Ovarian actinomycosis mimicking malignancy

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Summary

Objective: To emphasize the importance of frozen section diagnosis in the treatment of ovarian carcinoma and to remind physicians that it may mimic ovarian carcinoma and occur in women without intrauterine contraceptive devices (IUDs).

Methods: Three cases operated on in Adana University Hospital between the year 2001-2003 with the diagnosis of ovarian actinomycosis were reported .

Case report: Three female patients who had never used IUDs, aged 37, 45 and 47, who presented with pelvic pain and tumoral masses in the pelvis were operated on with the initial diagnosis of ovarian carcinoma between the years 2001 and 2003. Intraoperative frozen-section diagnoses of the pelvic masses were actinomycosis. In the postoperative period the patients received long-term antibiotic therapy initially intravenously (15 days), and later orally with 4 g/day for three months. They were healthy without evidence of actinomycosis infection for two years after the treatment.

Discussion: Pelvic actinomycosis is uncommon and may present a diagnostic dilemma because of an atypical clinical presentation. The behavior of the disease, which mimics malignancy and urogenital manifestation, poses difficulties in diagnosis and management. Preoperative examinations could not establish the nature of the tumour. An initial diagnosis of ovarian carcinoma is usually considered in all cases. Surgeons should be aware of this infection to potentially spare women morbidity from excessive surgical procedures.

Key words: Actinomycosis; Ovarian malignancy.

Introduction

Pelvic actinomycosis, caused by bacilli of the Actinomyces sp, is an uncommon chronic suppurative inflamatory disease and may present a diagnostic dilemma because of an atypical clinical presentation. Actinomycosis sp. are gram-positive, anaerobic or microaerophilic non-spore-forming bacilli, and Actinomyces israelii is the most common aetiological agent. The possibility of a concurrence of an inserted IUD with an actinomycosis has been known for a long time [1], but it rarely occurs in women without IUDs [2, 3].

This disease can simulate pelvic malignancy [4, 5]. The most diffucult part of the management of actinomycosis is to diagnosis before a surgical approach. Actinomycosis might first be suspected in any woman presenting with a pelvic mass, fever and lower abdominal pain and with a history of IUD use. But in women without IUD, actinomycosis is rarely takes place in differential diagnose.

We present three cases of pelvic actinomycosis to remind physicians that it may occur in women without IUDs.

Material, Methods and Case Reports

Three female patients, aged 37, 45 and 47, with pelvic actinomycosis who presented with pelvic pain and tumoral masses in the pelvis were operated on in the Adana University Hospital between the years 2001 and 2003. All three patients were married, had completed their families and were menstruating regularly. During the bimanuel vaginal examination, a coarse, solid conglomerate tumor lining the entire pelvis was found in all patients. The uterus, ovaries and other pelvic organs could not be palpated separately. These findings were confirmed by a transvaginal ultrasonographic examination. In the first patient, the whole abdominal computed tomagraphy (CT) scan confirmed an adnexal tumoral mass invading the bladder, perirectal tissues and parametrium extending to the pelvic side wall. In the other two patients, CT scans confirmed unilateral adnexal masses involving the uterus and pelvic side wall.

The CA125 levels were increased (108 μ/ml, 145 u/ml and 156 μ/ml, normal < 35 U/ml). The sedimentation rates were higher (23, 24 and 32 mm/30 min). White blood counts (WBCs) were also higher in all three cases (13.000, 16.000, and 18.000 WBCs/mm^3). All of the these parameters suggested an inflamatory process.

All patients were operated with on the diagnosis of ovarian masses, possibly ovarian malignancy.

At laparatomy an extensive diffusely infiltrating mass involving the right adnexa, right parametrium, pelvic side wall, bladder and üreter was observed in the first patient. In the other two patients, unilateral adnexal masses, measuring 6/9 and 5/4 cm, adherent to the uterus and pelvic side walls were determined during exploratory laparatomy. The other ovaries were normal. Macroscopic diagnoses were ovarian malignancies. The immediate decision was to perform cytoreductive surgery for ovarian carcinoma. In the first patient, the tumour was cytocompletely removed, with partial resection of the bladder, and sent for pathologic examination. In the other two patients unilateral salpingo-oophorectomy together with total abdominal hysterectomy (because of conglomerate masses and extended inflammatory reaction) were performed. The planned cytoreductive operations were terminated because the frozen-section diagnoses of the pelvic masses were actinomycosis.

In the postoperative period, the patients recieved long-term antibiotic therapy with ampicillin initially intravenously (15 days), and later orally with 4 g/day for three months.

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The patients were healthy without evidence of actinomycosis infection for two years after the treatment.

Discussion

Actinomycosis can simulate pelvic malignancy and a correct preoperative diagnosis is nearly impossible. Neither ultrasonographic nor CT scan can discern pelvic malignancies from actinomycosis [6]. If actinomycosis can be identified preoperatively, a limited surgical procedure, if necessary, can spare patients from extensive surgery. Culture methods are slow and have low sensitivity. Histopathologic examination is mandatory to make a diagnosis. Actinomycosis might be suspected in patients presenting with pelvic masses and a history of IUD placement and diagnosis could be attempted by imaging guided needle biopsy preoperatively. Transcutaneous computed tomography guided core needle biopsy established the diagnosis of pelvic actinomycosis obviating immediate surgical intervention [7]. Tru-cut needle biopsy of an abscess seems to be more accurate in isolating Actinomyces *israelii* than bacteriological samples [8].

However in women who have not used IUDs, actinomycosis is an extreme diagnosis. In our cases preoperative and intraoperative macroscopic diagnoses were pelvic malignancies and the correct diagnosis was established on frozen section. If actinomycosis could not have been identified intraoperatively, based on high suspicious, an unnecessary mutilating surgical approach would have been performed. It should be emphasized one more time that the frozen section biopsy must be an essential part of the surgical treatment of any adnexal mass. A review of 33 patients (27 females and 6 males) indicated that the diagnosis was established in 31 (94%) following surgical exploration and removal of tissue masses and affected organs that included portions of the bladder, female reproductive organs uterus, salpinx and ovary and only nineteen (70%) of the 27 females had intrauterine contraception devices [9]. Theoretically, bilateral salpingectomy is sufficient but extensive pelvic inflammation often leads to more extensive surgery consisting of bilateral salpingo-oophorectomy and total hysterectomy [8].

Treatment of actinomycosis, once diagnosed, is a regimen of intravenous and subsequent long-term oral antibiotics such as penicillin, clindamycin, metronidazole and others. In our cases we used ampicillin 4*1 g/day for three months. The correct time-scale for antibiotic therapy is still unknown. We think that ampicillin treatment is a cost-effective regimen for the treatment of actinomycosis after surgical reduction. The correct time-scale for antibiotic therapy is still unknown. In a small study, Atad *et al.* showed that a shorter period of antibiotic therapy could be effective after complete surgical excision in cases of pelvic actinomycosis [10]. If actinomycosis is recognized intraoperatively, the extent of the operation must be based on individual findings. Surgical reduction might help in reducing the amount and duration of antibiotherapy.

Conclusion

It is important to note that ovarian infection by actinomycosis sp. can also occur in women without IUDs and an adnexal mass can be interpreted as malign tumour inducing erroneous diagnoses and treatment. Surgeons should be aware of this infection to avoid unnecessary surgical interventions and morbidity from excessive surgical procedures.

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