



Case Report

Intestinal necrosis in the context of torsion in a pregnant woman: A case report study

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ABSTRACT

Introduction and importance: Bowel obstruction is known as an increasing complication during pregnancy. This case report showed a pregnant woman with intestinal necrosis in the context of torsion.

Case presentation: A 33-year-old Asian woman, primigravida at 25 weeks and 4 days gestation, presented to hospital with a history of nausea and epigastric pain. Patient' past medical history showed usual evaluating abdominal pain with vaginal bleeding and leaking of fluid in her obstetric history.

Clinical discussion: The patient was discharged from hospital in a good general condition one week after the surgery. A full-term infant weighted 3000 g was delivered by caesarean section in 39 weeks gestational age with 1–5 minute Apgar scores of 7–10.

Conclusion: The aim of the study is to report a new case of intestinal necrosis in a pregnant woman.

1. Introduction and importance

Intestinal obstruction is one of the most common surgical emergencies. The most common causes are well known and some cases get improved at their first steps without any complication. There are some rare causes of intestinal obstruction that require prompt diagnosis or treatment, otherwise progress to gangrene [1]. The late diagnostic stage of intestinal necrosis occurs due to reduced blood flow to the digestive tract. This serious condition is often fatal and can lead to vascular occlusion, colitis, obstruction, or infection. In adults, the most common cause of intestinal necrosis is acute mesenteric occlusion, and, less commonly are, perforation, chronic ischemia, inflammatory disease and other mechanical disorders [2,3].

Intestinal obstruction occurs in about 60% of cases due to adhesions caused by previous surgeries. Other cases of Volvulus includes: intussusception, hernia, Crohn's hernia, and neoplasms [4]. Pain, distention, vomiting, obstipation and etcetera are of little wonder that obstruction during pregnancy remains a diagnostic enigma. Intestinal obstruction complicating pregnancy was first reported by Houston in 1830 [5].

Intestinal obstruction in pregnancy is considered as acute abdominal pain and therefore requires emergency surgery [4,6]. Prevalence of this complication in 1 in 17000 in each pregnancy case and is the second

most common cause of ectopic surgery (extra uterine abdominal emergency in pregnancy) after appendicitis [4,7]. Among the important differential diagnosis of pain in the upper part of the abdomen, we can mention perforated ulcer, visceral aneurysm, and rupture of the liver as life-threatening causes. Among other common causes, we can mention gallstones and pneumonia. Acute hepatitis, pancreatitis, rectus sheath hematoma and hiatal hernia can be mentioned as uncommon causes. Of course, according to the clinical symptoms and history, the range of differential diagnosis can be limited and the appropriate treatment can be given to the patient. Intestinal obstruction during pregnancy is a rare and dangerous complication and if not diagnosed in time, it is associated with maternal and fetal mortality and morbidity. Maternal mortality due to pregnancy complications is one of the most important indicators of the developed countries and consists of a set of different factors that intervention at any stage can prevent the occurrence of subsequent similar deaths. Presenting symptoms and signs were similar to those of the no pregnant patient, abdominal pain was present in 98% of patients, vomiting in 82% and tenderness to palpation in 71%. In 82% of patients, obstruction was evident on radiographic evaluation [8]. In this case report, we present a rare and interesting case of intestinal necrosis in the context of torsion during her pregnancy.

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2. Case presentation

A 33-year-old Asian woman, primigravida at 25 weeks and 4 days gestation (based on her LMP= Last Menstrual Period) presented to hospital with a history of nausea and abdominal pain. She didn't acclaim to have any history of drug consumption or addiction. There was also no considerable contemporary debate of any genetics malformation as well as psychosocial illnesses or even smoking. She had a left oophorectomy due to ovarian cancer in 2007 and has done 15 sessions of chemotherapy. She also underwent cerclage performing during this pregnancy due to cervical shortness. The patient had no vaginal bleeding, amniotic fluid leakage or uterine contractions at the time of admission and the fetal heart rate was (FHR = 150). Vital signs were stable: Blood Pressure (BP) = 110/70 mmHg, Pulse Rate (PR) = 90/min, Respiratory Rate (RR) = 17/min, Temperature (T) = 36.8 °C, Fetal Heart Rate (FHR) = 135/min, FH = 26 weeks. Pregnancy ultrasound was normal. The patient was hospitalized due to abdominal pain with epigastric pain preference. At the beginning of the hospitalization, there was suspicion of cholecystitis and pancreatitis due to the location of the pain in the epigastric area, as well as nausea and vomiting. LFT amylase and lipase tests were requested for her and drug treatment was performed by Pantoprazole. Due to her continuous pain despite drug treatment, normal tests, internal consultation and surgery were requested for her. The results of her ultrasound examination are as follows:

The image of dilated loops containing abundant fecal and no peristalsis corresponding to the epigastric region was seen at the patient's tenderness site (possibly transverse colon loops). Distal loops in this area were collapsed. A brief free interlope fluid was seen in this area. The above evidence may be secondary to obstruction of the intestinal loops. Upper abdomen MRI was recommended. Normal-sized liver and normal parenchymal echo were seen. The image of a stone with a diameter of 6 mm in the neck of the gallbladder, and a normal wall thickness with a luminal diameter of 37 mm was seen. CBD was measured with a normal diameter. There was no evidence of inflammation or stranding in the head and trunk of the pancreas and the pancreas was seen with normal diameter and parenchymal echo. Pancreatic tail was not examined due to pregnancy and Flatulence. The spleen, kidneys and bladder were seen in their normal size. In first line we have ultrasound and in second line it depends on the ddx, MRI is preferable to CT and concerns about the possible fetal effects of ionizing radiation should not prevent performance of medically indicated diagnostic procedures.

According to the patient's continued abdominal pain despite hydration and PPI administration, internal consultation and surgery were requested. Within a few hours of admission, patient developed severe and diffuse abdominal pain. In contrast-enhanced MRI: MRI performed only to examine upper abdomen, gallbladder, bile ducts and pancreas which all were in normal size and thickness. Eventually, due to the patient's deterioration and the addition of guarding and tenderness rebound with the diagnosis of acute abdomen and suspected peritonitis, the patient underwent emergency laparotomy, in which small bowel torsion was detected and a part of the small intestine was necrotic (Fig. 1).

Under general anesthesia in sterile conditions and after tearing the abdomen with a midline incision, above and around the umbilicus was opened. Upon entering the abdomen, there were about 500 cc purulent secretions that were sucked. In further examination, there was gangrene in the small intestine, which was performed on a 150-cm-long ligament of the Tritus loop from the small intestine in about 20 cm length around its mesenteric axis, had internal hernia and torsion, causing intestinal necrosis and gangrene in this area. Finally the patient went ahead with an entrectomy.

After surgery, the control of the patient's vital signs was normal, and the condition of the fetus was normal in ultrasound sonography. 48 hours after the operation, the patient was allowed to start liquids when there was food tolerance. The patient was discharged from the hospital 10 days after surgery under a good general condition. Routine midwifery

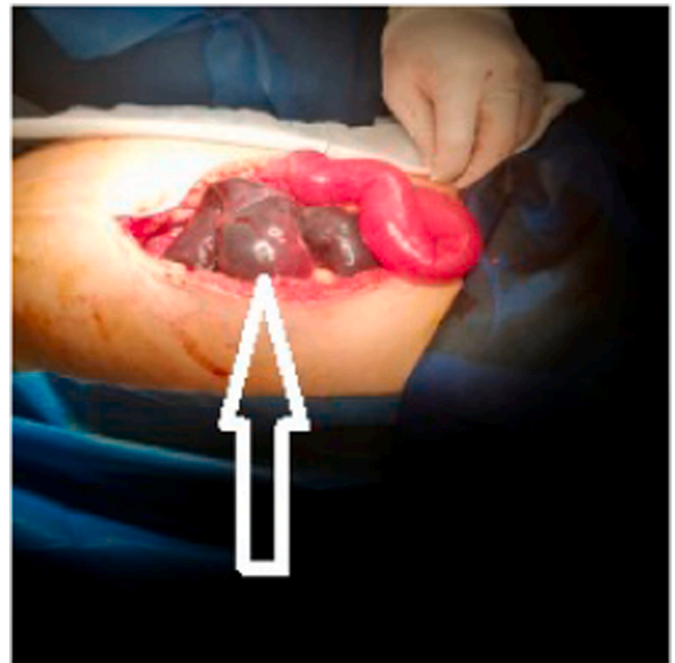


Fig. 1. Image was taken during operation. The white arrow depicts necrosis of the intestinal loops intraoperative.

care was performed for the patient and she underwent cesarean section at 39 weeks of pregnancy due to fetus breech presentation. One week after the surgery, a full-term infant weighted 3000 g was delivered by caesarean section in 39 weeks gestational age with 1–5 minute Apgar scores of 7–10. Post-operative instructions are important to prevent potential complications. These instructions given to patient were as follows: 1- Screening for signs of infection such as redness, inflammation, bleeding, or discharge from the incision site. 2- Pain medications should be taken with food. 3- Eat soft foods and prevent to consume straws for at least one week. 4- Do not have strenuous activities, however daily movement throughout the day to help prevent blood clots and help with healing. After that the patient shared her appropriate and satisfaction perspective on the treatments she received. This case report has been reported in line with the SCARE 2020 criteria [9].

3. Clinical Discussion

We reported a woman who referred with intestinal necrosis in the context of torsion during her pregnancy. Bowel obstruction is a rare side effect during pregnancy. There is an increasing risk of bowel obstruction during pregnancy. Most common causes consisted of: adhesion, volvulus (more common in the pregnant women than in the non-pregnant women) and less common causes consisted of: intussusception. There are also rare causes about that contained: hernia (should be suspected in patients with a history of gastric bypass). Obstructive symptoms can be unspecific in pregnancy as they can be related to the pregnancy. Nevertheless, common features of intestinal obstruction in pregnancy include abdominal pain (98%), vomiting (82%), and constipation (30%) [10–12]. In Lodhia's study et al. (2021), it is shown that vomiting was a strong feature in their case to support the diagnosis of intestinal obstruction [13]. Other causes of intestinal obstruction in pregnancy include appendicitis, intraabdominal neoplasms, and adhesions from previous surgeries, intussusceptions, and hernias [14]. Delay in the diagnosis hence leads to delay in the management, culminating in devastating outcomes; 5% maternal mortality has been reported if the bowels are viable and over 50% if perforation occurs. Fetal mortality is said to be 30% [11]. Other maternal complications include perforation, peritonitis, and sepsis, and fetal complications include preterm delivery,

intrauterine fetal death, and neonatal sepsis [12].

Clinical manifestations are crampy abdominal pain, vomiting and obstipation that we had it in the present case there showing symptoms of nausea and abdominal pain. Diagnosis and treatment are similar to that in non-pregnant women. Indications for immediate surgery are the same as for non-pregnant patients unless antepartum testing of fetal status is non-reassuring. Different methods can be used such as: Ultrasound which shows dilated loops of bowel with air-fluid levels, Flat and upright radiographs which shows useful for looking for typical findings of obstruction and progressive bowel dilation over time and MRI which helps to characterize the site and degree of obstruction as we requested it for the woman with no evidence of inflammation. In the present study, performed contrast MRI was only done to examine upper abdomen, gallbladder, bile ducts and pancreas. The gallbladder was normal in size, wall thickness and had no inflammatory evidence. CBD and intrahepatic bile ducts were dilated and normally seen. The main pancreatic duct was dilated and there was no evidence in favor of a pancreatic fluid signal. Free fluid was evident in the hepatorenal space and evidence of mild dilatation was seen in the pilocalic system and right ureter.

This MRI was performed on gynecologist request without contrast and the pattern of this hensement was not possible in solid organs of upper abdomen. The image of intestinal loops with a maximum anterior-posterior diameter of 45 mm was seen in the epigastric region. Adaptation to clinical signs and ultrasound and work up of the patient was recommended. Delay in diagnosis will increase maternal and fetal mortality. Maternal mortality rate is about 10–20% and for the fetus is 30–50%. If intestinal obstruction is accompanied by strangulation, perforation, or an imbalance of water and electrolytes, an increase in maternal mortality will be inevitable. The pharmacologic treatment of inflammatory bowel disease is limited during pregnancy, but in patients with this disease, it is paramount to evaluate for bowel obstruction, abscess, bleeding, and toxic megacolon [15]. Some reports have suggested that if surgery is performed 24 hours after the onset of symptoms, the mortality rate is higher than 24 hours before the onset of surgery [1, 16,17]. The most common cause of death is septic shock, which results in multiple organ failure [18–21].

4. Conclusion

In this study, the patient went ahead with sterilization general anesthesia. By tearing the abdomen with a midline incision, the upper and around the umbilicus was opened. About 500 cm purulent secretions were sucked out from abdomen by a sterile suction pipe. In further examination, there was gangrene in the small intestine, which was performed on a 150-cm-long ligament of the Tritus loop from the small intestine in about 20 cm long around its mesenteric axis, had internal hernia and torsion, causing intestinal necrosis and gangrene in this area. After reviewing this, decision was made for an entrectomy. Intestinal necrosis in the context of torsion in pregnancy is a rare condition, and the evidence from this study shows that early diagnosis can reduce fetal and maternal mortality rate.

Ethical approval

Ethical Approval was provided by the author's institution. Reporting this case was done according to the Declaration of Helsinki's ethical principles. This study was approved in Mashhad University of Medical Sciences. ID: IR.MUMS.REC.1401.091.

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Author contribution

H. Sh, and M. A, and M. S, conceptualized and designed the initial

and final manuscript. All authors approved the final manuscript as submitted and agreed to be accountable for all aspects of the work.

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Declaration of competing interest

There is no conflict of interests.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijso.2023.100629>.

List of Abbreviations:

LMP	last premenstrual period
FHR	fetal heart rate
BP	Blood Pressure
PR	Pulse Rate
RR	Respiratory Rate
T	Temperature
FHR	Fetal Heart Rate

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