gastrointestinal tract [1]. These organisms are not regarded as virulent human pathogens and are best considered opportunistic pathogens, as they are normally present in healthy individuals [2]. This disease usually follows perforation of an abdominal viscus because of inflammatory or associated neoplastic disease [1,2]. Preoperative diagnosis may be difficult due to non-specific clinical presentation and varying radiological findings. The diagnosis is mostly based on histopathological findings after a surgical biopsy with a special stain and is rarely identified by tissue culture [3].

Here, we report a rare case of pathologically confirmed abdominal actinomyces that was preoperatively considered as recurrent colonic malignancy in a post-operated case with acute abdominal pain.

CASE REPORT

A 74-year-old woman had undergone left hemicolectomy due to carcinoma of the sigmoid colon and became infected with

actinomyces at the anastomotic site, which mimicked the local recurrence of cancer. The patient presented with intermittent colicky left-sided abdominal pain for 3 months' duration.

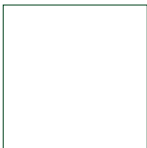
The general examination and vitals were within normal range. Computed tomography (CT) of the abdomen was done, which showed a circumferential thickening of the wall of the sigmoid colon surrounded by inflammation.

The patient underwent resection of the bowel including the anastomotic site. Macroscopic evaluation revealed mucosal irregularities with abscesses attached to the sigmoid colon (Fig. 1) and histopathological examination of the specimen revealed actinomyces of the sigmoid colon with no evidence of malignancy (Fig. 2). Gram staining was done subsequently which confirmed our diagnosis (Fig. 3).

The patient made an uneventful recovery, regained body weight steadily, and had no recurrence of actinomyces at the postoperative site and is under follow-up.

DISCUSSION

Actinomyces israelii is a filamentous Gram-positive bacillus which is a commonly seen constituent of the microflora in the

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Figure 1: Post grossed specimen of the colon showing mucosal irregularities with abscesses attached to the sigmoid colon

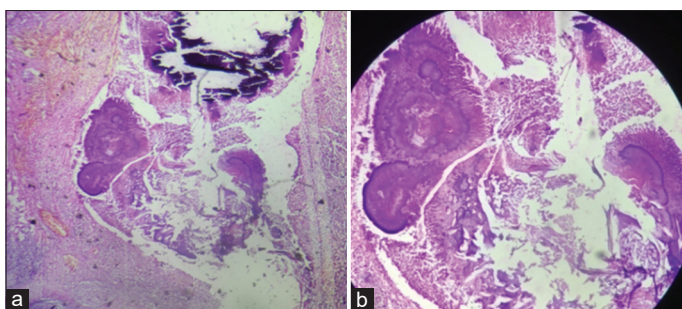


Figure 2: Microscopic examination. (a) Low power view showing mucosal irregularities with inflammation and fibrosis and clumps of filamentous bacteria (b) High power view showing clumps of basophilic filamentous bacteria in a rosette like configuration

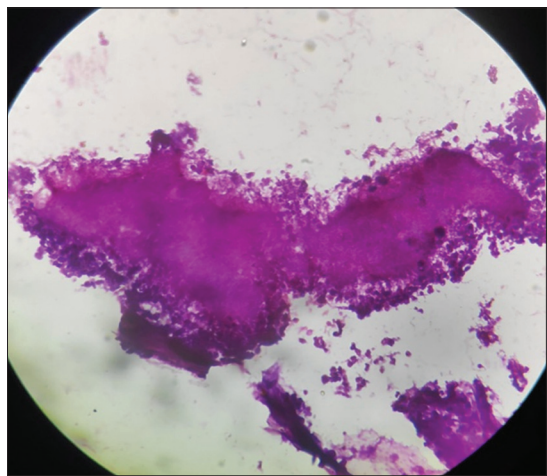


Figure 3: Gram-positive staining of an *Actinomyces* colony

human body like the oral cavity, pharynx, gastrointestinal tract, genitourinary tract, and skin. In the gut, it is normally found in the stagnated segments which are the cecum and sigmoid colon [4]. The incidence of actinomycosis generally is 1:300 000 with a male-to-female ratio of 3:1 and mainly occurs among patients between 20 and 60 years of age. Actinomycosis of the abdomen only occurs in 20% of cases, and involvement of the colon is very rarely reported [3]. In our case, the primary lesion started in the sigmoid colon.

The clinical presentation of the sigmoid colon actinomycosis is non-specific. Patients may present with chronic lower abdominal pain and pseudotumor abdominal mass or they may present with low-grade fever, acute abdominal pain, nausea, vomiting, constipation, or obstipation [3]. In our case also, the patient presented with abdominal pain.

Actinomycosis commonly occurs in three distinct forms. The majority of examples of the clinical disease are cervicofacial (55%), with only 20% occurring in an abdominopelvic form and 15% in a thoracopulmonic form. Abdominopelvic actinomycosis has been associated with abdominal surgery, such as appendectomy, or bowel perforation, diverticulitis, trauma, foreign bodies, and neoplasia. Various abdominal organs may be involved in abdominopelvic actinomycosis including the gastrointestinal tract, ovaries, liver, gallbladder, and pancreas [2].

Bowel wall thickening and a homogeneous enhancement pattern are frequently found on contrast-enhanced CT scans [3]. In our case also, the patient had a bowel wall thickening. Other findings in the CT scan and/or barium study include mural invasion with stricture formation, mass effect with tapered narrowing of the lumen, and thickened mucosal folds. In many cases, the radiologic findings are similar to those of Crohn's disease, intestinal tuberculosis, and excavated malignant tumors. The most important CT feature for the correct diagnosis is a large mass adjacent to the involved bowel, which is also a very common finding in patients with colon actinomycosis. In rectosigmoid, colon cystic masses are more common, whereas, in transverse or ascending colon purely solid masses are the predominant finding [5].

Histopathological examination can be used to differentiate actinomycosis from neoplasms. The typical microscopic findings are necrosis with yellowish sulfur granules and filamentous Gram-positive fungal-like pathogens [6,7]. Actinomycosis should be taken into account as a differential diagnosis in patients having an intraabdominal mass with unusual fever or leukocytosis after gastrointestinal surgery. Actinomycosis should be considered when a cancerous patient, after gastrointestinal surgery, experiences an intra-abdominal mass along with unexplained fever or leukocytosis. Penicillin G is still the medical treatment of choice.

Therefore, early diagnosis is important to minimize morbidity due to this disease and avoid unnecessary surgery. However, the diagnosis is often obtained postoperatively from a pathology report. Surgery is reasonable and usually necessary because of the difficulty of diagnosis.

CONCLUSION

Actinomyces rarely cause disease and are seldom reported as human pathogens. The symptoms of actinomycosis are non-specific, which leads to great diagnostic difficulty. Histopathological and bacteriological examinations are key to diagnose actinomycosis. The combination of optimal surgical resection and antibiotics is effective in most cases and possibly reduces the duration of antibiotic therapy.

REFERENCES

1. Roh YH, Park KJ, Byun KD, Roh MS, Choi HJ. Abdominal actinomyces misconceived as intestinal lymphoma: Report of a case. *Int J Surg Case Rep* 2019;60:171-4.
2. Hsu JT, Lo HC, Jan YY, Chen HM. Actinomyces mimicking recurrent carcinoma after Whipple's operation. *World J Gastroenterol* 2005;11:1722-4.
3. Lesmana A, Wirdhani V, Perangin Angin LB, Muzakky MI, Hayon SG, Sholihah MM, *et al.* Sigmoid colon pseudotumor of actinomyces: A rare case. *J Surg Case Rep* 2024;2024:rjad697.
4. Pamathy G, Jayarajah U, Gamlaksha DS, Constantine R, Banagala AS. Abdominal actinomyces mimicking a transverse colon malignancy: A case report and review of the literature. *J Med Case Rep* 2021;15:224.
5. Filippou D, Psimitis I, Zizi D, Rizos S. A rare case of ascending colon actinomyces mimicking cancer. *BMC Gastroenterol* 2005;5:1.
6. Boyanova L, Kolarov R, Mateva L, Markovska R, Mitov I. Actinomyces: A frequently forgotten disease. *Future Microbiol* 2015;10:613-28.
7. Valour F, Sénéchal A, Dupieux C, Karsenty J, Lustig S, Breton P, *et al.* Actinomyces: Etiology, clinical features, diagnosis, treatment, and management. *Infect Drug Resist* 2014;7:183-97.

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