CASE REPORT / OLGU SUNUMU

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A Rare Case Report: Intra-abdominal Mass Caused by Actinomyces Infection

Nadir Bir Olgu Sunumu: Aktinomices Enfeksiyonu Kaynaklı Batın İçi Kitle

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Abstract

Human actinomycosis is an uncommon chronic infectious condition caused by bacteria of the genus *Actinomyces*. These microorganisms may become pathogenic when the integrity of the mucosal barrier is compromised due to factors such as trauma, prior surgical procedures, or other conditions affecting mucosal defenses.

In this report, we present the case of a 55-year-old man admitted with marked weight loss and abdominal distension. Imaging studies identified an intra-abdominal mass, and the patient underwent surgical debulking. Histopathological evaluation of the excised tissue confirmed the presence of an *Actinomyces* infection associated with xanthogranulomatous inflammation and abscess formation. The patient's clinical follow-up period lasted 43 days. This report outlines the clinical presentation, diagnostic evaluation, and management of the patient.

Keywords: Actinomycosis, colon, debulking, malignancy.

Öz

İnsan aktinomikozu, *Actinomyces* cinsi bakterilerin neden olduğu, nadir görülen kronik bir enfeksiyon hastalığıdır. Travma, cerrahi girişim öyküsü veya mukozal bütünlüğü bozan durumlarda, mukozal bariyeri aşarak enfeksiyon oluşturabilmektedir.

Bu olgu sunumunda, kilo kaybı ve batında şişlik şikayetleri ile başvuran 55 yaşında erkek bir hasta sunulmaktadır. Yapılan tetkiklerde batın içi kitle saptanan hasta cerrahi olarak opere edilmiş ve debulking uygulanmıştır. Rezeksiyon materyalinin histopatolojik incelemesi *Actinomyces* enfeksiyonu, ksantogranülomatöz enflamasyon ve apse formasyonu ile uyumlu olarak raporlanmıştır. Bu olgu sunumunda hastanın tanı ve tedavi süreci sunulmaktadır.

Anahtar Kelimeler: Aktinomiçes, kolon, debulking, malignite

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Introduction

Actinomycosis is a rare subacute or chronic infection caused by gram-positive, filamentous, non-acid-fast, anaerobic or microaerophilic *Actinomyces* species. The infection is typically characterized by granulomatous and suppurative inflammation; in its chronic form, it may be accompanied by multiple abscesses and granulation tissue containing sulfur granules. Approximately 70% of cases are attributed to *Actinomyces israelii* or *Actinomyces gerencseriae* (1).

The diagnosis of actinomycosis can be difficult, as identification of the causative organism necessitates prolonged incubation under anaerobic culture conditions. Moreover, the infection often follows a polymicrobial pattern, with concomitant involvement of secondary microorganisms such as *Aggregatibacter actinomycetemcomitans*, *Prevotella* species, *Streptococcus* species, members of the *Enterobacteriaceae* family, *Peptostreptococcus*, and *Staphylococcus* species (2-4).

Case Presentation

A 55-year-old male patient presented to the gastroenterology outpatient clinic with complaints of abdominal distension and an unintentional weight loss of approximately 15 kg over the previous two months. The patient had no known comorbidities and no prior abdominal surgery. On physical examination, a palpable abdominal mass was detected, and the patient was referred to our clinic for further evaluation.

Laboratory investigations at admission revealed the following results: C-reactive protein 213 mg/L, white blood cell count 12.86×10^3/µL, neutrophils 63.4%, monocytes 9.5%, hematocrit 38.2%, platelet count 261×10^3/µL, alkaline phosphatase 127 U/L, gamma-glutamyl transferase 70 U/L, aspartate aminotransferase 47 U/L, alanine aminotransferase 65 U/L, total bilirubin 0.35 mg/dL, direct bilirubin 0.04 mg/dL, calcium 8.79 mg/dL, potassium 3.8 mmol/L, sodium 146 mmol/L, creatinine 1.11 mg/dL, carbohydrate antigen 19-9 6 U/mL, and alpha-fetoprotein 3.16 ng/mL.

Computed tomography (CT) imaging demonstrated diffuse wall thickening in the sigmoid colon and upper rectum, along with a mass lesion measuring approximately 57×74 mm in the right lower quadrant, extending into adjacent anatomical structures (Figures 1 and 2). Colonoscopic evaluation revealed an area suspicious for invasion in the left colon. Histopathological examination of the biopsy specimen obtained from this region revealed focal active colitis with increased eosinophils (55 eosinophils per high-power field) in the sigmoid colon specimen. A repeat colonoscopy with biopsy demonstrated findings consistent with total active colitis, increased eosinophils, and regenerative changes in the left colon.

Positron emission tomography-CT revealed a mass with indistinct borders in the right lower quadrant involving the terminal ileum and the rectosigmoid junction, measuring approximately 83×64 mm , with markedly increased F-18 fluorodeoxyglucose uptake (SUV_{max}: 17.77) (Figure 3).

The patient subsequently underwent elective surgery. During laparotomy, a granulomatous mass lesion invading the colonic loops, distal small intestine, duodenum, ureters, and the retroperitoneal area was identified. The mass and the involved

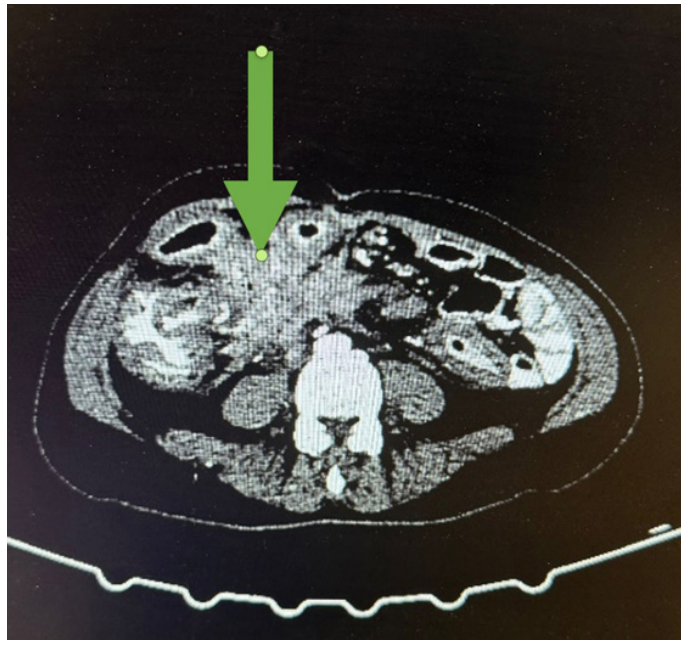

Figure 1. Mass appearance on CT (horizontal section)
CT: Computed tomography

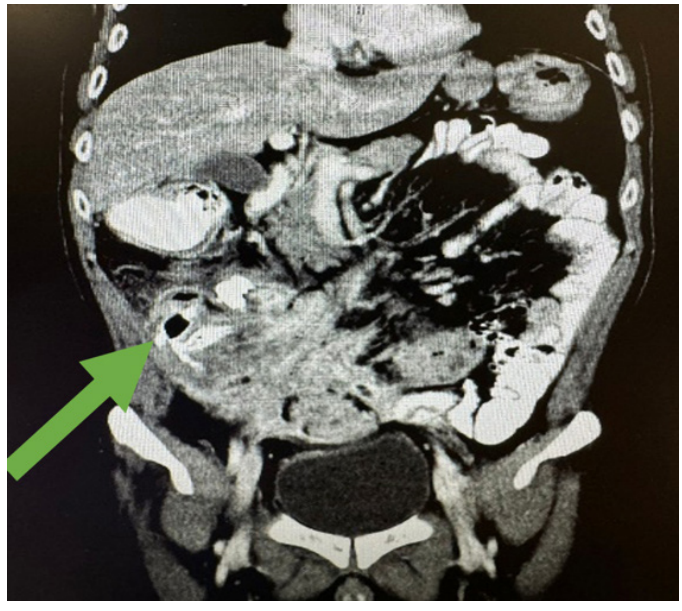

Figure 2. Mass appearance on CT (coronal section)
CT: Computed tomography

colon segment were excised, and debulking was performed. The rectum was left as a stump, and the distal small intestine was exteriorized as an end ileostomy (Figure 4).

Histopathological examination of the resection specimen of the colon revealed active chronic suppurative xanthogranulomatous inflammation with abscess formation and colonies consistent with *Actinomyces* species. The patient was subsequently seen by the infectious diseases department, and intravenous meropenem therapy was initiated. Following completion of treatment, the patient was discharged in good clinical condition. The total clinical follow-up period was 43 days. Written informed consent was obtained from the patient for publication of this case report and accompanying images.

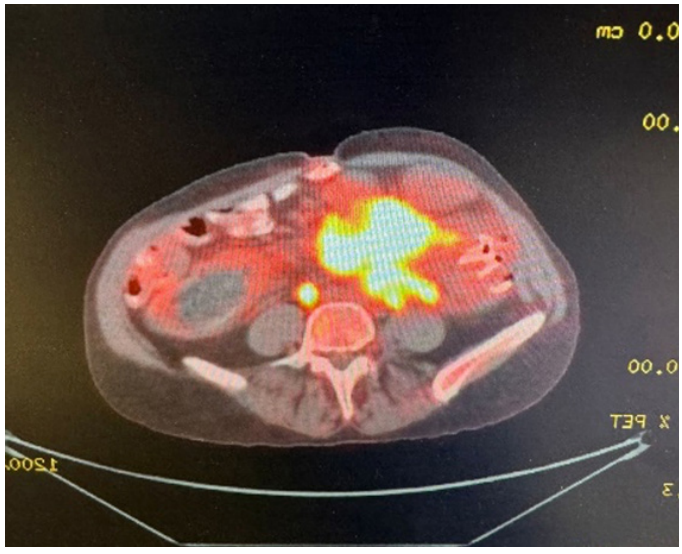

Figure 3. Metabolic uptake of the mass on PET/CT (horizontal section)
PET: Positron emission tomography, CT: Computed tomography

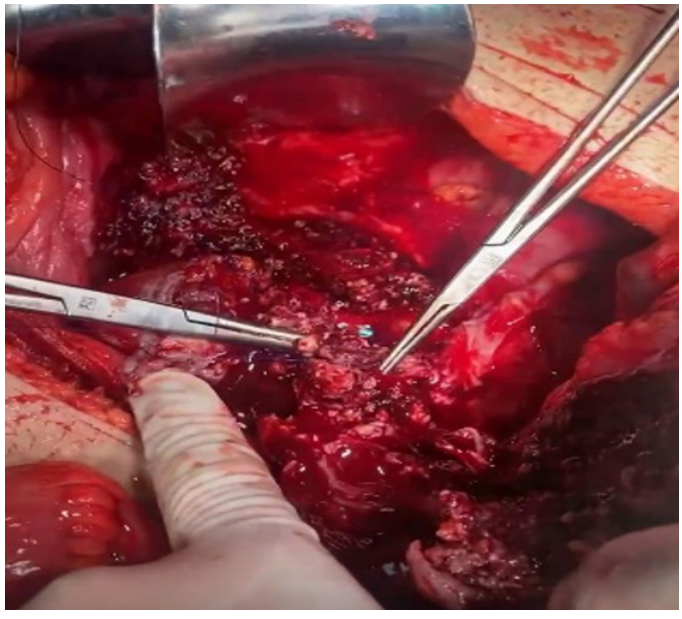

Figure 4. Post-debulking appearance

Discussion

Actinomycosis is a chronic granulomatous infectious disease caused by bacteria of the *Actinomyces* genus and is reported to affect males approximately two to four times more often than females (5). These organisms normally exist as part of the commensal microbiota of the oral cavity, gastrointestinal system, and female genital tract, and they typically remain noninvasive as long as the mucosal barrier is preserved (6-8). However, disruption of mucosal integrity resulting from trauma, surgical manipulation, invasive procedures, or systemic conditions such as diabetes mellitus may facilitate tissue invasion and subsequent infection (1). In this case, none of the known predisposing factors were present.

Actinomycosis is often difficult to diagnose. In addition to clinical and radiological findings, microbiological and histopathological examinations play an important role in establishing the diagnosis (9-10). When clinical findings are non-specific, actinomycosis may mimic intra-abdominal masses, colonic and small bowel malignancies, or mesenchymal tumors. The literature emphasizes the significant role of CT and magnetic resonance imaging in the diagnostic process (11-12). Imaging modalities are particularly valuable in differentiating neoplastic lesions from those of inflammatory origin.

In our case, the patient underwent initial CT evaluation, which revealed an intra-abdominal lesion. Subsequent colonoscopic evaluation was performed; however, biopsy specimens were non-diagnostic. Therefore, surgical exploration was preferred to establish a definitive diagnosis and provide appropriate treatment.

Conclusion

Actinomycosis is a chronic infectious disorder that is commonly associated with predisposing factors such as prior surgical procedures, trauma, or diabetes mellitus; it can present with a wide range of clinical manifestations. Nevertheless, as highlighted in this case, it may also arise in individuals without any identifiable underlying risk factors. For this reason, actinomycosis should be taken into account in the differential diagnosis of intra-abdominal masses.

Ethics

Informed Consent: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Footnotes

Authorship Contributions

Concept/Design: Z.Z., Data Collection or Processing: B.A., İ.A., Analysis or Interpretation: Z.Z., G.S., Literature Review: B.Y., Writing, Reviewing and Editing: Y.K., G.S.

Conflict of Interest: No conflict of interest was declared by the authors.

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