



# Pelvic Actinomycosis Associated With a Copper-T Intrauterine Device

Eray ÇALIŞKAN , Yasemin TAŞÇI, Özlem KARAÇAY , Fulya KAYIKÇIOĞLU , Ali HABERAL

SSK Ankara Maternity and Women's Health Teaching Hospital, Ankara, Turkey

## Abstract

**Objective:** To review a case of pelvic actinomycosis associated with a copper-T intrauterine device.

**Materials and Methods:** Hospital record of the patient was reviewed for the history of the patient, clinical presentation, radiographical studies, laboratory tests, and treatment strategy.

**Results:** A 47-year-old women admit to the hospital for pelvic pain. Ultrasound and computerized tomography evaluations revealed a right adnexal mass 110x109x80 mm and a left adnexal mass 93x50x72 mm in diameter. Both masses were multiseptated with solid and cystic component. Endometrial biopsy revealed sulfur granules and the copper-T intrauterine device was removed at the time of biopsy. Laparotomy was performed and pelvic abscesses were drained during hysterectomy and bilateral salphingoophorectomy. The patient received amikacin and ciprofloxacin according to culture results. The postoperative course was uneventful.

**Conclusion:** Actinomyces species may cause pelvic abscess in the presence of an intrauterine device.

**Key words:** intrauterine device, pelvic actinomycosis, diagnosis and treatment

## Özet

### Bakırlı Rahim İçi Spiral ile Bağlantılı Bir Pelvik Aktinomikoz Tablosu

**Amaç:** Bakırlı rahim içi araç varlığında oluşan bir pelvik aktinomikoz olgusunu incelemek.

**Materyal ve Metot:** Hastanın kayıtları incelenerek öyküsü, klinik bulguları, radyografik tetkikleri, laboratuvar testleri ve tedavi stratejisi sunuldu.

**Sonuçlar:** Kırk yedi yaşındaki bir kadın, hastaneye pelvik ağrı şikayeti ile başvurdu. Ultrasonografi ve bilgisayarlı tomografi incelemelerinde sağ adnekte 110x109x80 mm'lik, sol adnekte ise 93x50x72 mm'lik kitleler gözlemlendi. Her iki kitle de multiseptalıydı ve solid, kistik alanlar içeriyordu. Endometriyal biyopside sülfür granülleri gözlemlendi ve biyopsi sırasında bakırlı rahim içi araç çıkarıldı. Laparotomide pelvik apseler drene edildi ve histerektomi ve bilateral salpingooferektomi yapıldı. Hasta amikasin ve siprofloksasin ile tedavi edildi. Postoperatif seyir olaysızdı.

**Tartışma:** Aktinomiçes türleri rahim içi araç varlığında pelvik apseye yol açabilir.

**Anahtar sözcükler:** rahim içi araç, pelvik aktinomikoz, tanı ve tedavi

## Introduction

*Actinomyces* species are gram-positive, non-acid fast anaerobic bacteria that exhibit branching and filamentous growth. They are normal inhabitants of the human gastrointestinal tract, in both oropharynx and bowel.

The presence of *Actinomyces* in the vagina has been a subject of controversy. It is an occasional commensal of the vagina (1) and can be demonstrated in 7% of the Papanicolau smears (2). In the literature, different therapeutic criteria

were offered for genital colonization by *Actinomyces* in the presence of an intrauterine device (IUD). Some authors do not remove the IUD and keep women under observation for appearance of symptoms (3) while others simply remove the IUD (2, 4). There are also other authors who prescribe antibiotics after the removal of the IUD (1,5).

The overall colonization rate of *Actinomyces* was 10.8% with plastic IUDs and 6.6% with copper IUDs (6). A study of endometrial biopsy specimens found that 3% of IUD wearers, but no controls, exhibited histologic evidence of *Actinomyces* (7).

We present a case of pelvic actinomycosis associated with a copper-T IUD in situ.

**Corresponding Author:** Dr. Eray Çalışkan,  
Ballıbaba Sokak. No:6/3, Ankara, Türkiye  
Tel: +90 0312 446 32 91  
E-posta:eray68@hotmail.com



**Figure.** Ultrasound appearance of right adnexal mass (a) and left adnexal mass (b).

## Case Report

A 47-year-old gravida 5, parity 3, abortus 1, dilatation and curettage 1 woman was referred to the gynecology polyclinic with pelvic pain. The pain had increased in intensity during the last 30 days and she was wearing IUD for 42 months. The pelvic examination revealed a large pelvic mass, which included both adnexae and the pouch of Douglas. Her transvaginal ultrasound examination revealed a right adnexal mass of 110x108x80 mm and a left adnexal mass of 93x50x72 mm in diameter (Figure a, b). Both masses were multiseptated with solid and cystic components. Computerized tomography (CT) examination reported that a multiseptate cystic mass formed by the adhesion of both adnexae and the uterus.

Complete blood count revealed a hemoglobin value of 10.1 g/dl, white blood cell (WBC) count of 15.980/mm<sup>3</sup>. Her body temperature was 37°C. Her laboratory tests for liver and renal functions were normal. Tumor markers were within normal limits; alpha-fetoprotein: 0.4 ng/ml, Ca 19-9 17 U/ml, Ca125 28.3 U/ml and carcinoembryonic antigen 2.4 ng/ml.

An endometrial biopsy was obtained. On histologic examination chronic inflammatory reaction of endometrium with leukocyte infiltration around focal filamentous microorganisms resembling sulfur granules were observed.

Laparotomy was performed and 100 ml of purulent fluid was aspirated from the abdomen. Diffuse exudate was observed on serosal surfaces and dense adhesions were seen including anterior abdominal wall, uterus, adnexae and intestinal segments. During the sharp dissection of the adhesions a three-centimeter defect of sigmoid colon occurred and repaired primarily. Pyosalpinx was present in both uterine tubes and abscesses of the adnexae were drained. Hysterectomy and bilateral salpingoophorectomy was performed.

During the postoperative period the patient received 3 million units of IV penicillin eight times daily, gentamicin IM

80 mg tid and clindamycin IM 600 mg tid. Her WBC count was 13 500/mm<sup>3</sup> on the first postoperative day and increased up to 18 000/mm<sup>3</sup> on the second day. Her body temperature increased to 38°C on the second day. Culture results were obtained on the fourth postoperative day. *Peptostreptococcus*, *Bacteriodes fragilis*, and *Actinomyces* were isolated from the culture revealing a mixed infection. *Actinomyces israelii* species were found to be resistant to penicillin, gentamicin and clindamycin. Amikacin IM 500 mg tid and ciprofloxacin p.o. 500 mg bid was started according to sensitivity tests. The medication was stopped on the 12<sup>th</sup> postoperative day and the patient was discharged without further complications.

## Discussion

In many cases, the diagnosis of pelvic actinomycosis is confirmed only during surgical exploration. Neither ultrasonographic nor CT scan characteristics were able to discern malignancy from a pelvic abscess in our case as reported in the literature (8). However, chronic endometrial infection with a diagnosis of *Actinomyces* in histological examination proved us clues typical for suspecting pelvic involvement.

Surgical exploration is always necessary as these cases may mimic pelvic malignancy (9). Many authors reported difficulty of a debulking surgery due to extensive peritoneal adhesions with very high risks to nearby structures especially the bowel, ureter and bladder (8-12). Hence, we experienced a bowel injury in our case, which was repaired primarily without further complications. In these cases, theoretically, drainage of the abscess and bilateral salpingectomy could be sufficient but intensity of the pelvic inflammation, multiple ovarian abscesses usually indicate more extensive surgery consisting of bilateral salpingoophorectomy and total hysterectomy (8,9,11-13).

High-dose, up to 20 million units/day parenteral penicillin was advocated by many authors (2,5,8-12). In many cases mixed anaerobic infection including, *Escherichia coli*, *Fusobacterium* sp, *Streptococci* sp. were diagnosed in asso-



ciation with *Actinomyces* related pelvic abscess (2, 8, 10, 11, 13). This mixed characteristic of abscess formation and pelvic infection mandates addition of antibiotics that covers anaerobic and gram negative bacteria together with penicillin.

It was interesting to note that *Actinomyces* species isolated in our case were resistant to penicillin and clindamycin. *In vitro* susceptibility studies have shown that actinomycosis can be treated with tetracycline, erythromycin, chloramphenicol, cephalotin, doxycycline other than penicillin and clindamycin (1,11). We found out that the *Actinomyces* sp. isolated in our case was susceptible to ciprofloxacin, tobramycin, amikacin, netilmycin, aztreonam, ceftazidim and ticarcillin/clavulanic acid. On the other hand, it was resistant also to amoxicillin/ clavulanic acid, cephalotin, ceftriaxone, imipenem and gentamycin.

We would like to conclude that pelvic actinomycosis is a high-risk situation for intraoperative complications and should always be kept in mind whenever a pelvic mass is diagnosed in the presence of an IUD. Preoperative Papanicolaou smears or endometrial biopsies may provide some clues but the diagnosis is confirmed only after laparotomy and histological examination. Cultures are important to isolate mixed infections and to switch on to appropriate antibiotics.

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