



# A Rare Cause of Acute Abdomen; A Case of Intra-abdominal Actinomycosis Mimicking The Omental Cake Finding

## Nadir Bir Akut Batın Nedeni; Omental Kek Bulgusunu Taklit Eden Batın İçi Aktinomikoz Olgusu

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### ABSTRACT

Actinomycosis is a rare infectious disease characterized by endogenous, chronic and suppurative inflammation in various mucosa caused by Gram-positive anaerobic bacilli from the actinomycetaceae family, which are a member of the gastrointestinal and genital system flora. There are multiple possible focuses. The most frequently identified focuses are oro-cervicofacial (55%) and abdominal pelvic (20%) focuses. Formation of abdominopelvic focuses is often associated with a history of perforated appendicitis or long-term use of the intrauterine device.

Here, a 48-year-old woman presenting with abdominal pain who had acute abdominal findings, had a 7 cm mass in the hepatic flexure of the colon and whose pathology report was reported as actinomycosis after a laparotomy and omentectomy were performed, was presented. Omental cake appearance is a condition that occurs due to involvement of omentum by a malignancy that develops in any organ or due to the malignancies of the omentum that develop from their own tissues, especially the peritoneum. By presenting this case, we wanted to emphasize that the omental cake finding might also be related to infectious causes besides malignancies and should be brought to mind in differential diagnosis.

**Keywords:** Actinomycosis, omentum, abdominal pain

### ÖZ

Aktinomikoz; actinomycetaceae familyasından Gram-pozitif anaerob özellikte basiller olan ve gastrointestinal ve genital sistem florasının bir elemanı olan actinomiçeslerin yol açtığı, çeşitli mukozalarda endojen kaynaklı kronik ve süpüratif inflamasyonla karakterize nadir görülen enfeksiyöz bir hastalıktır. Birden fazla olası odaklanma vardır; en sık tanımlananları oro-servikofasiyal (%55) ve abdominopelvik odaklanmadır (%20). Abdominopelvik odaklanma sıklıkla perforate apandisit öyküsü veya rahim içi araç uzun süreli kullanımı ile ilişkilidir. Burada, karın ağrısı ile başvuran, akut batın bulguları olması ve kolon hepatik fleksurada 7 cm'lik kitle etkisi oluşturan alan saptanması üzerine yapılan laparotomi ve omentektomi sonrasında; patoloji raporu aktinomikoz olarak raporlanan 48 yaşında bir kadın hasta sunulmuştur. Omental kek görüntüsü, herhangi bir organda gelişen malignitenin omentum tulumu veya omentumun başta periton olmak üzere kendi dokularından gelişen maligniteleri sonrası oluşan bir durumdur. Bu olguyu sunarak, omental kek bulgusunun maligniteler dışında enfeksiyöz nedenlere de bağlı olabileceğini ve ayırıcı tanıda akla getirilmesi gerektiğini vurgulamak istedik.

**Anahtar Kelimeler:** Aktinomiçes, omentum, karın ağrısı

### Introduction

Actinomycosis, which are an element of the flora of the gastrointestinal and genital tract, are characterized by Gram-positive anaerobic bacilli from the actinomycetaceae

family. Actinomycosis is a rare infectious disease causing endogenous chronic, suppurative inflammation in many tissues.<sup>1,2</sup> Actinomycosis are located in the normal flora of the oral cavity, gastrointestinal and genital system and cannot



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cross the normal mucosal barrier. If there is a foreign body that will penetrate the mucosa, such as a trauma, a history of surgical operation, or an intrauterine device (IUD), the bacteria can cross the mucosal barrier and cause infection.<sup>3</sup> Although actinomyces in the normal microflora in humans are seen in both sexes, they are observed 2-4 times more frequently in men than in women.<sup>4</sup>

Treatment options are surgical excision of the affected area, drainage of the abscess and antibiotherapy. The first option in antibiotherapy is penicillin. However, in patients in whom severe side effects such as allergies, presence of negative laboratory findings despite treatment, and convulsions develop; tetracycline, chloramphenicol, erythromycin, clindamycin and imipenem can be used.<sup>5,6</sup> Here, a 48-year-old woman presenting with abdominal pain who had acute abdominal findings, had a 7 cm mass in the hepatic flexure of the colon and whose pathology report was reported as actinomycosis after a laparotomy and omentectomy were performed, was presented.

## Case Report

A 48-year-old woman presented to our hospital with complaints of upper quadrant pain, which was increasing for 5 days. She had no history of additional disease and abdominal surgery. It was learned that she had IUD for

contraception for 7 years. On physical examination, there was voluntary guarding and tenderness in the upper quadrant of the abdomen. C-reactive protein (CRP) was 10 mg/dL (reference range: 0-0.5 mg/dL), white blood cell count was  $14.00 \times 10^9/L$  in the blood test. In her computed tomography (Figure 1, 2: A 7 cm heterogeneous area on the omentum) there was approximately 7 cm heterogeneous area adjacent to the hepatic flexure of the colon. The patient underwent laparotomy with a preliminary diagnosis of acute abdomen. A mass lesion of approximately 7 cm on the hepatic flexura of the colon, giving the appearance of an omental cake, was detected. (Figure 3, 4: Omentectomy material). No additional intraabdominal pathology was detected. Omentectomy was performed. The patient with no additional complaint who could take oral food on the 1<sup>st</sup> postoperative day was discharged on the 2<sup>nd</sup> postoperative day. The pathology result was reported as active chronic inflammation, fat necrosis and actinomyces colonies (Figure 5, 6: Actinomyces colonies, pathology preparation). The patient was directed to the infectious diseases outpatient clinic for follow-up of the and penicillin [(Penicillin G 20 million units/daily, intravenous (iv) + clindamycin (1x500 mg/d oral for 4 weeks followed by amoxicillin 3x1000 mg/d oral for 5 months)] treatment was started. In the abdominal computed tomography performed in the 6<sup>th</sup> postoperative month, no actinomyces focus and additional pathology were detected in the abdomen.

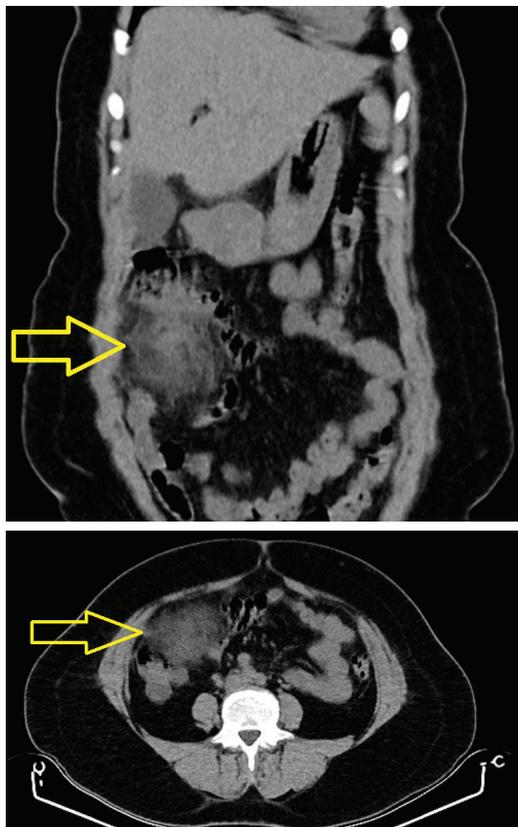


Figure 1, 2. A 7 cm heterogeneous area on the omentum

## Discussion

The diagnosis of actinomycosis was first made by Ponfick in 1879.<sup>7</sup> Actinomyces, which was initially considered as a

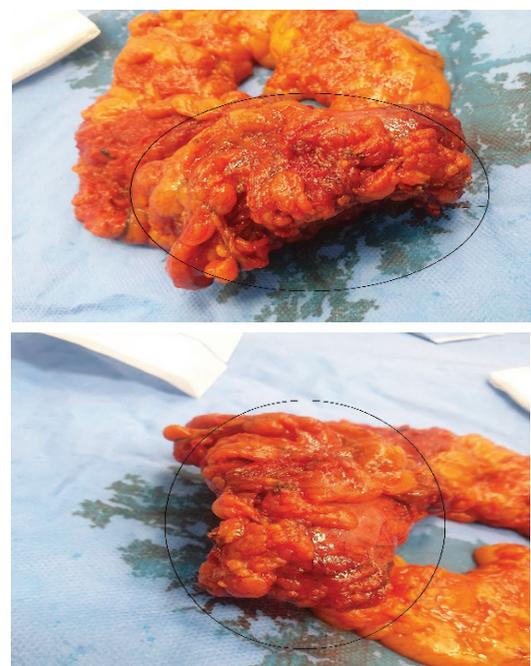


Figure 3, 4. Omentectomy material

fungus due to its branched fibrillated structure, was actually understood to be a gram-positive bacterium.<sup>8</sup> There are multiple possible focuses. The most frequently identified focuses are oro-cervicofacial (55%) and abdominal pelvic (20%) focuses.<sup>9</sup> Abdominal actinomyces can occur as a result of any acute appendicitis, colon diverticulum, foreign body such as fishbone, peptic ulcer or punctures caused by the removal of the stomach. Appendicitis is the most common triggering event in abdominal actinomyces and is mostly responsible for 65% of cases of abdominal actinomyces.<sup>10</sup> Long-term use of IUD is also associated with formation of focuses in the abdominopelvic region.<sup>9</sup> In the presence of a foreign body such as IUD, tissue redox potential decreases due to the damage to the surface of the tissue and regional protection weakens. Accordingly, actinomyces species may have the opportunity to reproduce and invade tissue. It has been reported that the incidence of Actinomyces among women using IUD is related with the duration of use of IUD and type of IUD. It has been determined that 85% of patients with pelvic actinomyces have used IUD for more than 3 years.<sup>11</sup> IUD, which had existed for 7 years, was thought to be a possible cause due to the absence of another focus in our patient and was withdrawn after the consultation with the gynecologist.

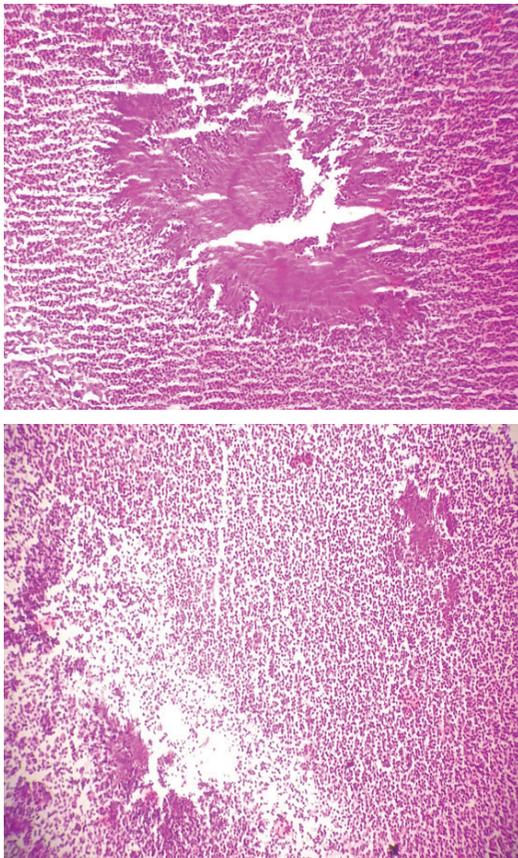


Figure 5, 6. Actinomyces colonies, pathology preparation

Since clinical and radiological findings are not specific for abdominal actinomyces and are very diverse, diagnosis can be made only after surgical procedure in 90% of patients. The disease is usually painless and the first symptoms may appear 2 years after the onset of infection.<sup>10</sup> Our patient stated that she did not have any complaints until the last five days, and the definitive diagnosis was made after surgical excision.

The biochemical profile is not specific. Although anemia, high CRP level and/or changes in sedimentation rate and mild leukocytosis are common, they vary according to the clinical symptoms of the disease. Radiological findings may include the presence of masses, abscesses, or fistulas, depending on the time period and disease progression.<sup>9</sup> In our patient, the decision for operation was taken due to leukocytosis, elevation in CRP level, detection of an area that had a mass effect in the neighborhood of the colon in tomography and the presence of acute abdomen findings. In the literature, patients with actinomyces in omentum, lungs, abdomen, abdominal wall, small intestines, stomach, adrenal gland, pelvis, tonsils, dental root, oral mucosa, cervical region, tongue, femur, ischium, mandible, maxilla, central nervous system, eye, skin and urogenital system have been described. A comorbid condition such as Human Immunodeficiency Virus infection, malignancy, immune suppression, obesity, diabetes, chronic alcoholism or age > 65 has been reported in the vast majority of these patients.<sup>9,10,11,12</sup> Our patient had omental involvement resembling malignancy and there were no comorbid diseases. The prognosis of the disease depends on localization (central nervous system, etc.), prolonged infection, initial comorbidities of the patient and delay in diagnosis. Current mortality rates are reported to range from 0 to 28%.<sup>9</sup> In the treatment of deeply located infections, 10-20 million U/day penicillin G for 4-6 weeks intravenously, followed by 4-6 g oral penicillin V per day is recommended. It is also reported that oral treatment should continue for 6-18 months depending on the condition of the patient or until the lesions disappear completely.<sup>11</sup> Our patient was treated with iv penicillin G + oral clindamycin for 4 weeks and then oral penicillin for 5 months. Since no pathology was detected in computed tomography performed in the postoperative sixth month, the treatment was terminated.

Omental cake appearance is a condition that occurs due to involvement of omentum by a malignancy that develops in any organ or due to the malignancies of the omentum that develop from their own tissues, especially the peritoneum. Although abdominal actinomyces is a rare condition, it is important to distinguish it from malignancy due to its aggressive involvement. In addition, it is important to use special antibiotics and to distinguish it from other intraabdominal pathologies in case of acute abdomen. By

presenting this patient, we aimed to emphasize that omental cake finding might be related to infectious causes besides malignancies and should be brought to mind in differential diagnosis.

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### Ethics

**Informed Consent:** Informed consent was obtained from the patient.

**Peer-review:** Internally and externally peer reviewed.

### Authorship Contributions

Surgical and Medical Practices: R.G., U.U., Concept: R.G., Design: R.G., K.G., Data Collection or Processing: R.G., K.G., U.U., Analysis or Interpretation: R.G., Literature Search: R.G., K.G., U.U., Writing: R.G., K.G., U.U.

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

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