

CASE REPORT

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Declaration of ethical aspects

Acknowledgement of authorship: The author declares that he has contributed to the idea, study design, data collection, data analysis and interpretation, critical review of the intellectual content, and final approval of the manuscript we are submitting.

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Confidentiality of data: The author declares that he has followed the protocols of the Hospital Central de Maracaibo on the publication of patient data.

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Perforated peptic ulcer during the puerperium

Úlcera péptica perforada durante el puerperio

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ABSTRACT

Peptic ulcer is less frequent in pregnant women than in non-pregnant women. Although it rarely perforates during pregnancy and even less frequently during the puerperium, it is associated with an increased risk of maternal death. The use of non-steroidal analgesic and *Helicobacter pylori* infection are related to its pathogenesis. Due to its clinical features during pregnancy, puerperal sepsis and paralytic ileus may delay diagnosis. After delivery, clinical signs such as new-onset tachycardia, abdominal pain, and increased distension should suggest the diagnosis. Since complications can cause significant morbidity and mortality during the puerperium, early detection and prompt treatment are imperative. Treatment of perforated peptic ulcer during the puerperium is the same as for an urgent abdominal surgical situation. Successful repair with omental patching usually seals the defect and prevents additional perforations. A case of perforated peptic ulcer during the puerperium is presented.

Key words: Peptic ulcer, perforated, Pregnancy, Puerperium, Morbidity, Maternal mortality

RESUMEN

La úlcera péptica es menos frecuente en las embarazadas que en las mujeres no gestantes. Aunque rara vez se perfora durante el embarazo y aún menos frecuentemente durante el puerperio, está asociada con mayor riesgo de muerte materna. El uso de analgésicos no esteroideos y la infección por *Helicobacter pylori* están relacionados con su patogénesis. Debido a sus características clínicas durante el embarazo, la sepsis puerperal e íleo paralítico pueden retrasar el diagnóstico. Luego del parto, signos clínicos como taquicardia de reciente aparición, dolor abdominal y el aumento de la distensión deben sugerir el diagnóstico. Dado que las complicaciones pueden provocar morbilidad y mortalidad significativas durante el puerperio, la detección precoz y el tratamiento rápido son imperativos. El tratamiento de la úlcera péptica perforada durante el puerperio es el mismo que el de una situación quirúrgica abdominal urgente. Una reparación satisfactoria con parche omental suele sellar el defecto y evitar nuevas perforaciones. Se presenta un caso de úlcera péptica perforada durante el puerperio.

Palabras clave. Úlcera péptica, perforada, Embarazo, Puerperio, Morbilidad, Mortalidad materna

INTRODUCCIÓN

Peptic ulcer disease is rare during pregnancy and puerperium. It can be difficult to diagnose because its most common symptoms (nausea, vomiting, and epigastric pain) may be mistaken with those produced by pregnancy^(1,2). Its occurrence is associated with *Helicobacter pylori* infection and use of non-steroidal analgesics⁽¹⁾.

Postpartum gastrointestinal complications are rare, with the colon being the site with the highest frequency of lesions, especially in patients undergoing cesarean section⁽³⁾. Perforated peptic ulcer is a very rare complication of the puerperium. Its clinical manifestations during pregnancy may lead to misdiagnosis of paralytic ileus and, in some cases, puerperal sepsis⁽⁴⁾. Early diagnosis and timely treatment of perforation during the puerperium are essential, as delay can lead to significant maternal morbidity and mortality^(4,5). A case of a perforated peptic ulcer during puerperium is presented.



CASE REPORT

A 26-year-old female patient presented to the obstetrical emergency department with abdominal pain in the upper abdomen of sudden onset, recurrent vomiting, initially alimentary and then bilious, loose stools, fever, and vague discomfort in the lower abdomen. The patient reported a history of emergency cesarean section for fetal distress at 38 weeks without complications, being discharged 3 days earlier. She denied a history of gastrointestinal disease, regular use of nonsteroidal analgesics, alcohol/smoking before or during pregnancy, or other significant medical or surgical history.

On admission, the patient was in fair condition, afebrile and moderately dehydrated. Vital signs were a heart rate of 90 beats per minute, blood pressure 110/70 mmHg, respiratory rate 18 breaths per minute, and oxygen saturation 98% on room air. Physical examination showed slight abdominal distension with epigastric tenderness and absence of bowel sounds with no signs of peritoneal irritation. Gynecological examination showed uterus at the level of the umbilical scar with closed cervix and non-fetid bloody lochia. Digital rectal examination ruled out the presence of macroscopic blood in the stool.

Laboratory test results showed hemoglobin values of 8.4 g/dL, white blood cells 15,200/mL, neutrophils 83% and C-reactive protein 125 mg/L (normal value less than 10 mg/L). The rest of the renal and hepatic functional tests, electrolytes, coagulation profile, and urine examination were within normal limits.

Abdominal radiographic images without contrast and with the patient standing showed pneumoperitoneum, distended bowel loops and evidence of intraperitoneal fluid. Abdomino-pelvic ultrasound confirmed the presence of fluid in the right upper quadrant, around the liver and gallbladder, with multiple gas-filled bowel loops. No evidence of lesions in other abdominal and pelvic organs was found. In view of these findings, it was decided to perform abdominal computed tomography, confirming the presence of pneumoperitoneum and fluid in the right parietal slider (Figure 1).

The patient was initially treated with intravenous fluid replacement and broad-spectrum antibiotic therapy without improvement of the clinical conditions in the following 24 hours. Despite the administration of antiemetics, vomiting was increasingly frequent and with greater bile staining, so it was decided to perform an exploratory laparotomy.

During surgery, approximately 500 mL of gastric fluid and food particles were found inside the peritoneal cavity, proceeding to drainage and peritoneal lavage with physiological saline. In the exploration of the intestinal loops, a perforation of approximately 9 millimeters in diameter was found in the anterior face of the second portion of the duodenum with lax adhesions to neighboring organs. The lesion was repaired using a patch of reinforcement omentum (Graham patch) fixed with 2-0 silk (Figure 2). The rest of the abdominal organs showed no alterations. Careful inspection of the rest of the gastrointestinal tract and abdominal cavity revealed no other abnormality. A new peritoneal lavage was performed and drains were fixed in the subhepatic and pelvic region.

The patient was managed with a nasogastric tube and without food intake for 36 hours. She remained clinically stable during the rest of the hospitalization and was discharged after 7 days. She underwent a breath urea test for *H. pylori* which was positive, so she was treated with a combination of omeprazole, amoxicillin, metronidazole, and clarithromycin for 14 days. At the postoperative visit after 4 months, the patient showed complete recovery.

FIGURE 1. COMPUTED TOMOGRAPHY IMAGE SHOWING INTRAPERITONEAL FLUID AND GAS-FILLED BOWEL LOOPS.

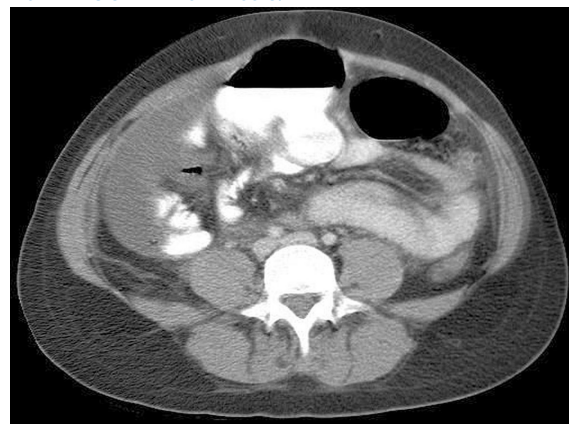
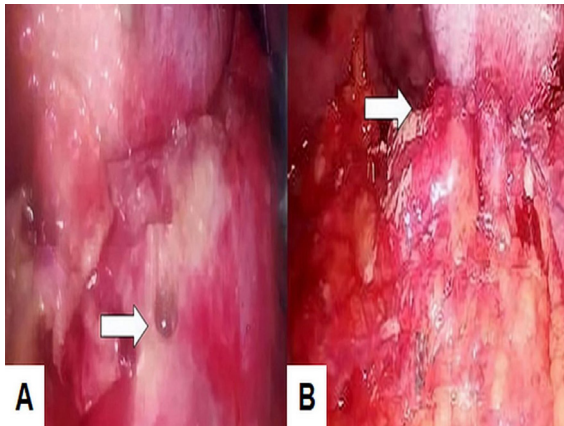




FIGURE 2. INTRAOPERATIVE IMAGE OF THE PERFORATED PEPTIC ULCER. THE ARROW POINTS TO: A) PERFORATION SITE IN THE DUODENUM, AND B) OMENTUM PATCH OVER THE PERFORATION SITE.



DISCUSSION

Perforated gastric or duodenal ulcer is a surgical emergency associated with short-term mortality close to 30% and therefore requires early diagnosis and surgical treatment⁽⁶⁾. Perforated duodenal ulcer during pregnancy or puerperium is relatively rare since pregnancy reduces the symptoms of peptic ulcer disease and the rate of complications seems to decrease significantly⁽²⁾. Its estimated incidence during pregnancy is approximately 1-6 cases per 23,000 pregnancies, but the frequency during the puerperium is unknown⁽⁷⁾. The usual symptomatology of duodenal perforation may be scarce or absent during the puerperium and is usually attributed to obstetric causes^(8,9), causing diagnostic and therapeutic delays⁽³⁾. However, imaging studies can contribute to an early diagnosis⁽¹⁰⁾.

Duodenal ulcer is a product of *H. pylori* infection. The other causal factor is the use of non-steroidal anti-inflammatory drugs. Both of this impair the ability of the gastrointestinal system to protect itself from both acid and pepsin⁽⁴⁾. In view of the above, it is mandatory to ask about medical and therapeutic history during the pre-conceptional and prenatal periods. Evidence indicates that about 70% of patients with perforated peptic ulcer have no history of previous treatment, and about 90% report a history of use of non-steroidal anti-inflammatory drugs⁽¹¹⁾. Other less frequent causes are Zollinger-Ellison syndrome, gastroesophageal reflux disease, and gastric cancer⁽⁷⁾.

The triad of classic symptoms of a perforated peptic ulcer includes abdominal pain of sudden-onset, tachycardia, and abdominal rigidity. Acute abdominal pain can be confused with puerperal or postoperative discomfort⁽³⁾. Tachycardia is caused by the compensatory reflex to intense pain, systemic inflammatory response due to chemical peritonitis and fluid deficit secondary to poor intake, vomiting, and/or pyrexia⁽¹⁾. However, tachycardia of recent onset and without primary changes in blood pressure, and constant abdominal pain in the immediate puerperium (between 10 hours and 3 days after delivery), accompanied by progressive abdominal distension should be considered as alarm signs, since they can be erroneously diagnosed as paralytic ileus which is very frequent during the postoperative period⁽⁴⁾.

The presence of pneumoperitoneum in the simple abdominal X-ray with patient standing up is highly suggestive of perforation of the hollow viscera⁽⁵⁾. However, in the postoperative setting, radiological demonstration should not play a critical role in the decision for surgical exploration, as this radiological sign following abdominal surgery is present in more than two-thirds of patients and may take 1-24 days to disappear⁽¹²⁾.

Abdominal ultrasound can identify some indirect signs of perforation, such as decreased peristalsis and the presence of free fluid between the intestinal loops. It has the advantage that it can be performed easily and comfortably for the patient and without exposure to ionizing radiation⁽¹⁰⁾. The abdominal computed tomography allows ruling out other pathologies such as abdominal aortic aneurysm or acute pancreatitis. Laboratory tests should include complete hematology, urea, creatinine, serum electrolytes, liver function tests and serum amylase. Laboratory tests are not useful in the diagnosis of perforated peptic ulcer but may help to exclude other conditions⁽⁵⁾.

The treatment of perforated peptic ulcers during the puerperium is the same as the standard treatment for acute abdominal surgical emergency. This includes fluid resuscitation, correction of possible electrolyte imbalances, analgesia and surgical intervention. Laparotomy is the surgical intervention of choice because ad-



equating tissue exposure is necessary for proper visualization and peritoneal lavage. The use of laparoscopy may be more useful in cases that appear later in the puerperium⁽¹³⁾. Repair by omental patch is generally successful in sealing the perforation and avoiding new perforations. Treatment for *H. pylori* infection is also necessary⁽⁷⁾. Postoperative intra-abdominal abscess is the most frequent complication of this type of surgery⁽¹⁴⁾. Secondary wound infections and septicemia may also occur due to peritoneal contamination by intestinal contents, so it is mandatory to use broad-spectrum antibiotic therapy in the postoperative period⁽¹⁵⁾.

Perioperative hemodynamic changes, increased psychological stress and the use of non-steroidal analgesics during the postoperative period may increase the risk of duodenal ulcer perforation. In patients with risk factors, antacids and histamine H₂-receptor antagonists should be administered 30 minutes before surgery, and long periods of fasting during the postoperative period should be avoided⁽⁵⁾.

In conclusion, perforated peptic ulcer during the puerperium is a rare and potentially fatal condition. It is necessary to consider this complication in patients with tachycardia, abdominal pain, and distension, as it can be confused with paralytic ileus. Imaging studies are useful tools that can decrease the mortality rate. However, this condition must be taken into account for prompt diagnosis and appropriate treatment.

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