Case Report

Spontaneous Perforation of Pyometra: A Case Report

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Received 21 March 2005; Revised 31 March 2005; Accepted 31 May 2005

Pyometra is the accumulation of purulent material in the uterine cavity. Its reported incidence is 0.01–0.5% in gynecologic patients; however, as far as elderly patients are concerned, its incidence is 13.6% [3]. The most common cause of pyometra is malignant diseases of genital tract and the consequences of their treatment (radiotherapy). Other causes are benign tumors like leiomyoma, endometrial polyps, senile cervicitis, cervical occlusion after surgery, puerperal infections, and congenital cervical anomalies. Spontaneous rupture of the uterus is an extremely rare complication of pyometra. To our knowledge, only 21 cases of spontaneous perforation of pyometra have been reported in English literature since 1980. This paper reports an additional case of spontaneous uterine rupture.

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CASE REPORT

A 92-year-old woman with severe abdominal pain and vomiting for 24-hour duration was admitted to our hospital. Her gynecologic history was unremarkable having undergone an eventful menopause. She had no history of postmenopausal bleeding or increased vaginal discharge. On the physical examination, her abdomen was very tender, distended, and showed muscle rigidity. Rebound tenderness was absent. Bowel sounds were hypoactive. Her blood pressure was 110/65 mmHg, pulse rate was 114 beats/min, and axillary temperature was 36.9°C. Laboratory studies demonstrated a white cell count of 5100/mm³ with 92.3% neutrophilia and hemoglobin of 13 g/dL. A plain chest X-ray film showed free air under the diaphragm on both sides. The abdominal X-ray revealed no evidence of intestinal obstruction. Computed tomography scan of abdomen reported the presence of fluid within the abdominal cavity.

Emergency explorative laparotomy was performed under the diagnosis of perforation of the gastrointestinal tract. The investigation of the gastrointestinal tract and gallbladder failed to reveal a perforation. The uterus was found to have two perforations, approximately 1 cm in diameter each, both in the uterine fundus, and purulent material exuding from the uterine cavity was identified. The uterus was soft and slightly enlarged. Both parametria were thickened and inflammatory changes were present. The fallopian tubes and the ovaries were normal. A total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed. Culture of the pus grew *Escherichia coli* and *Bacteroides fragilis*. Histological examination revealed pyometra with no evidence of malignancy.

She was observed in the intensive care unit with strict management of respiration and circulation for postoperative three days. On the third postoperative day, she was transferred to the gynecology unit. Under the antibiotic therapy with cefepime and metronidazole, her condition improved postoperatively. However, on the tenth postoperative day, wound dehiscence occurred and secondary wound closure was performed. No other complications have occurred, and as the patient completely recovered, she was discharged on the eighteenth postoperative day.

DISCUSSION

Pyometra, or pyometrium, is defined as the accumulation of pus in the uterine cavity resulting from interference with its natural drainage. It is an uncommon condition that occurs mainly in postmenopausal women and is rare in the premenopausal age group [18]. The classic triad of symptoms in patients with pyometra consists of purulent vaginal discharge, postmenopausal bleeding, and lower abdominal pain [2]. Various malignant and benign diseases have been shown to cause pyometra [1–18].
Table 1: Cases of spontaneous perforation of pyometra reported since 1980 to date.

| Case | Reference no | Year | Age | Symptoms | Provisional diag | Causative disease | Perforation site | Bacterial culture | Treatment | Outcome |
|------|--------------|------|-----|----------|-----------------|------------------|-----------------|------------------|------------|---------|
| 1    | [4]          | 1981 | 86  | AP, V, D | PGIT, PNP       | Rectum Ca        | nm              | Coli like rods, Klebsiella | SVH + sigmoidostomy | Alive |
| 2    | [5]          | 1982 | 86  | AP, V    | GP              | (—)              | Fundus          | E coli, B fragilis | TAH + BSO | Died    |
| 3    | [6]          | 1985 | 77  | AP, N, V | GP, PNP         | (—)              | Fundus          | E coli, B vaginus | TAH + BSO | Died    |
| 4    | [7]          | 1985 | 78  | AP, N, V | nm              | (—)              | Fundus          | (—)              | SVH       | Alive   |
| 5    | [8]          | 1985 | 67  | AP, V    | PPU, PNP        | (—)              | Fundus          | (—)              | SVH + BSO | Died    |
| 6    | [8]          | 1985 | 77  | AP, V    | AA              | Sigmoid Ca       | Fundus          | nm              | SVH + sigmoidostomy | Alive |
| 7    | [9]          | 1986 | 41  | AP, V    | PGIT, PNP      | Leiomyma         | Right side     | B fragilis        | TAH       | Alive   |
| 8    | [10]         | 1989 | 73  | AP, V, D | PGIT, PNP      | (—)              | Fundus          | S intermedius     | TAH + BSO | Alive   |
| 9    | [11]         | 1989 | 85  | AP       | PGIT, PNP      | Leiomyma         | Fundus          | E coli, B fragilis | TAH + BSO | Died    |
| 10   | [12]         | 1991 | 82  | AP, V    | PGIT           | (—)              | Fundus          | E coli, B vaginus | TAH + BSO | Died    |
| 11   | [2]          | 1993 | 67  | AP, GB   | GP, PNP        | Cervix Ca        | Fundus          | (—)              | SVH       | Alive   |
| 12   | [3]          | 1995 | 86  | AP, F    | PPU            | (—)              | Fundus          | B fragilis, E coli | Aspiration and drainage | Died |
| 13   | [13]         | 1996 | 80  | AP, V    | PGIT, PNP      | Endometritis     | Anterior wall   | E coli            | TAH       | Alive   |
| 14   | [14]         | 1999 | 88  | V       | GP, PGIT, PNP  | (—)              | Fundus          | E coli            | TAH + BSO | Alive   |
| 15   | [1]          | 2000 | 34  | AP       | GP             | Cervix Ca        | Left cornual region | B fragilis, streptococci | Drainage and PL | Alive   |
| 16   | [1]          | 2000 | 72  | AP       | nm             | Cervix Ca        | Fundus          | B fragilis        | Drainage and PL | Died    |
| 17   | [1]          | 2000 | 76  | AP       | AD             | (—)              | Fundus          | E coli            | Drainage and PL | Alive   |
| 18   | [15]         | 2000 | 86  | AP, F    | GP, PNP       | Adenomyozis      | Fundus          | C sphenoides      | SVH       | Alive   |
| 19   | [16]         | 2000 | 66  | AP       | nm             | (—)              | Fundus          | P mirabilis, klebsiella | TAH + BSO | Died    |
| 20   | [17]         | 2000 | 69  | AP, V    | GP             | nm              | Fundus          | Anaerobes         | TAH       | Died    |
| 21   | [17]         | 2001 | 89  | AP, V    | GP, PNP      | nm              | Fundus          | E coli            | TAH + BSO | Died    |
| 22   | *            | 2004 | 92  | AP, V    | PGIT, PNP    | (—)              | Fundus          | B fragilis, E coli | TAH + BSO | Alive   |

AP: abdominal pain; N: nausea; V: vomiting; D: diarrhea; F: fever; VD: vaginal discharge; GP: genital bleeding; PNP: perforated peritonitis; PPU: perforation of peptic ulcer; PGIT: perforation of gastrointestinal tract; AC: acute appendicitis; PP: perforated pyometra; AD: acute diverticulitis; Ca: cancer; TAH: total abdominal hysterectomy; BSO: bilateral salpingo-oophorectomy; SVH: supra-vaginal hysterectomy; PL: peritoneal lavage; PNP: pneumoperitoneum; nm: not mentioned; *: the current case.

Table 1 summarizes the 22 cases of spontaneous uterine rupture since 1980, including our case. All cases were postmenopausal elderly females, mostly in the seventh or eighth decade, except for 34- and 41-year-old women. The age at diagnosis ranged from 34 to 92 years with a mean of 75.3 years. The most common presenting symptoms were abdominal pain (95.5%), vomiting (41.0%), nausea (9.1%), and fever (9.1%). The most prevalent preoperative diagnosis was generalized peritonitis (47.4%), pneumoperitoneum (47.4%), and perforation of gastrointestinal tract (36.8%). In only 3 cases (15.8%), perforation of pyometra was suspected. Laparotomy was performed in all cases except case 12 since her general condition was poor [3]. Hysterectomy was performed in 18 cases. The location of perforation was in the fundus in 18 patients (85.7%). The bacteriological studies of intraperitoneal pus were positive in 17 cases, in one case it was negative, and in 4 cases it was not mentioned in the article. Mixed infection with both anaerobes and aerobes was detected in most of the patients. Histologically, 7 cases (35%) were associated with malignant disease, and 2 cases (10%) were associated with leiomyoma. In 10 patients, no apparent cause could be identified.

Pyometra is a rare event in general population but more common in elderly women. It is caused by impairment of natural drainage of the cervix as a result of benign or malignant diseases. A detailed pelvic examination should be performed to rule out the associated malignancies. The diagnosis of pyometra is difficult, because it is usually asymptomatic.

CONCLUSION

Ruptured pyometra should be kept in mind in elderly women presenting with acute abdomen as an unusual but serious condition.

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