Pelvic Actinomycosis Associated With a Copper-T Intrauterine Device

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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 woman admitted 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 salpingoophorectomy. 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

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 Papanicolaou 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.
Case Report

A 47-year-old gravida 5, parity 3, abortus 1, dilatation and curettage 1 women was referred to the gynecology policlinic 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 trans-vaginal 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/mm³. 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 carcinoembriyonic 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/mm³ on the first postoperative day and increased up to 18 000/mm³ 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 12th 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 salpingoopherectomy 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, netilmicin, aztreonam, cefazidim 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 Papanicolau 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.

**References**