Volvulus in Pregnancy: A Diagnostic Dilemma

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In this case report, we describe a pregnant female patient at 27 weeks' gestation with a rare complication of volvulus. Her initial symptom was acute cramping pain of the lower right abdomen. Surgical intervention was performed under the impression of peritonitis. Pathologic diagnosis revealed volvulus of the mid ileum. The remainder of her pregnancy was uneventful. The physiologic changes of pregnancy may predispose the parturient to bowel obstruction due to compression of the gravid uterus against the intestine. If volvulus is suspected, then emergent surgery should be performed. Delays in treatment may result in septic shock and even death. We present this case to remind obstetricians of such rare causes of acute abdomen during pregnancy.

Key Words: obstruction, pregnancy, volvulus
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Volvulus is an uncommon complication of pregnancy, but requires immediate surgery. It occurs when the intestine winds upon itself resulting in acute intestinal obstruction and severe pain. The incidence of volvulus in pregnancy has been described as 1/1,500–66,000 deliveries [1]. Symptoms may range from mild intermittent abdominal cramping to severe persistent pain with nausea, vomiting, or constipation. It is therefore imperative that immediate exploratory laparotomy be performed when there is any suspicion of volvulus in pregnant women. The patient should not be denied access to necessary abdominal films, and doctors should keep this in mind when dealing with acute abdomen pain in pregnant patients.

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Case Presentation

A 22-year-old pregnant female, gravida 1 para 0, was first seen at our emergency department on the morning of July 24, 2004 at 27 weeks of gestation with the chief complaint of epigastralgia. Her previous prenatal history at another local hospital was uneventful. She had suffered from intermittent epigastralgia with acute onset since 3 AM, so she visited a local hospital. The cramping sensation radiated to her back and she suffered nausea, vomiting, and diarrhea as well. Due to acute abdomen, she was transferred to our tertiary institution. On initial examination, mild lower abdomen pain was present with substernal rebounding pain. No watery or bloody vaginal discharge was noted.

She was examined by our attending obstetrician, but no uterine contractions were noted on fetal monitor and sonography did not reveal any abnormal lesion. Her past medical and surgical history was unremarkable. Physical examination revealed a distended abdomen with no bowel sounds. Further examinations

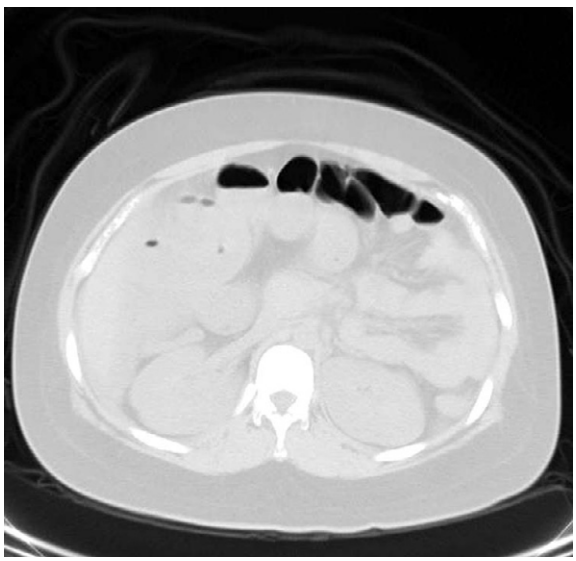

Figure 1. *Abdominal computed tomography with shielding shows conspicuous air–fluid level.*

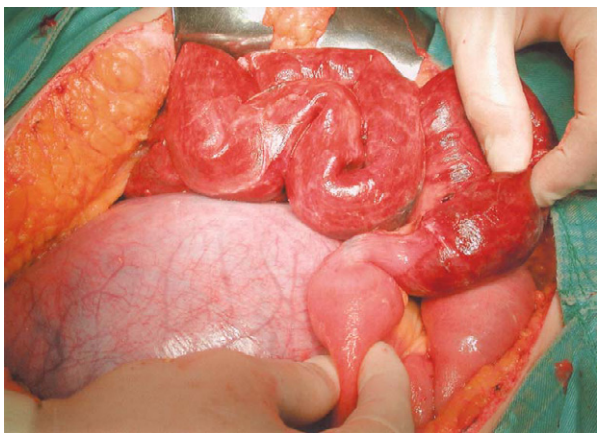

Figure 2. *Above the gravid uterus lies the necrotic ileum on the left and normal section on the right.*

were performed at the emergency room (ER), including kidney urinary bladder (KUB) and pelvic computed tomography (CT), which reported ileus due to conspicuous air–fluid level and thin intestine wall (Figure 1). A complete blood count (CBC) in the morning showed white blood cell count (WBC) of 14,210/μL and C-reactive protein (CRP) of <5.0 μg/mL. Other hematologic and biochemical profiles were normal.

After consultation with the surgeon, she was admitted to our obstetric ward. Nothing per mouth was advised and nasogastric tube was used for decompression. Intravenous fluids and supportive treatment were provided. CBC was followed up in the evening at 6:30 PM and showed WBC of 18,330/μL. During her entire period in the ER and our ward, she complained of severe cramping pain, especially of the right abdomen, and appeared extremely dyspneic and tachycardia was evident. Later CBC showed WBC of 20,210/μL and CRP increased to 58.5 μg/mL. Due to development of peritoneal signs and muscle guarding, a consensus was reached to perform emergent laparotomy under the suspicion of peritonitis.

Intraoperative findings showed ischemic bowel with necrosis and total volvulus torsion (360°) at the terminal ileum proximal to the ileocolic valve at approximately 10–50 cm (Figure 2). A segmental red block of ileum was noted with swelling and gangrene change about 30 cm in length. Adhesion bands were seen at the ileocolic area. A midline vertical incision extending from the sternum to the lower abdomen was done. Surgical resection and end-to-end ileotransverse anastomosis was performed and she was transferred to our gastrointestinal surgical ward.

The pathology report showed ischemic enteritis and chronic peritonitis. The resected specimen measured 70 cm and diffuse hemorrhage was seen on gross examination. Only 4 cm of the resected ileum was classified as normal, while the rest of the ileal mucosa was diffusely eroded with thinning wall and focal gangrenous changes. After several days of recovery, her bowel movement returned to normal and she was therefore discharged. She delivered a healthy term infant 11 weeks later.

Discussion

Delays in volvulus diagnosis in pregnancy often result in grave consequences in maternal and neonatal morbidity and mortality. The diagnosis of volvulus is difficult in pregnancy and is often retrospective. The "whirlpool" sign described by Chen et al was negative in this case [2]. This sign around the superior mesenteric vascular pedicle evident on CT was recommended by Chen et al as a feature highly suggestive of volvulus. This sign has, however, not always been visible [3] and remains inconclusive. The decision to perform X-ray films during pregnancy is often met with unfavorable response and discouragement. It is important to highlight the fact that radiation exposure to the fetus from single or several X-rays is minimal, and that the pregnant patient should never be punished this way by being denied access to proper

diagnostic examinations. At present, there has been no clear benefit of Doppler ultrasound in pregnancy [3].

It has been postulated that the gravid uterus may compress or twist the intestine during expansion in the pelvis thereby causing intestinal obstruction. This may be because the intestine is gradually displaced cephalad as pregnancy progresses [4]. Sherer and Abulafia noted that bowel obstruction in pregnancy often results from previous laparotomy adhesions or volvulus [3]. Other possible complications that should also be considered in differential diagnosis include appendicitis, hyperemesis gravidarum, preterm labor, uterine rupture, and placenta abruption.

There has also been disagreement as to the most common location of volvulus in pregnancy. Two sets of authors [5,6] reported that the sigmoid colon is the most common site, followed by the small intestine and cecum. Allen reported that the small intestine is the most common site of occurrence [7]. Surgical resection in volvulus is the preferred treatment, as this eliminates risk of recurrence and decreases morbidity and mortality [3]. Detorsion has also been suggested as an option if the bowel has not undergone necrosis and ischemia, however there remains a risk of recurrence.

The most common stage of pregnancy susceptible to volvulus has not yet been described, but has mostly been confined to the second trimester. Singla et al reported that during 16–20 weeks and 32–36 weeks, the uterus undergoes rapid change in size when the uterus becomes an intra-abdominal organ [8]. This excessive change in size also occurs postpartum on exit of the fetus. Sherer et al described a case of postpartum volvulus after cesarean delivery [3]. The most common presenting symptom is abdominal pain or tenderness [4].

Singla et al also described a case of volvulus that resulted in death of a pregnant female [8]. Although volvulus is not often seen in pregnancy, one should bear this in mind if a patient presents with excruciating abdominal pain, so as to avoid delay in diagnosis and possible complications such as peritonitis, shock, and death. It is quite common to assort any discomfort during pregnancy to normal physiologic changes, therefore doctors should have a heightened awareness of both common and uncommon gastrointestinal changes of pregnancy.

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懷孕合併腸扭結之個案報告

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我們報告一例罕見懷孕合併腸扭結的個案，此患者懷孕 27 週，因急性右下腹疼痛，懷疑急性腹膜炎而接受手術治療，術中發現中段迴腸扭結，術後患者恢復良好，足月產下一子，懷孕期間因胎兒佔據骨盆腔的空間，較容易發生腸扭結，妊娠期間的急性腹痛原因因不易診斷，但倘若延遲治療可能造成嚴重併發症甚至死亡，我們提出這個個案，是為了提醒產科醫師，注意妊娠期間少見腹痛之原因。

關鍵詞：阻塞，懷孕，腸子扭結

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