CASE REPORT

Perforative Peritonitis—Gastrointestinal Tract May Not Always Be the Source

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Received: 1 July 2015 / Accepted: 15 February 2016 / Published online: 29 February 2016
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Abstract Perforative peritonitis is the most common surgical emergency in general surgical practice. Gastrointestinal perforation is the etiology in the vast majority of the patients. However, occasionally, other rare causes may be encountered. One such cause of peritonitis is spontaneous perforation of non-gravid uterus. Uterine perforation is a potential complication of any intrauterine procedure and may be associated with injury to surrounding blood vessels or viscera such as the urinary bladder or intestine. Spontaneous uterine perforation is rare and less than 50 cases have been reported in the English literature. We are presenting two such cases of spontaneous perforation of the uterus in elderly postmenopausal women which presented with generalized peritonitis and were clinically indistinguishable from gastrointestinal perforation.

Keywords Spontaneous uterine perforation · Perforative peritonitis · Pyometra

Introduction

The abdomen is frequently called as Pandora's Box since the surprises are a rule rather than exception on exploratory laparotomy in spite of improved imaging that is available. Perforative peritonitis is one of the most common surgical emergencies in general surgical practices. Gastrointestinal

perforation is the most frequent cause and is seen in 90 % of the patients. Classical signs which clinch the diagnosis are diffuse guarding and rigidity of the abdomen with the presence of pneumoperitoneum on X-ray of the abdomen, classically defined as “gas under diaphragm.” We are presenting two cases which clinicoradiologically appeared as gastrointestinal perforation but intraoperatively were found to be spontaneously ruptured pyometra without an underlying malignancy.

Case Report

Case 1 A 60-year-old, hypertensive lady presented to us with acute abdominal pain of 3 days duration. She was hemodynamically stable and on abdominal examination, she had signs of generalized peritonitis. X-ray of the abdomen revealed pneumoperitoneum (Fig. 1a). The patient had history of osteoarthritis and was on intermittent courses of analgesics for last 2 years. Hence, a provisional diagnosis of peptic ulcer perforation was made. After adequate resuscitation, exploratory laparotomy was performed. Approximately a liter of pus was drained. The entire gut was traced from the stomach to the descending colon, but to our surprise, there was no evidence of perforation of any part of the gut. On careful examination, a perforation was noted in the uterine fundus about 2 × 1 cm in size. Per vaginal examination at this stage did not reveal any pathology. Since the patient was an elderly lady who had completed her family, panhysterectomy with peritoneal lavage was done. Postoperative course was uneventful and the patient was discharged on the fifth postoperative day. Histopathological examination of the uterus revealed only acute endometritis. At 1 year after surgery, the patient is in good health.

Presentation at a meeting: None
Source of support: None

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Fig. 1 **a** Case 1, chest X-ray showing pneumoperitoneum. **b** Case 1, intraoperative picture showing perforation of the uterus at the fundus (white arrow). **c** Case 2, chest X-ray showing pneumoperitoneum. **d** Case 2, hysterectomy specimen showing perforation of the uterus at the fundus (red arrow)

Case 2 A 70-year-old lady presented with acute abdominal pain of 5 days duration. She was hemodynamically stable and on examination, she had signs of generalized peritonitis. X-ray of the abdomen revealed pneumoperitoneum (Fig. 1c). After adequate resuscitation, exploratory laparotomy was performed via midline vertical incision. About 2 litres of pus was drained and there was a solitary perforation in the uterine fundus. Per vaginal examination at this stage did not reveal any pathology. Hysterectomy with peritoneal lavage was done (Fig. 1d). Her intra- and postoperative course was uneventful and the patient was discharged on the seventh postoperative day. Histopathological examination of the uterus revealed only chronic endometritis with cervicitis. At 2 months after surgery, the patient is in good health.

Discussion

Perforative peritonitis is the most common surgical emergency in India as in the rest of the world [1]. The source of perforation differs in different parts of the world with the duodenum being the most common site in India followed by the ileum [2]. Though improvement in the surgical technique, antibiotic therapy and intensive care support have improved the outcomes, surgical management of these cases remains demanding for the surgeons.

Though spontaneous rupture of the uterus is a documented finding in pregnant women, the occurrence of spontaneous perforation in a non-gravid uterus is quite rare. Only few cases have been reported in English literature where spontaneous perforation of the uterus without trauma or uterine anomaly has been described. The possible etiological factors in these cases may be leiomyoma, carcinoma of endometrium or

cervix, pyometra, or ischemia [3–5]. The probable pathogenesis of perforation is accumulation of the endometrial secretions due to inadequate drainage as a result of distal obstruction leading to increase in the intrauterine pressure and hence perforation of the fundus of the uterus into the peritoneal cavity. In both the patients described here, there was no cancer or leiomyoma on the final histopathological examination. Both were postmenopausal women and had no history of intervention in the recent past. Hence, atrophic endometritis with cervicitis leading to cervical stenosis and hence pyometra is the most probable mechanism. Pyometra is defined as the accumulation of pus in the uterine cavity. Overall, incidence is estimated to be between 0.01 and 0.5 %, though in elderly postmenopausal women, it may be as high as 13.6 % [6]. The classical triad of presentation includes purulent vaginal discharge, postmenopausal bleeding, and lower abdominal pain. However, up to 50 % patients may be asymptomatic [7].

The preoperative diagnosis of spontaneous uterine rupture in a non-gravid woman is very difficult since they present with the classical features of perforative peritonitis, though gynecological symptoms like vaginal discharge or bleeding are detectable in less than 10 % patients [8]. Management of this rare condition includes laparotomy with peritoneal lavage followed by either primary repair of the myometrium or hysterectomy.

Conclusion

Spontaneous uterine rupture should be a differential diagnosis in cases of perforative peritonitis in elderly women particularly in the absence of history of chronic analgesic intake or abdominal tuberculosis.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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