

Pyometra in elderly post-menopausal women: a sign of malignancy

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Summary

Purpose: To describe the clinical and histopathological characteristics of 12 patients with pyometra and highlight the increased incidence of gynecological malignancy in these patients. **Materials and Methods:** The authors examined the medical records of 12 patients with pyometra, who were treated between 2009 and 2013. **Results:** All patients were post-menopausal, and their mean age was 70.83 ± 6.978 years (min=61, max=82). To remove purulent fluid via dilation and because of the probability of malignancy, three patients (25%) underwent cervical biopsy and endometrial curettage; the other nine patients (75%) underwent curettage alone, with suitable antibiotic therapy. Of the 12 patients, nine (75%) had gynecologic malignancy [(endometrial cancer, n=5, 41.6%), (cervical cancer, n=3, 25%), (uterine leiomyosarcoma, n=1, 8.3%)]. In three (25%) patients, the cause of pyometra was benign pathologies, among which the most common were leiomyomas (n=2, 66.6%). **Conclusion:** Pyometra diagnosed during the post-menopausal period should be considered a complication caused by gynecological malignancy until proven otherwise.

Key words: Pyometra; Endometrial cancer; Cervical cancer; Gynecological malignancy.

Introduction

Pyometra is the accumulation of pus in the uterine cavity. It occurs in the absence of inherent drainage of the uterus as a result of a closed uterine cervix, or, as is the case with cancers or the presence of foreign bodies, in the presence of a causal factor that leads to inflammation. It is generally seen in post-menopausal women, with an incidence of 0.2% [1]. Its incidence is 1.5% - 4% in patients with malignant lesions [2,3]. Pyometra should always be considered in post-menopausal patients who have nonspecific symptoms, such as discharge, bleeding, fever, enlarged uterus, and lower abdominal pain, because it may accompany malignancy and, when the diagnosis is delayed, morbidity and mortality increase [4].

The purpose of this study was to describe the clinical and histopathological characteristics of a cohort of 12 patients with pyometra and to highlight the increased incidence of gynecological malignancy in patients with pyometra.

Materials and Methods

Between 2009 and 2013, 12 patients diagnosed with pyometra were treated in the gynecology and gynecologic oncology clinics of the present hospital, which is a tertiary treatment center. The diagnosis of pyometra was confirmed by the presence of accumulated pus from the cervix. Accompanying lesions were investigated using ultrasound (US) and, when indicated, magnetic resonance imaging (MRI).

All patients underwent cervical dilation, endometrial curettage, and, when indicated, cervical biopsy. Medical records were reviewed, and specific data were collected, including patient age, symptoms, systemic diseases, radiological investigations (US,

MRI), microbiological results, treatment modality, histopathological results, and blood work, including hemoglobin, white blood cell count, erythrocyte sedimentation rate, C-reactive protein, procalcitonin, and Ca 125.

Data were shown as mean \pm SD for metric discrete variables, and the number and percentage of cases were used as nominal variables.

Results

Twelve patients were enrolled in this study (Table 1). All patients were post-menopausal and multiparous. The patients' mean age was 70.83 ± 6.978 years (min=61, max=82). Five patients (41.6%) came to the emergency department, and four patients (58.4%) came to the polyclinic of gynecology. The most common presenting symptom was vaginal discharge (n=8, 66.6%), followed by fever (n=6, 50%) and bleeding (n=4, 33.3%).

Blood work included the following: mean hemoglobin, 11.47 ± 1.56 g/dl; mean white blood cell count, 13.06 ± 5.2 μ L; mean erythrocyte sedimentation rate, 49.8 ± 0.96 mm/h; C-reactive protein, 68.27 ± 59.07 mg/dl, and Ca 125, 56.57 ± 34.86 U/ml. Procalcitonin levels were less than 0.5 ng/ml in 11 patients (91.6%), and only one patient had a procalcitonin level of 83 ng/ml.

The most commonly seen accompanying systemic disease was hypertension (n=9, 75%), followed by diabetes mellitus (n=5, 41.6%). Among the purulent fluid specimen cultures, eight (66.6%) showed growth, whereas four (33.3%) did not show any growth. Among the eight patients, there were mixed infections. Results of cultures showed growth of *Escherichia coli* (six patients), Bacteri-

Revised manuscript accepted for publication January 20, 2014

Table 1. — Clinical characteristics of 12 patients with pyometra.

Case	Age	Symptoms	History	Image	Treatment	Diagnosis
1	62	Vaginal discharge, vaginal bleeding, fever	DM, HT, CHD	USG, MRI	Antibiotics, tumor-directed RT	Endometrial cancer
2	73	Vaginal discharge, lower abdominal pain	DM, HT	USG, MRI	Antibiotics, polypectomy and EC	Endometrial polyp
3	82	Vaginal discharge, fever	HT	USG, MRI	Antibiotics, TH/BSO and PPLND	Endometrial cancer
4	61	Vaginal discharge	HT	USG	Antibiotics, TH/BSO	Uterine leiomyoma
5	72	Vaginal discharge	Asthma	USG, MRI	Antibiotics, RH/BSO and PPLND	Cervical cancer
6	75	Lower abdominal pain, fever	HT, asthma	USG, MRI	Antibiotics, TH/BSO and PPLND	Endometrial cancer,
7	75	Vaginal discharge	HT, DM	USG	Antibiotics, TH/BSO and PPLND	Endometrial cancer
8	68	Lower abdominal pain, fever	DM, HT	USG, MRI	Antibiotics, RH/BSO and PPLND	Cervical cancer
9	72	Vaginal discharge, vaginal bleeding	CVD	USG, MRI	Antibiotics, TH/BSO and PPLND	Endometrial cancer
10	67	Vaginal discharge, fever	DM	USG, MRI	Antibiotics, RH/BSO and PPLND	Uterine leiomyoma
11	67	Vaginal bleeding	HT	USG, MRI	Antibiotics, TH/BSO	Cervical cancer
12	61	Vaginal discharge, fever, vaginal bleeding	HT	USG, MRI	Antibiotics, TH/BSO	Uterine leiomyosarcoma

DM: diabetes mellitus; HT: hypertension; CHD: coronary heart disease; CVD: cerebrovascular disease; USG: ultrasonography; MRI: magnetic resonance imaging; RT: radiotherapy; EC: endometrial curettage; TH/BSO: total hysterectomy and bilateral salpingo-oophorectomy; RH/BSO: radical hysterectomy and bilateral salpingo-oophorectomy; PPLND: pelvic and para-aortic lymph node dissection.

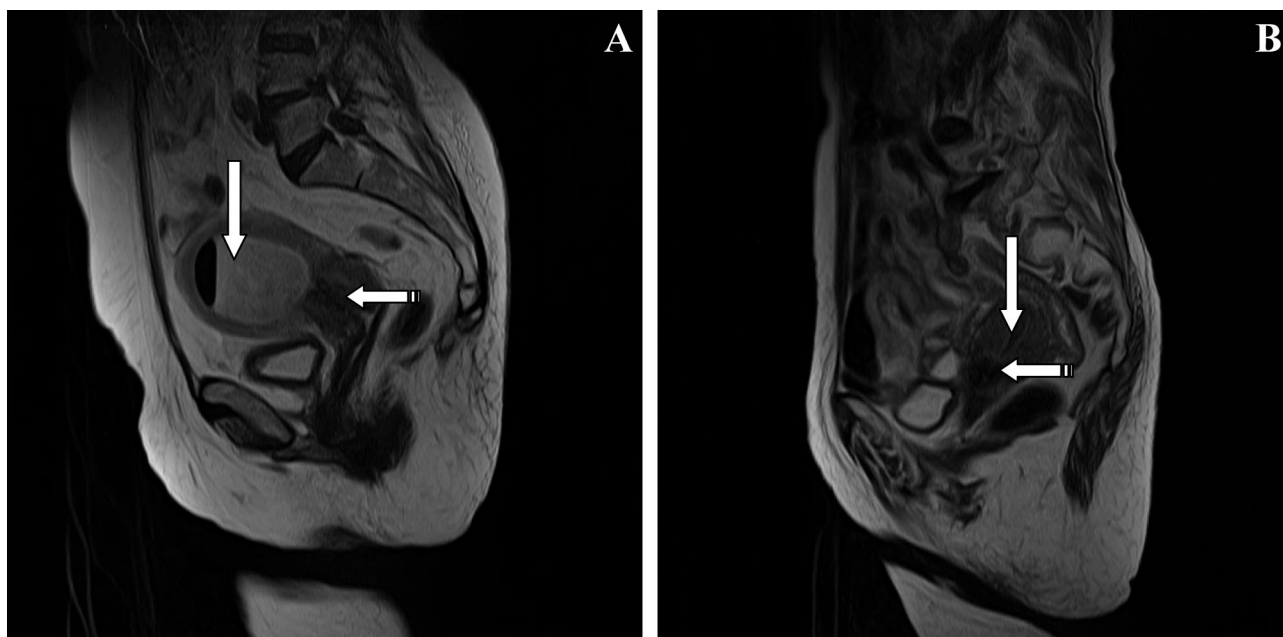


Figure 1. — A: MRI scan of patient number 5 shows a large amount of fluid collection in the endometrial cavity (white arrow). The findings are consistent with cervical carcinoma (interrupted arrow). B: MRI scan of patient number 7 shows little fluid collection in the endometrial cavity (white arrow). The findings are consistent with endometrial carcinoma (interrupted arrow).

odes fragilis (four patients), and *Enterococcus faecalis* (four patients).

All patients underwent US, which most commonly showed moderate distention of the uterus with anechoic fluid collection in the uterine cavity ($n=6$, 50%), followed by echogenic fluid collection in the uterine cavity ($n=3$, 25%). The majority of the patients also underwent pelvic MRI ($n=10$, 83.3%). Based on pelvic MRI, all patients were reported to have varying amounts of fluid collection in the uterine cavity, and eight of nine cancer patients (88.8%) were presumed to have malignancy (Figure 1).

Only one patient did not have a biopsy result or radiological finding that would indicate uterine or cervical malignancy except the development of pyometra and leiomyoma; this patient, who was surgically treated for leiomyoma, was diagnosed with uterine leiomyosarcoma based on a frozen section procedure.

For the removal of purulent fluid with dilation and the probability of malignancy, three patients (25%) underwent cervical biopsy and endometrial dilatation and curettage, and the other nine patients (75%) underwent dilatation and curettage alone, along with suitable antibiotic therapy.

Ten of 12 patients treated with antibiotic therapy underwent hysterectomy and bilateral salpingo-oophorectomy. Of the patients who underwent surgery, eight (80%) had malignancy and two (20%) had leiomyoma as indicated. Suspected tumoral sections of the operated patients were examined using frozen section during the operation and, as a result, all patients who were found to have a malignancy and one patient who had no finding that would indicate malignancy preoperatively showed malignancy in their frozen section examination. Of the patients, nine (75%) were found to have gynecologic malignancy [(endometrial cancer, n=5, 41.6%), (cervical cancer, n=3, 25%), (uterine leiomyosarcoma, n=1, 8.3%)] and, in three (25%) subjects, the cause of pyometra was reported to be benign pathologies, among which the most common were leiomyomas (n=2, 66.6%). One patient could not be operated because of impaired general status despite the lack of a diagnosis of endometrial cancer. Therefore, she received radiotherapy after that infection was controlled with drainage and antibiotic therapy. All patients were alive at the one-year follow-up visit except for one patient, who died six months after the diagnosis because of systemic problems.

Discussion

Pyometra is a rare condition often seen during the post-menopausal period. The most common causes are traumatic damage of the cervix, congenital anomalies of the genital tract during the pre-menopausal period, and malignancy, radiation, and atrophic cervicitis during the post-menopausal period [1-5].

Pyometra should be treated with caution in elderly patients because it may indicate a malignancy during the post-menopausal period, and it may cause life-threatening complications, such as spontaneous rupture and septicemia [4].

In this study, among 12 patients, five were diagnosed with endometrial cancer (41.6%), three with cervical cancer (25%), and one with uterine leiomyosarcoma (8.3%). Thus, 75% of the patients had a malignant lesion of the uterus or the cervix. In the literature, the majority of the case series were reported to have a malignant uterine lesion as the cause of pyometra [1-3]. Muram *et al.* reported a malignancy rate of 72%, similar to the present results. However, in that study, 38.4% of the patients in whom pyometra was shown to be related to malignancy had been previously diagnosed with cervical cancer and had received radiotherapy [1]. In the study by Chan *et al.*, 23% of patients with post-menopausal pyometra had gynecologic cancer, and 50% of patients with malignancy were those who had been previously diagnosed, those who had developed cervical stenosis following radiotherapy, or those with cervical cancer with tumor recurrence [5]. In the present series, none of the patients examined for py-

ometra had been previously diagnosed with gynecologic malignancy, which probably resulted from the decreased incidence of complications related to radiotherapy because of recent advances in radiotherapy techniques. Although in the Chan *et al.* study, the most commonly detected malignancy was cervical cancer; in the present study, the corresponding malignancy was endometrial cancer.

Examination of previous studies showed that the condition that caused pyometra could be diagnosed in 11% to 45% of the cases [1, 3]. US is a useful method for investigating pyometra. Hypochoic fluid collection, which was described as an US finding in pyometra, was present in most of the present subjects [4]. In this series, 11 of 12 patients (91.6%) were preoperatively diagnosed. In one patient, the results from examination, biopsy, US, and MRI did not indicate a factor that could lead to pyometra, and endometrial cancer was diagnosed based on frozen section procedure. Currently, advancements in radiological techniques and increased experience in this field have inevitably increased the rate of accurate preoperative diagnosis.

In conclusion, pyometra detected during the post-menopausal period is considered a complication caused by gynecological malignancy, until proven otherwise. In the present authors' opinion, although the malignancy may not be detected using biopsy or imaging methods, follow-up for malignancy screening should be continued after treatment of the infection. Or, if a patient diagnosed with pyometra will undergo surgery for any gynecologic reason, it should be performed at a facility where gynecologic oncologic surgery can be performed and the endometrium can be evaluated with frozen section procedure.

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