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Case Report

Spontaneous uterine perforation presenting as acute abdomen: a diagnostic challenge

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ABSTRACT

Spontaneous uterine perforation resulting in generalized peritonitis in postmenopausal women is a very rare entity usually caused by pyometra and is associated with high morbidity and mortality. The clinical picture of uterine perforation secondary to pyometra are similar to hollow viscus perforation which makes preoperative diagnosis difficult. Definitive diagnosis can be made with laparotomy or laparoscopy. We report a case of 62 years old female patient who presented with acute generalized peritonitis with pneumoperitoneum having history of pigtail insertion right kidney for right non-functional kidney with gross hydronephrosis two days back, which was more complicating the clinical picture. This case report aims to alert surgeons to the possibility that uterine perforation secondary to pyometra also shows air under diaphragm apart from hollow viscus perforation.

Keywords: Uterine perforation, Pyometra, Postmenopausal, Pneumoperitoneum, Case report

INTRODUCTION

Pyometra is the accumulation of purulent material in the uterine cavity secondary to inability to adequately drain the uterine cavity.[1] It is a rare condition with a reported incidence between 0.1% to 0.5%. This incidence reaches up to 13.6% in postmenopausal women.[1,2] Uterine perforations is rare due to rich vascular supply of uterus. Pyometra develops gradually and with progression it will lead to enlargement the uterus, causing degenerative changes that may rarely lead to sloughing of the uterine wall with subsequent spillage of contents into the abdominal cavity.[3] Mostly uterine perforation presents at fundus but may occur anteriorly or posteriorly [4]. Pyometra with accompanying necrosis of the uterine wall can lead to spontaneous uterine perforation with diffuse peritonitis, a rare complication with a reported incidence of 0.01–0.05%. Pneumoperitoneum is seen in hollow viscus perforation, penetrating trauma, after laparotomy and laparoscopy. However, pneumoperitoneum in a case of uterine perforation is a very rare presentation. We report a case of 62 years old female with pyometra resulting in uterine perforation presenting with acute generalised peritonitis.

CASE REPORT

62 years old multiparous, post-menopausal female presented in the emergency department with history of sudden onset pain lower abdomen for 24 hours. Pain was associated with vomiting, abdominal distension, and constipation. Patient was a known case of type 2 diabetes mellitus. There was no history of vaginal discharge, vaginal bleeding. No history of previous IUD and vaginal pessaries. She had not undergone endometrial biopsy or dilatation curettage operations before.

Patient was already diagnosed with non-functional right kidney due to obstructive cause and was presented in urology department 2 days back where right sided Percutaneous nephrostomy (PCN) was inserted in view of gross hydronephrotic right kidney.

At presentation pulse rate of patient was 102/min, blood pressure of 98/64 mmHg, respiratory rate 24/min and SPO_2 was 92% at room air. On abdominal examination abdominal distension was seen and guarding, rigidity was present all over the abdomen. Bowel sounds were sluggish. On workup Hb of the patient was 9.7 gm/dl, total leucocyte count was 26800, blood urea- 56, creatinine- 0.97, serum albumin- 2.6 g/dl. HbA1c of the patient was 12.4 %. Chest X-ray shows air under right side of diaphragm (Figure 1). Abdominal X-ray shows dilated bowel loops with pigtail catheter in abdomen (Figure 2). Ultrasound abdomen was done which was suggestive of free fluid with multiple echogenic content in peritoneal cavity. Based on history, examination and X-ray findings diagnosis of acute generalised peritonitis cause hollow viscus perforation secondary to iatrogenic injury during PCN insertion was kept and patient planned for CECT abdomen.

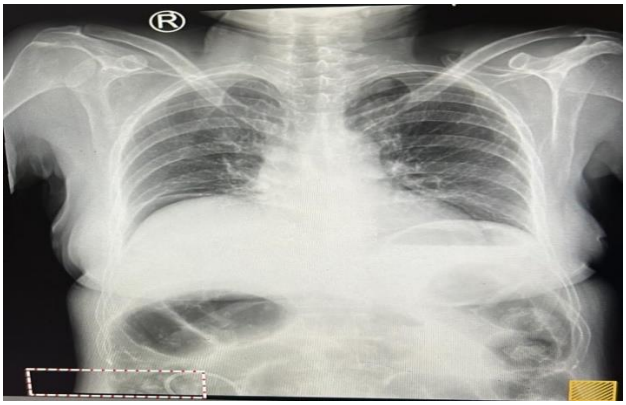

Figure 1: X-ray chest of the patient showing air under right dome of diaphragm.

Figure 2: Abdominal X-ray showing dilated bowel loops and pigtail catheter in abdominal cavity.

On CECT abdomen right kidney measures 8.4×8.8 cm shows gross hydronephrosis with papery thin parenchyma with pigtail PCN catheter in perirenal space with perirenal fluid collection. There was pyometra with thinning of uterine wall having suspicious discontinuity in post uterine wall communicating with collection in pouch of Douglas showing air fluid levels, free air seen in abdomen with mesenteric stranding with pneumoperitoneum p/o uterine rupture. Descending colon and sigmoid colon were also dilated up to 7.2 cm (Figures 3-5).

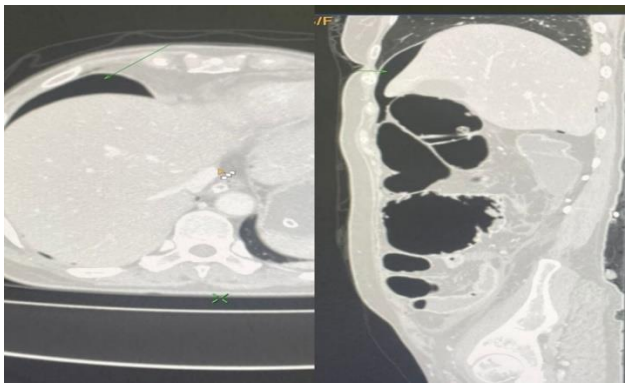

Figure 3: CECT abdomen showing pneumoperitoneum (arrow).

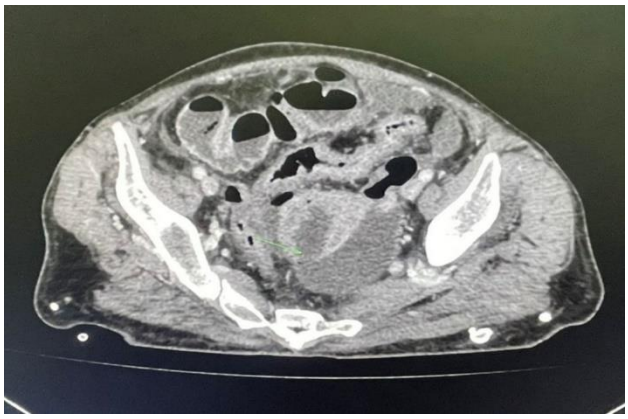

Figure 4: CECT abdomen showing breech in the continuity of uterine wall (arrow).

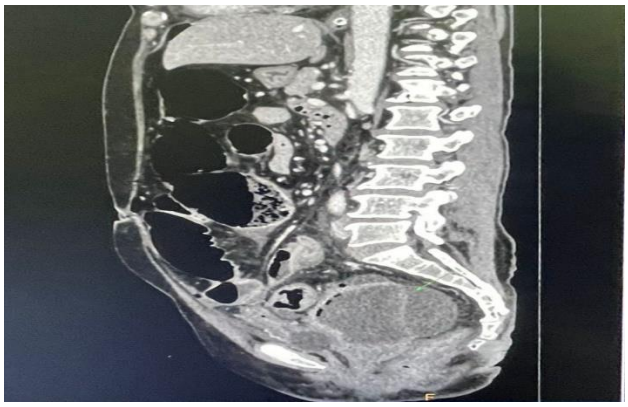

Figure 5: Sagittal view of CECT abdomen showing free fluid in POD (arrow).

Patient was taken up for exploratory laparotomy. Intra operatively there was about 1 litre of purulent fluid present in abdominal cavity. There were two perforations in the uterus. One in fundus of uterus and other in the posterior wall (Figure 6). There was no bowel perforation and sigmoid colon was densely adherent to left ovary thereby

causing proximal dilatation of sigmoid colon and descending colon (Figure 7).

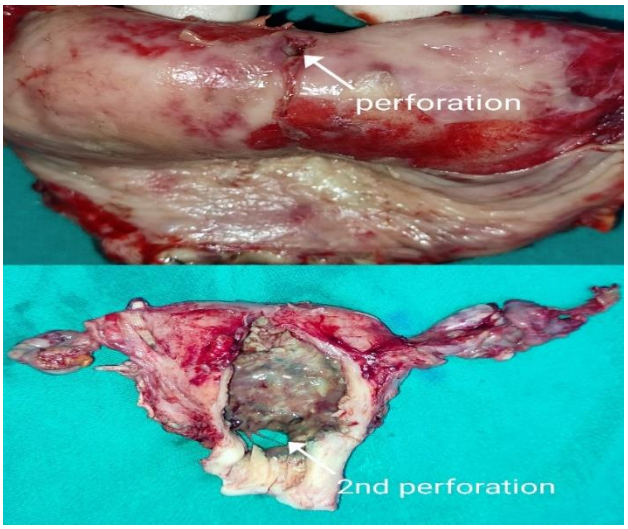

Figure 6: Photograph after TAH with BSO showing two uterine perforations.

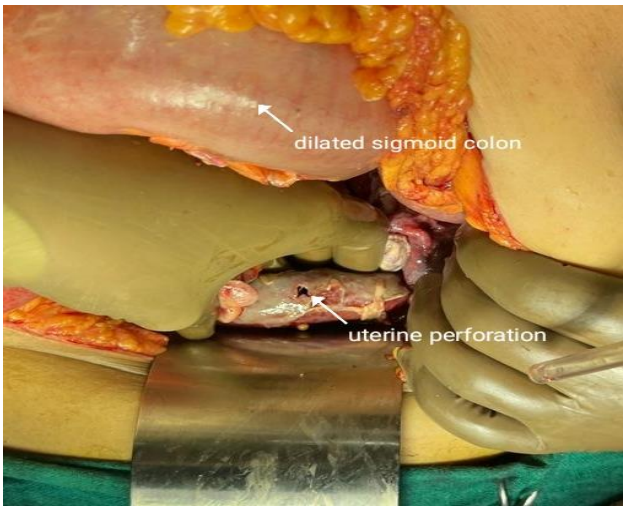

Figure 7: Intraoperative photograph showing uterine perforation and dilated sigmoid colon.

Total abdominal hysterectomy with bilateral salpingo-oophorectomy was done and thorough peritoneal wash is given and drain kept in pelvis. Post op period was uneventful and patient discharged on 7th POD in stable condition after correcting hyperglycaemia by endocrinologist. Pus sent for gram staining, ZN staining shows no growth of any organism. Pus culture shows growth of *Escherichia coli*. Final histopathological report shows hyperplasia of endocervical glands, with lymphomononuclear infiltration of stroma suggestive of ischemic necrosis uterus.

DISCUSSION

Pyometra is the accumulation of purulent material in the uterine cavity secondary to inability to adequately drain the uterine cavity. Although uterine perforation is more common in post-menopausal women, the spontaneous rupture of the uterus in the setting of pyometra is still very rare.[5] Ruptured pyometra has a median age of 73.8 years of age and have a 25-40% mortality rate after rupture.[6] As uterus is an intraperitoneal structure, its rupture due to underlying infection and spillage of pus into the abdominal cavity may lead to a surgical emergency. Causes of pyometra are benign and malignant neoplasms, post-radiation cervicitis, atrophic cervicitis, senile cervicitis, gross congenital anatomic abnormalities, age related endometritis, infective endometritis, and retained intrauterine device (IUD) or foreign body.[7] Pyometra secondary to malignancy carries a poor prognosis and should be the 1st differential diagnosis until proven otherwise.[8] In our patient there was no evidence of malignancy intraoperatively, she had no intrauterine device, and there was no history of endometrial biopsy or dilatation curettage operations before. Therefore, the most probable cause of pyometra was postmenopausal changes and stenosis of the cervix causing stagnation of discharge resulting in anaerobic infection causing perforation at fundus.

Comorbidities that have been associated with increased association of rupture include type 2 diabetes mellitus, underlying faecal or urinary incontinence, immobility, obesity, malnutrition, poor hygiene, immunocompromised, increased sexual activity, genital atrophy, and cervical insufficiency. The most common organisms in pyometra are flora of the genitourinary tract such as *Escherichia coli*, *Bacteroides*, *Streptococcus*, and other anaerobes. In our case pus cultures shows *Escherichia coli*, which is consistent with expected organisms from perforated pyometra.

Typical presentation of pyometra includes purulent vaginal discharge, postmenopausal bleeding, and generalized abdominal pain associated with nausea, vomiting, diarrhoea, fevers, and generalized weakness.[9] But sometimes patient may present with non-specific symptoms like in our case, patient presents with acute abdomen. X-ray chest will show pneumoperitoneum if there is uterine rupture. The mainstay of treatment for spontaneous uterine rupture in the setting of pyometra is total hysterectomy with bilateral salpingo-oophorectomy, broad-spectrum antibiotics, thorough abdominal toileting, and postoperative ICU admission for close monitoring.[10]

CONCLUSION

If a female patient presents with acute generalised peritonitis with pneumoperitoneum on imaging, high level of suspicion should be there to look for other causes of pneumoperitoneum apart from hollow viscus perforation. Proper detailed history is helpful to diagnose the condition. Spontaneous uterine rupture secondary to pyometra have high morbidity and mortality specially in post-menopausal, comorbid patient like in our case. Early diagnosis and timely intervention is required. Total

abdominal hysterectomy with bilateral salpingo-oophorectomy, thorough peritoneal toileting and broad-spectrum antibiotic coverage is the treatment of choice.

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