

# Tubo-Ovarian Abscess Caused by *Candida Albicans* in an Obese Patient

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## Abstract

**Background:** Tubo-ovarian abscess (TOA) arises in most cases from pelvic infection. Appropriate treatment includes use of antimicrobials and, especially in patients with increased BMI, drainage of the contents.

**Case:** A 44-year-old morbidly obese woman (BMI 72) had a persistent TOA despite receiving antibiotic treatment for four months. She had no history of diabetes, and denied being sexually active. Imaging demonstrated a pelvic abscess of 14.9 × 8.9 × 11.1 cm. Successful percutaneous drainage was performed yielding purulent material which grew *Candida albicans*. The patient recovered after drainage of the abscess and the addition of fluconazole to her antimicrobials. She had no apparent risk factor for abscess such as opportunistic infection, other than her morbid obesity.

**Conclusion:** Because morbid obesity may confer a relative immunodeficiency, morbidly obese patients may develop unusual infections such as opportunistic fungal abscesses.

## Résumé

**Contexte :** Les abcès ovario-tubaires (AOT) sont, dans la plupart des cas, attribuables à une infection pelvienne. Parmi les moyens de prise en charge adéquats, on trouve le recours à des agents antimicrobiens et, particulièrement chez les patientes qui présentent un IMC accru, le drainage des abcès en question.

**Cas :** Une femme obèse morbide de 44 ans (IMC 72) présentait un AOT persistant malgré l'administration d'une antibiothérapie pendant quatre mois. Elle ne présentait pas d'antécédents de diabète et affirmait ne pas être sexuellement active. L'imagerie a révélé la présence d'un abcès pelvien de 14,9 cm sur 8,9 cm sur 11,1 cm. Un drainage percutané a été mené avec succès; la présence de *Candida albicans* a été identifiée dans le matériel purulent drainé. La patiente a récupéré à la suite du drainage de l'abcès et de l'ajout de fluconazole à ses agents antimicrobiens. À part son obésité morbide, elle ne présentait aucun facteur de risque apparent de contracter une telle infection opportuniste.

**Key Words:** Female, pelvic infection, opportunistic infection, *Candida albicans*, drainage, obesity, morbid

Competing Interests: None declared.

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**Conclusion :** Puisque l'obésité morbide pourrait conférer une immunodéficience relative, les patientes obèses morbides pourraient contracter des infections inhabituelles, telles que des abcès fongiques opportunistes.

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## INTRODUCTION

Approximately 800 000 women develop pelvic inflammatory disease annually in the United States, corresponding to approximately an incidence of 0.05%, which is similar to the Canadian incidence.<sup>1–3</sup> Tubo-ovarian abscess is reported to complicate 10% to 15% of cases of PID, especially if the initial episode was inadequately treated.<sup>4</sup> Appropriate management is crucial, because there are potentially severe short-term consequences (such as abscess rupture and ensuing peritonitis and sepsis) and long term consequences (such as infertility, ectopic pregnancy, and chronic abdominal/pelvic pain). Risk factors for TOA development include having had a previous episode of PID, having multiple sexual partners, having an intrauterine device, and immunosuppression.<sup>4</sup> PID is thought to arise from vaginal or cervical pathogens ascending into the sterile endometrial cavity, fallopian tubes, and peritoneal cavity.<sup>5</sup> A TOA can also result from other causes, such as diverticulitis, appendicitis, inflammatory bowel disease, and gynaecologic or obstetric surgery.<sup>4</sup> The infection is usually polymicrobial; microorganisms involved can include *N. gonorrhoea*, *C. trachomatis*, *Bacteroides* species, *Peptococcus*, *Peptostreptococcus*, and *E. coli*.<sup>6</sup> Nearly all causative pathogens are bacteria, and can include rare microorganisms such as *Edwardsiella tarda* and *Pasteurella Multocida*.<sup>7,8</sup> TOA caused by a fungus has been described in only three case reports to date; in all three cases the causative organism was *Candida glabrata*, and the patients either had an IUD or were immunocompromised.<sup>9–11</sup> We report here a case of TOA caused by *Candida albicans*, in a non-diabetic 44-year-old woman with no apparent risk factors except morbid obesity.

## THE CASE

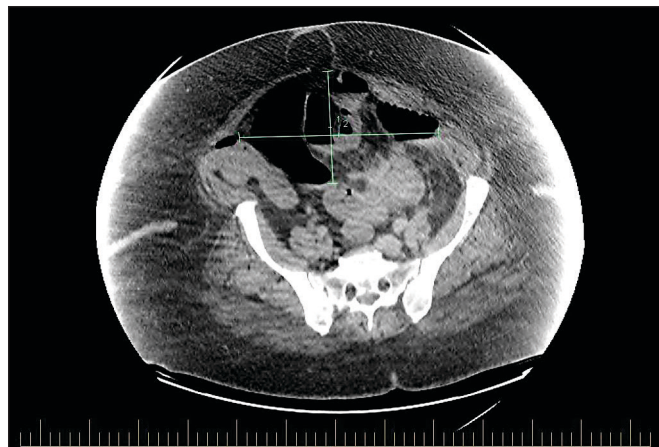
A 44-year-old woman, gravida 1 para 1, presented to her community hospital with bilateral lower abdominal pain, fever, and chills. Her past gynaecological history was characterized by regular heavy menstrual flow and dysmenorrhea, normal Papanicolaou smears, no history of sexually transmitted infections, and no notable intrauterine device use. Her past medical history included venous thromboembolic events (a deep vein thrombosis and a pulmonary embolism), urolithiasis, recurrent urinary tract infections, chronic obstructive pulmonary disease, gout, asthma, and morbid obesity (BMI 72). She was not diabetic. Her surgical history included cholecystectomy, a Caesarean section at term, and surgery for renal calculi. Her current medications were warfarin, allopurinol, ferrous sulfate, and fluticasone and salbutamol inhalers.

After the patient was found on CT scan to have a tubo-ovarian abscess measuring  $12 \times 7 \times 12$  cm, she began intravenous antibiotic treatment with clindamycin, gentamicin, and ampicillin. Two weeks later, she was transferred to a tertiary care hospital because her condition was not improving. A repeat CT scan showed a  $16 \times 13 \times 14$  cm multiloculated pelvic abscess. Her white blood cell concentration was 17 giga/L. She received intravenous Tazocin and oral doxycycline. After a few days of defervescence, and after consultation with an infectious disease specialist, this treatment was switched to oral metronidazole (500 mg 3 times daily) and oral levofloxacin (750 mg daily). Her blood and urine cultures were negative, as well as a gonorrhea and *Chlamydia* PCR. An interventional radiologist attempted percutaneous drainage of the abscess, but was unsuccessful. One week later, the abscess size had decreased to  $8 \times 5 \times 9$  cm on repeat CT. The patient felt better, and her level of pain had decreased significantly. She was discharged from hospital two weeks after admission (four weeks since her first presentation) to take oral antibiotics for three weeks.

At three weeks after discharge from hospital, the patient presented back to her community hospital with recurrent lower abdominal pain, increasing over four days, with accompanying fever (up to  $40^{\circ}\text{C}$ ) and chills. She began treatment with meropenem and was transferred again to our tertiary care hospital.

On initial assessment, she had rebound tenderness in the left lower quadrant of the abdomen, and her temperature

## CT scan showing large gas-containing fluid collection extending into the uterus and anterior abdominal wall



was  $37.4^{\circ}\text{C}$ . Her hemoglobin concentration was 88 g/L, and white blood cell concentration was 12.2 giga/L. A CT scan of her abdomen and pelvis revealed a  $15 \times 9 \times 11$  cm gas-containing fluid collection extending into the uterus and anterior abdominal wall, consistent with an abscess, as shown in the Figure.

Treatment was switched to intravenous Tazocin (4.5 g at 8-hour intervals). She subsequently developed *C. difficile* colitis and was given oral vancomycin. Concurrently, she developed a cutaneous fistula in her lower abdomen, confirmed by CT scan, and this drained purulent fluid which was not cultured. Despite this treatment, the patient continued to have fever, persistent left lower quadrant rebound tenderness, and leukocytosis. Urine and blood cultures showed no growth of pathogens throughout each of her hospitalizations. A vaginal culture, however, was positive for *Candida albicans*, but because the patient had no vaginal symptoms, no antifungal treatment was given. Three days after readmission to hospital, an interventional radiologist was able to perform ultrasound-guided drainage of the abscess despite the patient's body habitus, and inserted a pig-tail catheter for continuous drainage: 200 mL of purulent, blood tinged fluid were drained. She had been on antibiotics at that point for approximately three months.

Microscopy of the abscess fluid showed numerous hyphae, and culture resulted in growth of *Candida albicans* and mixed enteric organisms. Treatment with oral fluconazole (400 mg daily) was added, and the patient showed rapid clinical improvement. A repeat ultrasound examination nine days after abscess drainage showed interval resolution. The patient's level of pain improved, her white blood cell count normalized, and she remained continuously afebrile.

## ABBREVIATIONS

PID	pelvic inflammatory disease
TOA	tubo-ovarian abscess

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