Peritonitis as a Result of Spontaneous Rupture of Uterus due to Pyometra: A Diagnostic Dilemma

Ankit Shukla¹, Rajesh Chaudhry¹, Usha Chaudhary², Rakesh B Anand³, Vikrant Sharma⁴

¹Senior Resident, Department of General Surgery, Dr. Rajendra Prasad Government Medical College, Kangra, Tanda, Himachal Pradesh, India, ²Senior Resident, Department of Anesthesia, Dr. Rajendra Prasad Government Medical College, Kangra, Tanda, Himachal Pradesh, India, ³Junior Resident, Department of Surgery, Dr. Rajendra Prasad Government Medical College, Kangra, Tanda, Himachal Pradesh, India

Peritonitis as a result of spontaneous rupture of the uterus due to pyometra is a very rare entity. Since 1980, only a few cases of spontaneous rupture of the uterus due to pyometra have been reported in the literature. It is a diagnostic dilemma for a surgeon and a possibility of this entity though very rare should be borne in mind in an elderly female patient with diffuse peritonitis as outcome improves greatly on timely diagnosis and proper management. We present a case of peritonitis due to spontaneous rupture of the uterus due to pyometra which was diagnosed at laparotomy and managed successfully.

Keywords: Peritonitis, Pyometra, Ruptured pyometra

INTRODUCTION

Peritonitis is a condition encountered almost daily by the emergency surgeons all over the world. Identifying the exact cause of peritonitis is not always possible but knowing it significantly improves the approach, morbidity, and mortality. To establish a diagnosis of peritonitis skillful history taking and through physical examination is of utmost importance as peritonitis is a clinical diagnosis. Various radiological modalities are used and helpful in making the diagnosis however establishing correct pre-operative diagnosis of peritonitis is still a diagnostic challenge for surgeons despite proper history taking and thorough clinical examination and advancement in radiological imaging modalities.¹,² Exact pre-operative diagnosis helps in proper planning and execution of timely and accurate management rendering decreased morbidity and mortality.

Diffuse peritonitis caused by spontaneous rupture of the uterus due to pyometra is a condition not frequently heard of in daily practice by surgeons. This uncommon condition is usually seen in the elderly multiparous females.

The cause behind it may be benign etiology leading to stenosis of the canal such as chronic cervicitis, radiation cervicitis, cervical lesions, puerperal infections, leiomyoma, endometrial polyp, foreign bodies, congenital anomalies, or malignant etiology such as cervical cancer and endometrial carcinoma.³ Risk factors found to be associated with it are decrease in daily activity, diabetes, urinary incontinence, and long-term use of intrauterine device (IUD).⁴ Multiple comorbid conditions are also associated as the patients are elderly females making early diagnosis a necessity for better outcome.

Clinical presentation is similar to that of gastrointestinal tract perforation mimicking peritonitis. It presents clinically as diffuse peritonitis and only 50% of patients have a history of bleeding or discharge per vagina and is a diagnostic dilemma for the surgeon.⁴ Most of the patients are elderly and have associated comorbid conditions or poor general condition yielding to significant morbidity and mortality. Outcome is better if timely diagnosis is established and managed accordingly keeping in view the comorbid conditions. Spontaneous perforation of uterus leading to diffuse peritonitis is a very rare complication of pyometra, but must be considered as a differential diagnosis especially in elderly multiparous female patients.⁵ Exact pre-operative diagnosis is missed many a times due to its rarity and non-specific clinical presentation.

Radiological investigation like ultrasonography (USG) is very useful in diagnosing pyometra but is not of much help is establishing the diagnosis ruptured uterus due

Corresponding Author:
Dr. Ankit Shukla, Department of General Surgery, Dr. Rajendra Prasad Government Medical College, Kangra, Tanda - 176 001, Himachal Pradesh, India. E-mail: nkitshukla@hotmail.com
to pyometra. Few cases only show free gas under the diaphragm on the chest X-ray. Computed tomography (CT) and magnetic resonance imaging (MRI) are also not helpful in establishing exact pre-operative diagnosis of spontaneous rupture of pyometra as a cause of peritonitis. In the cases of pyometra without rupture drainage of the pus with adequate antibiotic coverage of *Escherichia coli* and anaerobes is the management of choice. Decision to proceed for exploratory laparotomy entirely depends on history, clinical findings and a high index of suspicion of spontaneous rupture of pyometra causing peritonitis. Treatment of spontaneous rupture of the uterus due to pyometra leading to peritonitis is hysterectomy with bilateral salpingo-oophorectomy with thorough peritoneal toileting with normal saline and peritoneal drainage. Association of spontaneous rupture of pyometra with malignancy has a worse prognosis than the benign one.

**CASE REPORT**

A 63-year-old multiparous lady presented to the emergency with a history of diffuse pain abdomen since last 3 days. Pain started in the right lower abdomen and then became diffuse and continuous associated with fever but no vomiting. There was no history of bleeding per vagina. The patient was febrile and had tachycardia. On abdominal examination tenderness, guarding, and rigidity were present in the whole abdomen. The digital rectal examination did not reveal any abnormality. Laboratory studies revealed leukocytosis and slightly raised creatinine and blood urea nitrogen levels. USG abdomen was suggestive of the collection in the right iliac fossa extending into the pelvis. Contrast enhanced CT of abdomen had collection in the right iliac fossa and pelvis with specks of air in it with suspicion of the acute perforated appendix (Figure 1). Preliminary diagnosis of perforated acute appendicitis was made and patient prepared for exploration.

On exploration through midline adherent bowel loops of the ileum to the right pelvic wall were separated. Appendix was seen in paracolic position and was normal on further exploration collection of 150 ml of pus just medial and inferior to the ileocecal junction was found and uterus was found to be sloughed out from its fundus. There were multiple perforations in the posterior aspect of the uterus (Figure 2a and b). Gynecological consultation was taken and bilateral salpingo-oophorectomy and hysterectomy was done with difficulty as there was inflammation and dense adhesions of the uterus and posterior wall of the bladder and pelvic wall. Pus culture was positive for *E. coli* and histopathology revealed acute and chronic inflammation of uterine cavity with deposits of squamous cell carcinoma in the fundus and lateral wall of the uterus. Cervix had multiple ulcerations with features of squamous cell carcinoma. The patient developed surgical site infection in the post-operative period and was discharged on the 14th post-operative day and advised to follow-up.

**DISCUSSION**

Pyometra, usually found in postmenopausal elderly females, is defined as the accumulation of pus or purulent material in the uterine cavity due to obstruction of normal pathway following benign or malignant pathology. Incidence of pyometra in younger age group is 0.01-0.5% and in the elderly age groups its rises to 13.6%, but since 1980 only a few cases of spontaneous rupture of uterus due to pyometra have been reported in the literature. Various benign and malignant causes leading to obstruction of normal pathway are cervical carcinoma, leiomyoma, endometrial polyp, endometrial carcinoma, forgotten IUD, radiation cervicitis, and infection such as senile or chronic cervicitis, puerperal infections, and congenital cervical anomalies. Obstruction of the cervical canal

![Figure 1: Computed tomography image suggestive of collection and specks of air](image)

![Figure 2: Intraoperative view of uterus with sloughed fundus of uterus, (a) arrow and removed specimen after hysterectomy with multiple perforations posteriorly, (b) arrowheads](image)
and degenerative or necrotic changes in the wall of uterus lead to spontaneous perforation of uterus.\textsuperscript{9} Uterus mostly perforates from the fundus. Pus cultures are usually positive for \textit{E. coli} and anaerobes. Association with malignancy is seen in 35\% of cases, with cervical carcinoma being the leading cause.\textsuperscript{10}

Pre-operative diagnosis of spontaneous rupture of the uterus leading to peritonitis is a diagnostic dilemma for a surgeon. Classically, patients present with triad of purulent vaginal discharge, lower abdominal pain, and postmenopausal bleeding but is seen only in half of the patients.\textsuperscript{8} Non-specific symptoms include fever, nausea, and vomiting. Spontaneous rupture of pyometra is usually mistaken as peritonitis due to perforation of the gastrointestinal tract. Free gas in plain abdominal radiographs is detected in only 56\% cases.\textsuperscript{11} USG is sensitive for pyometra but has limited role in the detection of ruptured pyometra. CT scan and MRI are also seldom helpful in establishing pre-operative diagnosis of spontaneous rupture of pyometra. History, physical examination, and various radiological investigations are not able to find the exact cause in all cases of peritonitis and laparotomy seems to be the final court of appeal to settle the exact diagnosis.\textsuperscript{12}

Pyometra without rupture is managed with cervical dilatation, drainage, and antibiotic coverage for \textit{E. coli} and anaerobes.\textsuperscript{5} Whereas ruptured pyometra is seldom diagnosed pre-operatively and is mostly found on laparotomy and dealt by bilateral salpingo-oophorectomy, hysterectomy, and thorough peritoneal toileting. Patient without malignancy have good prognosis, but patients with associated comorbid conditions and malignancy have poor prognosis.\textsuperscript{13}

CONCLUSION

Spontaneous rupture of the uterus due to pyometra leading to diffuse peritonitis is a very rare condition with very few cases reported in the literature. Clinical presentation is similar to gastrointestinal tract perforation mimicking peritonitis. It is a diagnostic dilemma for a surgeon, and a possibility of this entity though very rare should be borne in mind in the elderly multiparous female with diffuse peritonitis as outcome improves greatly on timely diagnosis and management.

REFERENCES