

Tubo-ovarian abscess presenting as an ovarian tumor in a virginal adolescent: a case report

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Summary

Tubo-ovarian abscess (TOA), a serious complication of pelvic inflammatory disease, unites the fallopian tube and ovary and, is rarely observed in sexually inactive adolescent girls. A pelvic mass, supposedly originating from the ovary, was detected in a 13-year-old sexually inactive girl suffering from abdominal pain and menstrual disorder. Pelvic ultrasonography pointed out a semisolid, hyperechogenic mass of 57 x 73 mm in the left adnexal area. Laparotomy revealed an unilateral TOA adhering to the bowel and omentum. Abscess drainage and adhesiolysis were performed and postoperative antibiotherapy was administered. TOA should be considered in the differential diagnosis of females with abdominal pain and adnexal mass whether sexual activity is present or not.

Key words: Tubo-ovarian abscess; Ovarian tumor; Virgin.

Introduction

Pelvic inflammatory disease (PID) is defined as an inflammatory process of the upper genital tract containing one or more of the following: endometritis, salpingitis, tubo-ovarian abscess (TOA) and pelvic peritonitis [1]. TOA occupies 15% of patients with PID, however it is extremely rare in sexually inactive girls [2]. A case of an adolescent virgin with unilateral TOA, severe bowel and omental adhesions is presented.

Case Report

A 13-year-old sexually inactive patient was admitted with abdominal pain and menstrual disorder. Blood pressure was 120/70 mm Hg, pulse was 84/bpm and fever was 37.2°C. The patient had no history of sexual activity, any recent infection or sexual abuse. Physical examination revealed lower quadrant abdominal tenderness, an intact hymen and a mass of approximately 7 x 7 cm in size in the left adnexal area (observed during rectal examination). Pelvic ultrasonography pointed out a semisolid, hyperechogenic mass of 57 x 73 mm in the left adnexal area. A dense cystic semisolid mass (7 x 6.4 cm) with thickened walls and perifereral contrast was detected by computed tomography (CT). Total blood count, biochemical parameters, serologic tests (HIV, Hepatitis B and C) and tumor markers (CA-125, CA 19.9, CA-15.3, AFP, CEA, HCG and LDH) were within normal range. Laparotomy revealed a left unruptured TOA with dense omentum and bowel adhesions. The abscess was drained and the left uterine tube to the abscess space was extirpated; adhesiolysis to the omentum and bowel was performed. Irrigation and aspiration were applied and a hemovac drainage tube was placed in the posterior cul de sac. Postoper-

ative ceftriaxone (1 g IV twice a day) and metronidazole (500 mg IV) were administered. Antibiotherapy was continued for 14 days with oral metronidazole and cefuroxime axetil. Pathologic assessment pointed out 'subacute salpingitis with abscess formation'. The patient was discharged on the 7th postoperative day in good health.

Figure 1 shows the sonogram of the tubo-ovarian abscess presenting as an ovarian tumor.

Discussion

TOA, a serious complication of pelvic inflammatory disease, is extremely rare in sexually inactive adolescents and has devastating effects on the genital tract. *Neisseria gonorrhoeae* is a common cause of PID; however, most cases of acute PID are the result of a polymicrobial infection caused by organisms ascending from the vagina and cervix and infecting the lining of the endometrium and fallopian tube [3]. Approximately 85% of cases are infections in sexually active women at reproductive age. The remaining 15% of infections occur after procedures that break the cervical mucus barrier and allow vaginal flora to infect the upper genital tract [3]. Pelvic abscess and PID are frequent complications of sexually spreading infections and are rarely reported in sexually inactive adolescents. TOA may develop subsequent to a first attack of acute salpingitis however it usually follows recurrent infections of chronically damaged adnexal tissue [4]. Eight cases of sexually inactive patients who had TOAs reported in the English literature are shown in Table 1 [5-11].

As shown in Table 1, the majority of patients were under 20 years of age and the dominant organism was *Escherichia coli*, however several organisms were considered as the possible etiology. Although our patient had no sign or symptom of lower genital tract or any other systemic infection, we determined that unilateral TOA was a

This study was presented as a poster in the 7th Turkish Gynecologic and Obstetrics Congress held 14-19 May 2009 in Northern Cyprus.

Revised manuscript accepted for publication October 12, 2011

Table 1. — Case reports of TOA in female virgins.

Autors	Age	Microorganism	Etiology
Teng <i>et al.</i> 1996 [5]	47	<i>Pasteurella multocida</i>	Bacteremia originated from mouth flora of an animal
Moore <i>et al.</i> 1999 [6]	13	<i>E. coli</i>	Obesity induced vaginal voiding
Leong <i>et al.</i> 2001 [7]	23	No organisms grew in specimen	Unknown
Fumino <i>et al.</i> 2002 [8]	13	Colonic flora	Vaginoplasty for cloacal anomalia
Dogan <i>et al.</i> 2004 [9]	19	<i>E. coli</i>	Unknown a-hemolytic streptococci
Arda <i>et al.</i> 2004 [10]	15	<i>E. coli</i>	Concomitant urinary tract infection
Hartmann <i>et al.</i> 2009 [11]			
Case one:	16	<i>Bacteroides uniformis</i> , Coagulase negative staphylococcus, <i>Streptococcus milleri</i>	Crohn's disease
Case two:	12	<i>E. coli</i>	Recurrent tract infection, obesity, constipation, poor hygiene



Figure 1. — Sonogram of TOA presenting as an ovarian tumor.

result of ascending infection from lower genital tract microorganisms. Cervical secretions act as a barrier against ascending infections. Defending mechanisms and antimicrobial activity of cervical secretions are attributed to lysozyme and lactoferrin. Variation in the composition of cervical secretions may increase the risk of ascending infections and result in serious complications, especially in pregnant women [12]. We consider that the vulnerability of our patient against pelvic infection was related to compositional changes in cervical secretions. Our results support the idea that sexual activity is not an absolute condition for the development of upper genital infection. Diagnosis of TOA has some clinical and radiological difficulties and confusion due to limited sensitivity and specificity of diagnostic procedures [13]. TOA should be considered in the differential diagnosis of women with abdominal pain and an adnexal mass whether sexual activity is present or not. Earlier and effective treatment plays a crucial role in preventing long-term complications such as infertility, ectopic pregnancy and chronic pelvic pain, especially in younger patients.

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