

TUBO-OVARIAN ABSCESS WITH SEPTIC SHOCK IN A CASE OF ENDOMETRIOMA FOLLOWING DIAGNOSTIC HYSTEROSCOPY

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Hysteroscopy is the gold standard for the diagnosis and treatment of endometrial lesions. Infection following hysteroscopic surgery is uncommon and has been estimated to be occurred in 0.18–1.50% of cases [1]. Although prophylactic antibiotics are commonly used for hysteroscopic surgery, there is no convincing evidence of their value. A practice bulletin of the American College of Obstetricians and Gynecologists suggests that antibiotics are of no value in general patients undergoing hysteroscopic surgery [2]. However, pelvic infections, and even tubo-ovarian abscesses (TOA), have been reported [3]. We present a case of bilateral TOA and septic shock following diagnostic hysteroscopy. To the best of our knowledge, this is the first report of serious infection following diagnostic hysteroscopy in the English literature.

A 32-year-old nulliparous woman came to our hospital with a 2-year history of infertility. An ultrasound scan revealed bilateral endometriomas, a 5.2 × 4.3-cm mass on the left side and a 5.3 × 4.8-cm mass on the right side. She had abnormal bleeding and a history of endometrial polyps. She was therefore referred for office hysteroscopy to check for endometrial lesions. She underwent hysterosalpingography (HSG) 3 days before the hysteroscopy, which showed a normal uterine cavity and patent Fallopian tubes bilaterally. She was given 100 mg doxycycline orally twice daily for 3 days starting on the day of HSG. She felt quite well and was afebrile prior to hysteroscopy. Hysteroscopy was performed using a flexible hysteroscope (Olympus HYF Type XP, Tokyo, Japan) with an outer diameter of 3.1 mm and a 100° bending section both up and down. The distension

medium was 5% dextrose solution. The hysteroscope was soaked in 3.4% glutaraldehyde solution (Metricide plus 30; Metrex Research Corporation, Romulus, MI, USA) for 60 minutes before use. According to routine hospital practice, the patient received 100 mg of prophylactic doxycycline prior to hysteroscopy, and twice daily for 2 days after the procedure. The vagina and the cervix were disinfected with Betadine (povidone iodine) before the hysteroscopic examination. The procedure lasted less than 1 minute and there were no immediate postoperative complications. The hysteroscopy revealed focal mucosal projections, compatible with endometrial hyperplasia.

The patient developed a fever of 39°C the following day, with mild abdominal pain. She consulted a practicing gynecologist who prescribed antibiotics under the impression of pelvic inflammatory disease (PID). However, the fever persisted and the abdominal pain worsened. She developed nausea, vomiting, and diarrhea four to five times a day. She presented at our hospital on the third day after the hysteroscopy and was admitted for parenteral antibiotic treatment.

On examination, her blood pressure was 130/80 mmHg, pulse was 80 beats/min, respirations was 20/min and her temperature was 38°C. Her abdomen was soft, but showed tenderness and rebound pain. Her white blood cell count was 16,800/μL and her C-reactive protein level was 25.2 mg/dL. Intravenous infusions of clindamycin 900 mg and gentamycin 80 mg were given every 8 hours. An ultrasound scan showed a 7.2 × 6.6-cm left ovarian cystic mass with low echogenicity, together with a 7.3 × 6.4-cm right ovarian mass with a similar echotexture. The clinical presentation and the ultrasound scan suggested TOA. The following day, her temperature increased to 39.8°C and she had severe abdominal pain with marked direct and rebound tenderness. The antibiotics were changed to cefmetazole 1 g intravenously



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every 6 hours and gentamycin 80 mg intravenously every 8 hours. Laparoscopic examination was recommended on the third day of hospitalization (6 days after hysteroscopy) because of lack of improvement. In the evening, she felt dizzy and had cold sweats; and her blood pressure dropped to 80/50 mmHg, and then to 70/40 mmHg, with a heart rate of 124 beats/min. An emergency laparotomy was performed under the impression of septic shock and a possible ruptured abscess.

Laparotomy revealed 100 mL of pus from a ruptured right TOA. Puncture of the left ovarian mass revealed pus and chocolate-like material. Bilateral ovarian cystectomy was performed. After thorough irrigation of the abdominal and pelvic cavities, three silicon drains (Fortune Medical Instrument Co., Taipei, Taiwan) were placed in the pelvis and abdomen. The patient received postoperative intravenous ceftriaxone 1 g every 8 hours and metronidazole 500 mg every 8 hours and was placed in intensive care. She recovered gradually and was discharged 12 days after surgery. Pathologic examination of the bilateral ovarian tumors identified infected endometrioma. Blood culture before surgery and pus culture both grew *Escherichia coli*.

Infection following hysteroscopic surgery is rare and infection after diagnostic hysteroscopy is even rarer. To the best of our knowledge, no other cases of serious infection following diagnostic hysteroscopy have appeared in the literature. We have performed over 900 diagnostic hysteroscopies, and the current case is the only one complicated by infection.

The incidences of pelvic infection following HSG and hysteroscopic surgery are 1.4–3.4% and 0.18–1.50%, respectively [1]. Hydrosalpinx increases the risk of PID following HSG. Infection associated with hysteroscopic surgery usually follows longer operative procedures, especially after repeated insertion and removal of the hysteroscope through the cervical canal [4]. The low risk of infection means that the routine use of prophylactic antibiotics in patients undergoing HSG or hysteroscopy is not warranted [2,5]. However, prophylactic antibiotics are commonly used for hysteroscopic surgery.

E. coli is present in the gastrointestinal tract and is a common cause of gastroenteritis, urinary tract infection, meningitis, and sepsis. These bacteria are also part of the vaginal microflora in some women. Any procedures using a vaginal approach could potentially carry the bacteria into the pelvic region, causing PID. *E. coli*

is not as common as *Chlamydia trachomatis* and *Neisseria gonorrhoeae* in PID, but is more likely to be responsible for TOA.

The presence of endometrioma is a risk factor for the development of TOA [6]. Development of TOA from endometrioma has been reported after oocyte retrieval and cyst aspiration, but has not previously been reported after hysteroscopy. The presence of old blood in the endometrioma has been suggested to provide a culture medium for bacterial growth. In the current case, *E. coli* residing in the vagina may have been introduced into the endometrioma during hysteroscopy. It is also possible that endometrioma inoculation occurred during HSG and was exacerbated by hysteroscopy, though this is less likely because HSG was performed 3 days earlier, and the patient was asymptomatic before insertion of the hysteroscope.

The present case acts as a reminder that serious infection can occur following diagnostic hysteroscopy. TOA after hysteroscopy, although very rare, should be kept in mind among women with endometriomas. The vagina and cervix should be carefully disinfected before insertion of the hysteroscope. Prophylactic antibiotics may not completely prevent infectious complications.

References

1. Baggish MS. Complications of hysteroscopic surgery. In: Baggish MS, Barbot J, Valle RF, eds. *Diagnostic and Operative Hysteroscopy: A Text and Atlas*, 2nd edition. St. Louis (MO): Mosby, 1999;367–79.
2. American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 74. Antibiotic prophylaxis for gynecologic procedures. *Obstet Gynecol* 2006;108:225–34.
3. McCausland VM, Fields GA, McCausland AM, Townsend DE. Tuboovarian abscesses after operative hysteroscopy. *J Reprod Med* 1993;38:198–200.
4. Bieber EJ, Brooks PG. Complications of operative hysteroscopy. In: Bieber EJ, Loffer FD, eds. *Hysteroscopy, Resectoscopy and Endometrial Ablation*. New York: Parthenon Publish, 2003; 211–25.
5. Thinkhamrop J, Laopaiboon M, Lumbiganon P. Prophylactic antibiotics for transcervical intrauterine procedures. Cochrane Database of Systematic Review 2007, Issue 3. Art. No.: CD005637.
6. Kubota T, Ishi K, Takeuchi H. A study of tubo-ovarian and ovarian abscesses, with a focus on cases with endometrioma. *J Obstet Gynecol Research* 1997;23:421–6.