

Image-guided drainage versus antibiotic-only treatment of pelvic abscesses: short-term and long-term outcomes

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Objective: To determine the efficacy of image-guided drainage versus antibiotic-only treatment of pelvic abscesses.

Design: Retrospective cohort analysis.

Setting: An academic, inner-city medical center.

Patient(s): Women ages 11–49, admitted between 1998 and 2008 with ICD9 code 614.x (inflammatory diseases of ovary, fallopian tube, pelvic cellular tissue, and peritoneum).

Intervention(s): Medical records search, chart review, and phone survey.

Main Outcome Measure(s): Surgical intervention.

Result(s): We identified 6,151 initial patients, of whom 240 patients met inclusion criteria. Of the included patients, 199 women received antibiotic-only treatment, and 41 received additional image-guided drainage. There was no statistically significant difference between the two groups in terms of age, body mass index, parity, incidence of diabetes, obesity, endometriosis, or history of sexually transmitted infection excluding human immunodeficiency virus (HIV). Abscesses in the drainage cohort were noted to be larger in dimension (5.9 cm vs. 8.5 cm); 16.1% of patients who received antibiotics alone required surgical intervention versus only 2.4% of the drainage cohort. Patients who received drainage had longer hospital stays, but the time from treatment to discharge was similar in both groups (7.4 days vs. 6.7 days). We successfully contacted 150 patients, and the differences in long-term pregnancy outcomes, pain, or infertility were not statistically significant.

Conclusion(s): Patients who received antibiotics alone were more likely to require further surgical intervention when compared with patients who additionally received image-guided drainage. There were no observable long-term differences. (*Fertil Steril*® 2014;102:1155–9. ©2014 by American Society for Reproductive Medicine.)

Key Words: Antibiotics, drainage, long-term outcomes, pelvic abscess

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Approximately 70,000 cases of tubo-ovarian abscess (TOA) are diagnosed in the United States annually (1). As a sequelae of pelvic inflammatory disease (PID), it can be a life-threatening diagnosis given the possibilities of overwhelming

sepsis or rupture (2, 3). Other pelvic abscesses, such as postoperative and gastrointestinal abscesses, also can significantly affect patients and their reproductive health.

Historically, the gold-standard treatment of tubo-ovarian abscess has

been to perform a total abdominal hysterectomy with bilateral salpingo-oophorectomy (4). However, patients are often premenopausal and may desire future fertility (5, 6), so more conservative treatments have been studied. For example, unilateral adnexectomy has gained acceptance as an alternative (7). Whether performed via laparotomy or a laparoscopic approach, surgery may be complicated by distorted anatomy, obliterated surgical planes, and friable tissue. Complications also may include hemorrhage or gastroin-

Received March 19, 2014; revised June 12, 2014; accepted June 14, 2014; published online July 23, 2014.

J.T. has nothing to disclose. D.A. has nothing to disclose. A.F. has nothing to disclose. G.L.G. has nothing to disclose. M.L. has nothing to disclose. S.C. has nothing to disclose.

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Fertility and Sterility® Vol. 102, No. 4, October 2014 0015-0282/\$36.00

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testinal or genitourinary injury. Alternatively, laparoscopic drainage may have greater effectiveness than antibiotics alone (8), but the same surgical risks apply. Vaginal drainage via colpotomy is only possible with a palpable and “pointing” abscess in the cul-de-sac.

Intravenous (IV) antibiotic treatment alone is effective in approximately 70% of these patients (9). Alternatively, studies looking at image-guided drainage have shown acute benefits, with the advantage of minimal or no anesthetic risk and less surgical risk. However, most published studies are case series, and the available cohort analyses have been small (8–17). Additionally, we were unable to find long-term outcomes for different treatment modalities. Our trial compared the rates of surgical intervention in women with pelvic abscesses initially treated with antibiotics alone versus those who underwent primary or salvage image-guided drainage. We hypothesized that the rate of surgical intervention in women with pelvic abscesses treated with image-guided drainage would be lower than in those who received antibiotic-only treatment. Our secondary objectives were to evaluate the differences in long-term outcomes between image-guided drainage and antibiotic-only treatment of pelvic abscesses.

MATERIALS AND METHODS

This study was designed as a retrospective cohort analysis of patients treated for pelvic abscess at Montefiore Medical Center. We obtained approval from the Montefiore Medical Center/Albert Einstein College of Medicine institutional review board before conducting this study. All participants were identified by performing a query in Clinical Looking Glass (Montefiore Medical Center’s database of clinical information). Clinical Looking Glass is a user-friendly interactive software application developed at Montefiore Medical Center (Bronx, New York) to evaluate health care quality, effectiveness, and efficiency. The system integrates clinical and administrative data sets, allowing nonstatisticians to produce epidemiologically cogent self-documenting reports globally assessing care quality while identifying the specific patients in need of clinical remediation.

The study’s inclusion criteria consisted of patients aged 11 to 49 years old who were admitted to Montefiore Medical Center between 1998 to 2008, as identified by ICD-9 code 614.x (inflammatory diseases of ovary, fallopian tube, pelvic cellular tissue, and peritoneum), who had evidence of a pelvic abscess on imaging. Inclusion criteria also included women who were treated with either initial antibiotic treatment or primary/salvage image-guided drainage. Primary drainage was defined as drainage performed within 48 hours of admission whereas salvage drainage was defined as drainage performed after 48 hours of admission. Patients were excluded if: [1] there was no radiologic evidence of abscess, [2] they were pregnant or diagnosed with malignancy, as these could significantly bias management decisions, [3] drainage was performed for nonabscess indications, [4] no evidence of an abscess was noted during surgery, or [5] they had a history of prior hysterectomy and/or bilateral salpingo-oophorectomy, as we desired to study reproductive-age patients.

The control arm comprised of patients who received only IV antibiotics during their hospital stay. The antibiotics typically used were ampicillin, gentamicin, and clindamycin (or metronidazole). The study arm comprised of patients who underwent either primary or salvage image-guided drainage during their hospital admission. Both drainage groups were also treated with antibiotics.

Computed tomography (CT)-guided drainage was the only modality studied at our institution. Indications for image-guided drainage varied but included the following: needle accessibility, larger size of abscess, ineffective treatment with antibiotics and continued clinical symptoms, elevated risk to surgery, and the patient’s preference.

The patient variables collected included age, parity, medical history, surgical history, history of PID, intrauterine device (IUD) in situ or a history of IUD, HIV status, body mass index (BMI), unilateral or bilateral abscess, abscess dimensions, and surgical intervention. Surgical intervention was defined as adnexectomy, adnexectomy with hysterectomy, or gynecologic or any type of bowel surgery. Patients were considered a readmission if they were admitted with symptomatology consistent with a recurrence of the infection. For long-term outcomes data, we made an attempt to contact all patients in each cohort to obtain verbal consent for participation in a survey. After consent had been obtained, we administered a formal survey to evaluate the long-term outcomes after treatment, such as any additional treatment at an outside institution, residual pain, and fertility. Infertility was defined as a failure to achieve a clinical pregnancy within 12 months of unprotected sexual intercourse.

Based on prior studies (9), the expected rate of surgical intervention for treatment of pelvic abscess with antibiotics alone is 30%. Assuming a clinically significant change would bring that rate down to 10%, and defining a statistically significant difference to be 0.05, we calculated that we would need 72 women in each arm for 80% power.

All data were collected in an Excel spreadsheet (Microsoft Corporation) and analyzed using STATA 12.0 (StataCorp, LP). All continuous data were analyzed with Student’s *t* test or Mann-Whitney, depending on the data distribution. All categorical variables were evaluated with a chi-square or Fisher’s exact test. Initial associations were evaluated by a Pearson correlation.

RESULTS

We identified 6,151 patients in Clinical Looking Glass with the ICD-9 diagnosis 614.x who were between the ages of 11 and 49 years and had been admitted to Montefiore Medical Center between 1998 and 2008. The medical records of all these patients were reviewed, and 5,911 patients were excluded by our exclusion criteria. Patients were excluded for the following reasons: 5,873 for no radiologic evidence of abscess, 13 for a malignancy diagnosis, 12 for a prior hysterectomy or bilateral salpingo-oophorectomy, 6 for being pregnant, 5 for drainages for nonabscess indications, and 2 for no abscess noted during surgery.

We identified 240 patients as eligible for evaluation; of these women, 199 patients received antibiotic-only treatment, and 120 were contacted by phone and surveyed. During

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