

SPONTANEOUS PERFORATION OF A PYOMETRA IN A POSTMENOPAUSAL WOMAN WITH UNTREATED CERVICAL CANCER AND “FORGOTTEN” INTRAUTERINE DEVICE

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Pyometra is defined as the accumulation of purulent fluid and material in the uterine cavity [1]. Its reported incidence is 0.01% to 0.5% in gynecologic patients [2]. However, its incidence increases to 13.6% in elderly women, especially in women with potential for genital malignancies [2]. Spontaneous uterine rupture with generalized peritonitis and pneumoperitoneum is an extremely rare complication of pyometra, but it must be considered in the differential diagnosis of elderly women with acute abdominal pain and cervical malignancy [3]. The reason for ruptured pyometra is unknown. However, impairment of the natural drainage of the cervix, such as cervical stenosis or occlusion, is believed to be one of the main causes of spontaneous pyometra rupture [4]. Intrauterine device (IUD) is a reliable form of reversible contraception, but there are some related complications. The common complications of IUD are perforation of the uterus [5], infection [6], menorrhagia [7], and cervical stenosis [8]. In addition, a patient may forget that the IUD was inserted, especially after menopause. Herein, we present a case of ruptured pyometra with untreated cervical cancer and “forgotten” IUD complicated by secondary peritonitis in a postmenopausal woman.

A 60-year-old, gravida 4, para 4, woman with acute abdominal pain, cold sweating, and fever came to our emergency department. She had a history of diabetes, hypertension, and chronic renal insufficiency, with regular medical treatment for more than 10 years. She

claimed that she had never had a Pap smear. Results of physical examination showed a distended abdomen, rebound tenderness, and muscle rigidity. Blood pressure was 100/63 mmHg, pulse rate was 110 beats/min, and oral temperature was 39°C. Laboratory results demonstrated a white cell count of 6,200/mm³ with 80% neutrophils. A chest roentgenogram showed subphrenic free air on the right side. Emergency exploratory laparotomy was performed under the impression of perforation of the gastrointestinal tract. Operative findings showed that no perforation was found in the gastrointestinal tract, but a perforation approximately 1 cm in diameter was noted over the fundus of the uterus. Purulent material exuding from the uterine cavity was identified, and 300 mL of foul-smelling pus was drained from the pelvic cavity and cul-de-sac. Because of the advanced age of the patient and the necrotic nature of the uterine tissue, a frozen section of the necrotic tissue was performed, and the results showed chronic inflammation changes. A total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed. On gross examination, the uterus, fallopian tubes and bilateral ovaries were normal. No bulky cervical mass was noted. After cutting the uterus, an IUD was found surrounded by the endometrial and purulent material. No gross cervical tumor was seen, except for the internal os of cervix which was occluded by the IUD and the debris of the pyometra. The pus grew *Bacteroides fragilis* on culture. The patient received antibiotics after the surgery. However, wound infection occurred on postoperative day 7, and secondary closure was performed after wet dressing of the wound for 2 weeks. The histopathologic test results revealed pyometra and poorly differentiated cervical squamous cell carcinoma, which mainly involved the endocervix, measuring 1.2 cm in depth and 1.5 cm in length with free

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margins. Pelvic computed tomography was performed, but no lymph node enlargement was found. Tumor marker of squamous cell carcinoma was also within normal limits; however, radiotherapy was arranged for the patient for complete treatment of the disease. The surgical-pathologic staging was poorly differentiated cervical squamous cell carcinoma stage Ib.

Secondary peritonitis due to the spontaneous rupture of pyometra with untreated cervical cancer is rare [3]. We report the first case in the English medical literature of a ruptured pyometra with cervical cancer and a “forgotten” IUD. The causes of pyometra include malignant disease of the genital tract, leiomyoma, endometrial polyps, cervical occlusion after surgery, puerperal infection, and congenital cervical anomalies [4]. In the present case, we believe that the cause of the pyometra was the cervical cancer that aggravated cervical occlusion and subsequently caused a rupture of the uterus with the IUD that was “forgotten” for more than 20 years. Patients with pyometra coexisting with cervical malignancies have poorer prognosis than those with cervical cancer without pyometra.

The symptoms of ruptured pyometra are purulent vaginal discharge, acute abdomen, nausea, vomiting, and fever [3]. Leukocytosis may not be present in an elderly patient with ruptured pyometra, even though generalized peritonitis has occurred [4], as did in our patient. In addition, missed diagnosis is common because of the nonspecific symptoms. Yildizhan et al [4] reported that the most prevalent preoperative misdiagnosis of ruptured pyometra was generalized peritonitis (47.4%), pneumoperitoneum (47.4%), and perforation of the gastrointestinal tract (36.8%).

The normal duration for use of an IUD is 3 to 5 years, and women are advised to remove or replace it before the expiration date. It is important to ensure that women with history of IUD use have indeed removed the IUD. First of all, for women who had IUDs inserted and have forgotten to remove them, the risk of uterine perforation is increased [9]. If the IUD remains in the uterine cavity, cervical occlusion may occur because of uterine synechiae. Cervical occlusion may cause the natural drainage of the pus from the cervix, as a result of the malignancy, to become difficult, and finally induce rupture of the pyometra and secondary peritonitis [4]. In addition, a “forgotten” IUD may increase the risk of infertility in reproductive women [10,11]. Ultrasonography is a useful tool to diagnose a “forgotten” IUD in pre- or postmenopausal women [12]. Secondly, preoperative cervical cytology is important to rule out cervical disease. Inadequate surgical performance can be explained in this case by a lack of clinical information.

Pelvic inflammatory disease is one of the complications of IUDs [6]. The overall risk of pelvic inflammatory disease in women with IUD insertion is 5.9% [13]. Tuboovarian abscesses due to IUD-related infections have been reported, and most of the infections were related to *Actinomyces* [14,15]. Patients with *Actinomyces* present more frequently had pelvic inflammatory disease treated medically.

In conclusion, spontaneous uterine rupture of pyometra in untreated cervical cancer is rare, and the diagnosis is difficult. However, it must be considered in the differential diagnosis in postmenopausal women with “forgotten” IUD and peritoneal signs. Further evaluation, such as Pap smear or preoperative colposcopic examination, and inspection of the specimens during operation are mandatory.

References

1. Jones VA, Elkins TE, Wood SA, Buxton BH. Spontaneous rupture of pyometra due to leiomyomata. A case report. *J Reprod Med* 1986;31:637–8.
2. Sawabe M, Takubo K, Esaki Y, Hatano N, Noro T, Nokubi M. Spontaneous uterine perforation as a serious complication of pyometra in elderly females. *Aust N Z J Obstet Gynaecol* 1995;35:87–91.
3. Imachi M, Tanaka S, Ishikawa S, Matsuo K. Spontaneous perforation of pyometra presenting as generalized peritonitis in a patient with cervical cancer. *Gynecol Oncol* 1993;50:384–8.
4. Yildizhan B, Uyar E, Şişmanoğlu A, Güllüoğlu G, Kavak ZN. Spontaneous perforation of pyometra. *Infect Dis Obstet Gynecol* 2006;14:26786.
5. Zakin D, Stern WZ, Rosenblatt R. Complete and partial uterine perforation and embedding following insertion of intrauterine devices. II. Diagnostic methods, prevention, and management. *Obstet Gynecol Surv* 1981;36:401–17.
6. Wright EA, Aisien AO. Pelvic inflammatory disease and the intrauterine contraception device. *Int J Gynaecol Obstet* 1989;28:133–6.
7. Mercurio F, De Simone R, Di Carlo C, Bifulco G, Tessitore G, Di Spiezio Sardo A, Nappi C. Effectiveness and mechanism of action of desmopressin in the treatment of copper intrauterine device-related menorrhagia: a pilot study. *Hum Reprod* 2003;18:2319–22.
8. Rivera R, Best K. Current opinion: consensus statement on intrauterine contraception. *Contraception* 2002;65:385–8.
9. Gorsline JC, Osborne NG. Management of the missing intrauterine contraceptive device: report of a case. *Am J Obstet Gynecol* 1985;153:228–9.
10. Abramovici H, Faktor JH, Bornstein J, Sorokin Y. The “forgotten” intrauterine device. *Fertil Steril* 1987;47:519–21.
11. Knudsen HJ, Rasmussen K. The “forgotten” intrauterine device: a cause of infertility. *Arch Gynecol Obstet* 1993;253:143–4.

12. Ron-El R, Weinraub Z, Langer R, Bukovsky I, Caspi E. The importance of ultrasonography in infertile women with "forgotten" intrauterine contraceptive devices. *Am J Obstet Gynecol* 1989;161:211-2.
13. Burkman RT. Association between intrauterine device and pelvic inflammatory disease. *Obstet Gynecol* 1981;57:269-76.
14. Kriplani A, Buckshee K, Relan S, Kapila K. "Forgotten" intrauterine device leading to actinomycotic pyometra—13 years after menopause. *Eur J Obstet Gynecol Reprod Biol* 1994;53:215-6.
15. King JA, Olsen TG, Lim R, Nycum LR. *Pseudomonas aeruginosa*-infected IUD associated with pelvic inflammatory disease. A case report. *J Reprod Med* 2002;47:1035-7.