

Late Tubo-ovarian Abscess Following Abdominal Hysterectomy

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Adnexal abscess has been reported as a late complication of various pelvic operations. These infections typically appear much later than the usual postoperative infections.¹ They have been reported to occur as late as 15 months postoperatively.² Such abscesses occur following tubal ligation, ovarian cystectomy, ovarian resection, curettage, vaginal salpingectomy, induced abortion, cesarean section, and vaginal hysterectomy.²⁻⁵ We report a case of tubo-ovarian abscess occurring 8 months after elective abdominal hysterectomy. The only other case of an abscess occurring after abdominal hysterectomy was published incidentally in a case series and without accompanying details.⁶

Case Report

A 38-year-old gravida 5, para 5005 woman with diabetes mellitus presented to the hospital emergency department with complaints of nausea, vomiting, fever, chills, polyuria, polydipsia, urinary frequency with dysuria, and periumbilical abdominal pain. She appeared ill and lethargic, although she was oriented appropriately. Her blood pressure was 140/80 mm Hg, her pulse rate was 120 per minute supine and 130 per minute sitting, and her temperature was 37.5°C (99.5°F). Abdominal examination revealed active bowel sounds and suprapubic tenderness without distention, guarding, or rebound tenderness. Rectal examination was unremarkable. Pelvic examination caused "bladder tenderness," and no masses were palpable. Laboratory studies revealed a white blood cell count of 22,500 with 74% segmented polymorphonuclear cells and 11% band forms; a serum sodium level

of 134 mmol/L, chloride level of 102 mmol/L, glucose level of 349 mg/dL, carbon dioxide content of 12 mmol/L, and a positive serum acetone test (1:8). Arterial blood gas determination showed a pH of 7.31 and a bicarbonate value of 12.3 mmol/L. Urinalysis revealed 0 to 5 white blood cells per high-powered field (HPF) and trace bacteria.

She was admitted with a presumptive diagnosis of pyelonephritis with sepsis and supervening diabetic ketoacidosis. She was initially treated with intravenous fluid and cefoxitin and observed closely.

The patient's past medical history was remarkable for non-insulin-dependent diabetes mellitus (type II) of about 5 years' duration and leiomyoma uteri. She had no history of pelvic inflammatory disease or colonic disorders. Thirteen years previously, she had undergone bilateral tubal ligation at another hospital. Eight months before presentation, she had had an uneventful elective abdominal hysterectomy, without antibiotic prophylaxis, for a leiomyoma and had been discharged on the 4th postoperative day. No adnexal pathology other than a small right ovarian corpus luteum cyst was noted at the time of operation. Her only chronic medication was glipizide, 5 mg daily. She was allegedly allergic to penicillin and sulfa agents.

Abdominal examinations subsequent to admission demonstrated increasing distention and diminished bowel sounds with the development of guarding and rebound tenderness. A general surgical consultant diagnosed an acute abdomen, and she was taken to the operating room 6 hours after admission.

No primary gastrointestinal pathology was found, and intraoperative consultation was obtained from the same gynecologist who had attended her abdominal hysterectomy 8 months earlier. Operative findings were a 6-cm ruptured tubo-ovarian abscess with multiple bowel adhesions on the left side and "severe scarring" of the salpinx and ovary on the right side. Bilateral salpingo-oophorectomy was performed. Treatment with gentami-

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cin and clindamycin was begun preoperatively and continued for 4 days.

Her postoperative course was remarkable for hyperglycemia that was difficult to control, but which responded to insulin, initially by intravenous infusion and subsequently by subcutaneous injection. She was discharged on the 7th postoperative day. Pathologic diagnoses were: (1) left-sided salpinx and ovary with ruptured tubo-ovarian abscess; (2) right-sided salpinx and ovary with hemorrhagic corpus luteum and acute peritonitis. A culture taken from the peritoneal fluid at the time of operation yielded only rare gram-negative bacilli; cultures of the patient's blood yielded no microorganisms.

Three weeks after discharge, the patient reported to the gynecology clinic with purulent drainage from her incision and was treated with oral antibiotics. Ten days later she was readmitted to the hospital with complaints of abdominal and leg pains. A pelvic abscess and a rectovaginal fistula were diagnosed. She was treated medically with an elemental diet and antibiotics. The fistulous drainage resolved, and she was discharged after 2 weeks' hospitalization.

Discussion

Postoperative adnexal abscess as a complication of hysterectomy is uncommon. In a series of 470 consecutive vaginal hysterectomies performed over a 6-year period and reported by Ledger et al,¹ there were 13 such infections (2.8%). The same authors, however, noted that there were no such abscesses observed in association with 819 abdominal hysterectomies performed in the same two institutions during the same period. Taylor and Hansen⁷ reported five pelvic abscesses in a series of 100 patients undergoing vaginal hysterectomy and colpoplasty between 1950 and 1959. In their assessment of 1600 major pelvic operative procedures, Hevron and Llorens⁸ reported complicating abscess (not necessarily adnexal) formation among 4% of vaginal procedures and 0.7% of abdominal procedures. In his report, which included 13 women with postoperative adnexal abscesses, Ledger⁶ cited one patient who was said to have undergone a preceding abdominal hysterectomy, but no details of the case were given, and the time between the operation and the development of the abscess was not specified.

The temporal onset of signs and symptoms of intra-abdominal abscess among the patients reported by Ledger et al¹ ranged from 6 days to 4½ months postoperatively. The single patient with a tubo-ovarian abscess after a vaginal hysterectomy reported by Stone and LaRose² became symptomatic with abdominal pain and fever 15 months postoperatively.

Ledger et al^{1,3} have speculated about the pathophysiology of postoperative adnexal abscesses, noting their late onset, often after a seemingly successful convalescence. They cite five factors as possibly contributory to the development of adnexal abscess after a vaginal surgical procedure: (1) failure to achieve adequate hemostasis, with the subsequent hematoma serving as a culture medium for endogenous bacteria; (2) operative technique, especially the management of the ovarian pedicle in vaginal hysterectomies, which allows its postoperative proximity to the vaginal cuff, in contrast to the management of the pedicle in abdominal hysterectomies, which leaves the pedicle free within the pelvis; (3) excessive bacterial contamination of the operative field; (4) routine use of antibiotics, which may engender selective pressure toward pathogenic organisms; and (5) unrecognized adnexal disease at the time of operation or ovarian injury intraoperatively. They also note that younger women (younger than 40 years old) are more likely to develop a postoperative adnexal infection because of the greater difficulty in obtaining hemostasis during a vaginal procedure on their more vascular adnexal tissues. In addition, both Ledger et al^{1,3} and Willson and Black⁵ found such infectious complications much more common among the patients of younger surgeons with a lesser degree of surgical experience.

Apart from the facts that our patient was relatively young and was operated on in a teaching hospital, these pathophysiologic considerations do not seem applicable to this woman who underwent an elective abdominal hysterectomy. Review of her medical record pertaining to the hysterectomy revealed an uncomplicated course except for a urinary tract infection, which was treated with an oral antibiotic. There were no factors recorded that would have predisposed her to a subsequent tubo-ovarian abscess. It is tempting to speculate that our patient had suffered from occult focal colonic inflammatory disease that led to her abscess and subsequent rectovaginal fistula, for diverticulitis has been reported as a predisposing cause of ovarian abscess.⁵ Yet our patient was relatively young to manifest colonic diverticular disease and had no suggestive clinical history. Furthermore, the general surgeons who began her operation and explored her large intestine saw no evidence of inflammatory or diverticular colonic disease. She was diabetic, and it is possible that pathogens hematogenously seeded the adnexum of this compromised host; yet Hevron and Llorens⁸ found "no firm correlation" between postoperative pelvic abscess and diabetes mellitus.

While the delayed temporal onset of symptoms related to our patient's adnexal infection remains striking, equaling or exceeding the onset interval of all reported cases of posthysterectomy adnexal abscess except for pos-

sibly one,² or two,⁶ the exact sequence of events leading to the abscess formation remains uncertain. A computer-assisted literature search yielded no other detailed report of tubo-ovarian abscess complicating abdominal hysterectomy.

Key words. Hysterectomy, abscess; adnexal diseases; postoperative complications.

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