

## ***Small bowel volvulus in a primigravida woman: Case report***

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### **Abstract**

Volvulus of the small bowel, although being rare, carries a high risk of strangulation and ischemic necrosis. Preoperative diagnosis is difficult and may be complicated by pregnancy, labor and the post-cesarean-section state. Delay in diagnosis and surgical intervention increases morbidity and mortality rates.

We present a 20- year- old primigravida woman (GA=10 weeks) with massive intestinal necrosis. Her initial symptoms were abdominal pain and nausea. Her complaints were attributed to pregnancy and she came with acute surgical abdomen.

Emergent laparotomy was performed. Gangrenous, distended loops of small intestine passed through a defect in the mesentery were resected. Primary end to end anastomosis of jejunum and ileum was done and the defect causing volvulus was repaired.

It is concluded that surgical acute abdomen must be considered in differential diagnosis of abdominal discomfort in pregnancy. In the case of small bowel volvulus early surgery is mandatory to reduce the risk of gangrene, which is known as doubling the mortality rate.

**Key words:** *acute abdomen, pregnancy, bowel strangulation, small bowel volvulus, bowel obstruction*

### **Introduction**

Acute abdomen in pregnancy remains one of the most challenging diagnostic and therapeutic dilemmas today. The incidence of acute abdomen during pregnancy is 1 in 500–635 pregnancies (1). Despite technical advances in case diagnosis, preoperative diagnosis of surgical acute abdomen during pregnancy is still inaccurate. Laboratory parameters are not specific and often altered as a physiologic consequence of pregnancy.

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In our review of available literature we found less than fifteen cases of volvulus reported in pregnancy for the last two decades.

### **Case report**

A 20- year-old primigravida woman with severe abdominal pain and nausea was admitted to obstetrics ward of Ziaeean Hospital in 18 august 2005.

She looked ill, pale, dehydrated and agitated with modest level of cooperation. Her chief complaint was periumbilical pain from a few days ago not responding to usual medications. Patient had nausea without vomiting and reported a normal bowel habit. The pregnancy test was detected to be positive one week ago and her ill

condition was attributed to pregnancy. In clinical examination temperature was 37 °C, pulse rate and respiratory rate were 150 and 40 per minute and Blood pressure was 70/40 mmHg. Upon her arrival 25 ml concentrated urine was evacuated by urine catheter. Abdominal examination revealed peritoneal irritation. Hemoglobin was 8.1mg/dl, creatinin was 0.6 mg/dl, sodium and potassium were 137 and 4.6 mmol/l. White blood cell count was 19600 in microliter (90% polymorphonuclear, 7% lymphocyte). Arterial blood gas report was as below:

ph=7.13, pco<sub>2</sub>=31.4, hco<sub>3</sub>=10.1, po<sub>2</sub>=38, o<sub>2</sub> saturation=99.8

(4-6 lit/min oxygen was administered).

Her past medical history was not indicative. Hydration with 3 liters of ringer through jugular veins was performed in 15 minutes and patient was transferred to operating room subsequently. Under general anesthesia and with midline incision laparotomy was performed. Approximately 300ml blood and clot were evacuated. Gangrenous, malodor distended loops of small intestine passing through a defect in the mesentery were observed giving rise to the small bowel volvulus, and approximately 200 centimeters of jejunum and ileum was necrotic. Uterus was 10 weeks pregnant and ovaries and fallopian tubes appeared normal. Resection of strangulated tissue and end to end anastomosis of jejunum and ileum performed. Also mesentery defect repaired. One unit packed cell transfused and intravenous keflex, gentamicin and clindamycin administered.

During first 36 hours she had 38-39 °C fever. Patient received antibiotics for five days and tight control of intake and output performed. Four days after operation, sonography revealed a dead fetus with 10 weeks age. On sixth postoperative day the patient tolerated soft diet. Ten days after admission,

patient was discharged with good general condition.

Three weeks later curettage was performed due to incomplete abortion.

Pathologic report of the resected tissue confirmed transmural hemorrhagic infarction with involvement of both surgical margins.

The patient was followed up to the time of this article and she had not any problem.

## Discussion

Non-obstetrical acute abdomen during pregnancy must be diagnosed early and accurately, because surgical treatment is indicated in most cases, as in nonpregnant women. Nevertheless diagnosis of acute abdomen during pregnancy is difficult due to: (a) expanding uterus dislocates other intra-abdominal organs and thus makes physical examination very difficult, (b) high prevalence of nausea, vomiting, and abdominal pain in the normal obstetric population, and (c) general reluctance to operate unnecessarily a gravid patient.

Appendicitis is the most common cause of acute abdomen during pregnancy (1 in 500–2000 pregnancies), which amounts to 25% of operative indications for non-obstetric surgeries. Acute cholecystitis and Bowel obstruction are the second and third most common causes of acute abdomen during pregnancy (occurring 1 in 1600–10,000 and 1 in 1500–16,000 pregnancies respectively) (1, 2). Bowel obstructions are mostly due to presence of adhesion bands (60-70%) and volvulus (25%) (1).

Volvulus, occurring most frequently in the sigmoid and very rarely in the small bowel, carries a high risk of strangulation and ischemic necrosis (3). It is usually caused by the rotation of a loop of small intestine around an adhesion band or stoma (4). Primary small bowel volvulus occurs without any predisposing cause. It is rare in western

countries but common in Africa, India, Nepal and Middle east (3, 5, 6). Early diagnosis and management is essential to avoid infarction of bowel. The condition may result in a maternal mortality rate of 6–20% and a fetal loss in 26–50% of the cases even with a delay of 24 hours (7). Although volvulus is a very rare condition in pregnancy, most cases of obstruction secondary to small bowel volvulus occur in the third trimester or puerperium (2,3,8,9). Preoperative diagnosis is difficult and may be complicated by pregnancy, labor and the post-caesarean-section state. It is supposed that gradual enlargement of the uterus in pregnancy causes partial obstruction of the small bowel with proximal distension and torsion at the point of fixation (3) or increase in uterine size in the third trimester and sudden decrease during the puerperium may predispose to small bowel volvulus (10).

It is noticeable that our young patient was in first trimester of pregnancy without any previous history of surgery. Her discomforts were attributed to pregnancy despite seeking medical attention several days before massive bowel necrosis. Fortunately she was young and survived after surgical intervention with no need to intensive care unit admission.

The cardinal presenting symptom is abdominal pain. The onset of symptoms is often rapid with severe central abdominal pain being exceedingly common, suggesting that the initial presentation may result from mesenteric torsion rather than luminal obstruction (3,11). Other symptoms include nausea and vomiting which are common in normal pregnancy. There is no single specific diagnostic clinical sign or abnormality in laboratory or radiologic findings (12). Fortunately perforation of small bowel is uncommon and resection and primary anastomosis is a safe procedure in cases of necrosis (3).

Delay in diagnosis and surgical intervention increases morbidity and mortality rate. Goals for treatment of small bowel volvulus should include physician awareness of this uncommon diagnosis, accurate workup, and advanced surgical intervention (12). Therefore, close cooperation between surgeon and obstetrician is obligatory. The failure to perform an exploratory laparotomy cannot be justified (12) but especially in early onset of disease, laparoscopic approach may be a safe, feasible, and favorable option for correct diagnosis and appropriate treatment (13). Retrospectively reviewing the case we presume if in early stage of her condition, precise evaluation was performed, laparoscopy could be helpful in diagnosis and treatment instead of this extensive operation.

We conclude that volvulus of the small bowel is a rare cause of acute abdomen that must be considered. Early surgery is mandatory to reduce the risk of gangrene, which is known to double the mortality. Laparoscopy will be helpful in early diagnosis and therapy (13-15).

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