

# Postmenopausal spontaneous rupture of pyometra

## A case report

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### Abstract

**Rationale:** The incidence of spontaneous perforations in pyometra occurs rarely, only 0.01% to 0.5% in gynecological patients, with high mortality and morbidity. The clinical manifestation of perforated uterine pus is similar to that of gastrointestinal perforation, but the gynecological symptoms are not so obvious, which makes preoperative diagnosis difficult. Here, we report a rare case of peritonitis with laparotomy of pyometra.

**Patient concerns:** An acute abdominal pain and purulent vaginal discharge developed in a 72-year-old woman who underwent an emergency laparotomy because of signs of diffuse peritonitis and in a state of shock.

**Diagnoses:** We made a diagnosis of spontaneous perforation of pyometra.

**Interventions:** At laparotomy, about 1000 mL of pus with the source of uterine was found in the abdominal cavity, while gastrointestinal tract was intact and a crevasse with a diameter of 1.5 cm on posterior uterine wall was obvious. A total abdominal hysterectomy and a bilateral salphingo oophorectomy were performed.

**Outcomes:** The patient got discharged on 34th postoperative hospitalization day with only 1 complication of wound healing. Histopathological study revealed uterine purulent inflammation, with no evidence of malignancy.

**Lessons:** Ultrasonography is the first and most sensitive examination for the evaluation of pyometra, but has limited role in the diagnosis of perforated pyometra. Additional diagnostic radiographic evaluation use for acute abdomen is total abdomen computed tomography scan and magnetic resonance imaging techniques of female pelvis.

**Abbreviation:** CT = computed tomography.

**Keywords:** peritonitis, postmenopausal, pyometra, spontaneous uterine perforation

## 1. Introduction

Pyometra is the collection of pus in the uterine cavity, because of a consequence of impaired drainage, and it is known as a rare condition. The main cause of pyometra is genital tract malignancy, and apart from this, consequences of its treatment (such as radiotherapy), other benign conditions like endometrial lesions, fibroid, senile cervicitis puerperal infection, and congenital cervical anomaly, and so on. Spontaneous perforation of pyometra resulting in generalized diffuse peritonitis is extremely uncommon, ranging from 0.01% to 0.05%.<sup>[1]</sup> Herein, we report the case of a 72-year-old lady who presented with acute abdominal pain and purulent vaginal discharge; an emergency laparotomy was performed because of signs of diffuse peritonitis,

and the patient was in shock. Moreover, here a brief literature review on pyometra is presented.

## 2. Case report

A 72-year-old postmenopausal woman presented to the emergency room with complaints of acute abdominal pain and purulent vaginal discharge. The patient had 2-month history of brown purulent vaginal discharge accompanied with a foul smell; otherwise there was no fever or abdominal pain.

She stated that the abdominal pain started suddenly without any warning earlier in the evening, and she had never experienced abdominal pain or discomfort similar to this previously. In the past, she denied any significant change in bowel or bladder habits. Past medical history was significant for hypertension and without any distinct surgical history. She denied any tobacco, alcohol, or drug use, and she did not have any obvious occupational exposures or chronic family illnesses.

On physical examination, she was groaning with extreme pain, and her vitals were as follows: temperature of 36.7°C, blood pressure 101/70 mm Hg, heart pulse of 110 beats/min, respiratory rate of 20 breaths/min, and oxygen saturation of 97% without the addition of supplemental oxygen. Vaginal examination only showed rotten discharge without cervical and vaginal anomalies. Initial laboratory results showed a white blood count of  $9.1 \times 10^9/L$  and C-reaction protein 116.4 mg/L.

There was a lot of purulent discharge on her vaginal examination, with cervix lifting pain. Because of the muscular tension with obvious pain, palpation of atrophic uterine was not clear. Transvaginal ultrasound and the abdominal computed

Editor: N/A.

The authors have no conflicts of interest to disclose.

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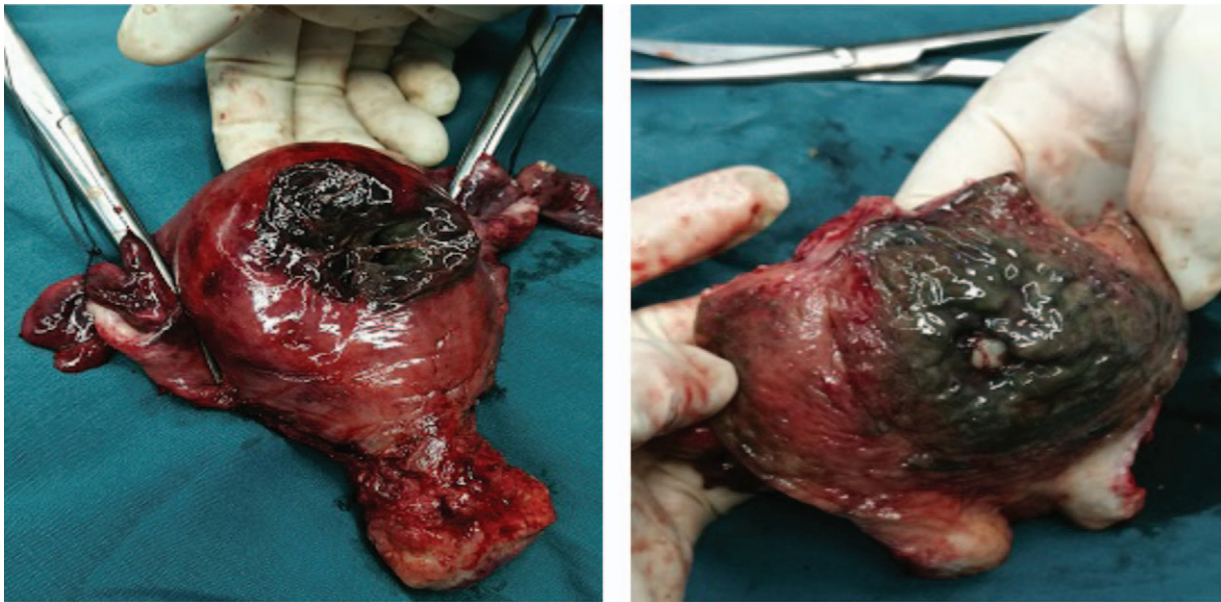
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Medicine (2018) 97:52(e13659)

Received: 21 July 2018 / Accepted: 20 November 2018

<http://dx.doi.org/10.1097/MD.0000000000013659>



**Figure 1.** Photograph showing the perforated area and hysterectomy material. Pyometra with uterine perforation in posterior wall.

tomography (CT) showed generalized fluid and free air in abdominal cavity.

The patient was in a septic condition, and was taken to the operating room emergency for exploratory laparotomy, where, upon entering the peritoneal cavity, there was 500 mL of purulent fluid encountered, and 50 mL pus was sent for culture and sensitivity. The small bowel and large bowel were examined in their entirety without significant pathology noted. Thorough examination of the pelvis revealed a hyperemic uterine fundus with associated necrosis; about  $1.5 \times 2$  cm crevasse was present on posterior wall of the uterus, which was close to the fundic uteri (Fig. 1). Both parametria were thickened and inflammatory changes were present. Both fallopian tubes and ovaries were normal. Consequently, the patient was underwent total hysterectomy with bilateral salpingo oophorectomy, then peritoneal toileting was done over and over again, and finally, 1 intra-abdominal drain was kept. The patient received imipenem anti-infective therapy for 6 days. Culture of the pus showed growth of streptococcus pharyngitis, sensitive to imipenem. On the eighth day after operation, the patient's incision presented with fat liquefaction; then the dressing was changed twice a day during more than 20 days and finally the incision healed well without suture. Histopathological studies revealed suppurative endometritis, myometritis, and abscess formation, with no evidence of malignancy. The patient was discharged more than 1 month postoperative day.

This report did not involve any ethics. However, the patient's informed consent was obtained, and the corresponding data were analyzed retrospectively.

### 3. Discussion

Pyometra is defined as an accumulation of pus in the uterine cavity and is rare in the general population; however, it is more common in elderly women. The classical symptoms are postmenopausal bleeding, vaginal discharge, and lower abdominal pain, but none of these is specific for pyometra, and nearly more than 50% of nonperforated pyometra patients are

asymptomatic.<sup>[2]</sup> The most common cause of pyometra is malignancy of genital tract, which makes up approximately 35% of cases.<sup>[3]</sup> Other possible causes are cervical canal by benign tumors, such as leiomyoma, cervical polyps, infection, especially senile cervicitis, cervical occlusion after surgery, radiation, or forgotten intrauterine devices.<sup>[4,5]</sup>

Spontaneously perforated pyometra is difficult to diagnose clinically. It commonly mimics the symptoms of gastrointestinal tract diseases; thus misdiagnoses are common, especially in postmenopausal women. The most common preoperative diagnosis is diffused peritonitis secondary to gastrointestinal perforation.<sup>[6]</sup> So far, it is mentioned that, in prior case reports, a correct and definite diagnosis of spontaneous rupture pyometra is made only by laparotomy in most cases.<sup>[7]</sup> Only 1 case reported that spontaneous ruptured pyometra was diagnosed preoperatively on dynamic transvaginal sonography.<sup>[8]</sup> In our case, we found generalized fluid and free air in abdominal cavity by means of transvaginal ultrasound and the abdominal CT, and our patient who had no evidence of malignancy during surgery and subsequent pathology, also had no intrauterine device or any undergone endometrial biopsy or dilatation curettage operations before; finally, the patient recovered and discharged only with the complication of wound healing, which was not sutured again. Uterine perforation is usually seen in the site of uterine fundus (77%), otherwise it may occur anteriorly (4%).<sup>[9]</sup>

Spontaneous perforation of pyometra is still no less rare. A PubMed literature search using key words such as "spontaneous rupture" and "pyometra" was performed, and only English-language articles were collected; till date, only 42 case reports have been documented.

To my knowledge, ultrasonography is the first investigation which has high sensitivity in assessing pyometra, but has limited role in the diagnosis of perforated pyometra. Additional diagnostic radiographic evaluation use for acute abdomen is total abdomen CT scan and magnetic resonance imaging techniques of female pelvis. It has been estimated that the mortality from spontaneous perforation of pyometra is more than 40%, thus urgent surgical management including hysterectomy

tomy with bilateral salpingoophorectomy are warranted.<sup>[6]</sup> The cases of perforated pyometra which are not associated with malignancies have better prognoses than those which are associated with malignancies.<sup>[10]</sup>

#### 4. Conclusions

Although spontaneously perforated pyometra is a rare entity, the condition must be borne in mind with regard to postmenopausal women with acute abdominal pain, and the possible cause is peritonitis. A ruptured pyometra, which presents as diffuse peritonitis, carries a high risk of mortality and morbidity due to lack of specific diagnostic skills. This makes the therapeutic process difficult. However, treatment should vary from person to person, for example, in selective patients of ruptured pyometra, conservative approach at surgery can be selected.

#### Author contributions

**Writing – original draft:** Yiping Huang.

**Writing – review & editing:** Qifang Tian.

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