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CASE REPORT

Incisional hernia with bowel incarceration and obstruction at 34 weeks gestational age

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Abstract
Background Hernias commonly coexist with pregnancy; however, an incarcerated hernia with bowel obstruction is rare at advanced gestation and requires urgent intervention.
Case A multiparous woman with a known large incisional hernia presented at 33 weeks and 5 days gestational age with acute-onset, upper abdominal pain and nausea. The patient was diagnosed with small bowel obstruction secondary to an incarcerated hernia. She was managed with serial abdominal exams until her repeat cesarean section and simultaneous hernia repair were performed 24 h after admission and betamethasone administration. The patient and infant did well postoperatively.
Conclusion Bowel incarceration through an incisional hernia can occur during pregnancy and result in favorable maternal and neonatal outcomes with simultaneous delivery and surgical repair.

Keywords Small bowel obstruction · Incarcerated bowel · Incarcerated hernia · Pregnancy

Introduction

Typically, hernias do not present as an acute problem to the obstetrician during pregnancy because the physiologic changes of pregnancy and the gravid uterus are protective against hernia complications [1, 2]. Hernias are often asymptomatic; however, they can become incarcerated, or irreducible, necessitating urgent surgical correction. An incarcerated hernia with small bowel obstruction during pregnancy is a rare challenge for the obstetrical and general surgery teams because the need for urgent surgical exploration to prevent bowel ischemia may require concurrent delivery. A strangulated hernia has high mortality for both the patient and her fetus [3, 4]. This case report reviews a rare presentation of bowel obstruction during pregnancy and our collaborative management with the general surgery team in which a short surgical delay for betamethasone administration resulted in a positive outcome for both the patient and her infant.

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Case

A morbidly obese, gravida 6-para 3 woman at 33 weeks and 5 days with a known incisional hernia and morbid obesity with a BMI greater than 50 presented with acute-onset, severe postprandial left upper abdominal pain accompanied by nausea and vomiting. The patient's exam was significant for a mildly tender 8×8 cm irreducible mass inferior to her umbilicus; Murphy's sign was absent. The uterus was without fundal tenderness and there was no fetal tachycardia. There were no skin changes over the mass. The patient was afebrile with a white blood cell count of 12.6 and normal electrolytes. Her lactate was normal at 1.2. A right upper quadrant ultrasound showed cholelithiasis but no evidence of cholecystitis. The fetal heart rate tracing and biophysical profile were reassuring. There was no evidence of preterm labor. A surgical consult was obtained.

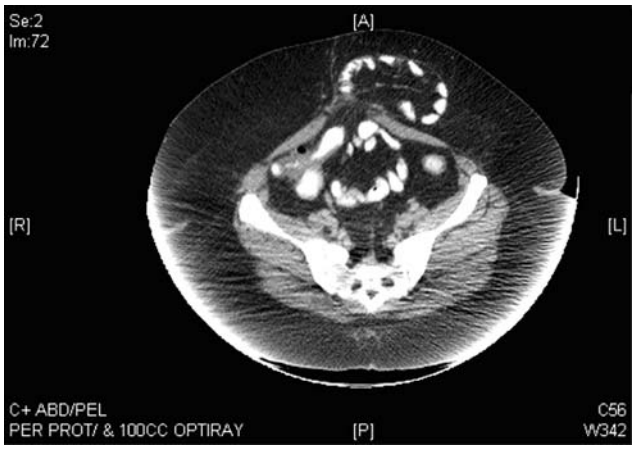

Fig. 1 Axial image of ventral hernia containing small bowel and oral contrast without evidence of incarceration. This CT scan was performed prior to the patient's pregnancy

The patient had been evaluated prior to pregnancy by general surgery for a ventral hernia thought to be secondary to her prior cesarean deliveries through midline incisions. The patient had deferred the recommended surgical repair and subsequently became pregnant. A CT scan (Fig. 1) obtained prior to this pregnancy revealed a 3 × 4 cm fascial defect below the umbilicus with normal appearing small bowel herniating through the defect. The patient was asymptomatic before and during pregnancy, prior to her current presentation.

Her past obstetric history is significant for a term vaginal delivery. She then underwent a classical cesarean delivery via a vertical skin incision for labor at 24 weeks gestation and breech presentation. The remainder of her obstetric history is significant for two-first trimester spontaneous abortions and an uncomplicated repeat cesarean section at term via the same vertical skin incision. The patient's past medical history is significant for morbid obesity, Crohn's disease in fair control with mesalamine, and chronic cholelithiasis.

The patient was admitted for management of her small bowel obstruction and incarcerated hernia. Fetal testing was reassuring. A multidisciplinary meeting with the obstetricians and the general surgeons weighed the risks and benefits of immediate surgical exploration versus a short delay for antenatal steroids. Given the large size of the incisional hernia, delivery was felt to be necessary in order for the surgical repair to occur. An abbreviated course of steroids was opted for with delivery and repair 24 h after steroid administration. The patient was monitored closely for any evidence of bowel strangulation or clinical changes requiring immediate surgical exploration. A naso-gastric tube was placed. Serial abdominal exams performed by both the obstetrical and the general surgery teams were stable.

Twenty-four hours after admission and betamethasone administration, the patient underwent a concurrent hernia repair and repeat cesarean delivery under general endotracheal anesthesia with a multidisciplinary operating team. The general surgery team reopened the prior vertical skin incision and the hernia sac was opened by careful dissection to avoid injury to the incarcerated bowel. The hernia sac was large, measuring 20 × 20 × 10 cm and contained well-perfused bowel and omentum. The fascial defect had enlarged to 4 × 5 cm. There was an indentation in the small bowel loop at its contact point against the fascial edge with proximal distention and distal decompression; however, the bowel was well-perfused throughout and a bowel resection was not required.

After the hernia reduction, the obstetrical team delivered the infant by low-transverse uterine incision. The delivery of the infant occurred 1 h after induction of general anesthesia. A male infant was delivered, weighing 2,600 g with Apgars of 5 and 7, and transferred to the neonatal intensive care unit for prematurity. After hemostatic closure of the uterus, the general surgeons removed the hernia sac and repaired the fascial defect. The fascial laxity that resulted from the pregnancy facilitated the ability to primarily close the fascial defect without tension and without prosthetic material. In a non-pregnant patient, a fascial defect of this size would likely have required mesh repair; however, prosthetic material was not necessary because the elongated fascia covered the newly postpartum, and significantly smaller, uterus. Prosthetic material could have been employed if necessary.

The patient's postoperative course was complicated by a postoperative fever. She was treated empirically for endometritis and the fever resolved within 24 h of intravenous antibiotics administration. The infant initially had respiratory distress syndrome that resolved following surfactant treatment; he was discharged on day of life 19. The patient had a routine 6 week postpartum visit; her vertical skin incision healed without event.

Comment

Hernia complications in pregnancy are rare. When they do occur, they require prompt diagnosis and early surgical intervention along with close collaboration between the obstetrics and general surgery teams in order to minimize maternal and fetal morbidity. This case highlights a rare and serious presentation of bowel obstruction through an incisional hernia during the third trimester which resulted in a positive outcome for both the patient and the infant. Prompt diagnosis permitted a short delay in surgical exploration for betamethasone administration for the neonate's benefit.

The incidence of bowel obstruction during pregnancy caused by an incarcerated hernia is estimated to be approximately 1 in 50,000 [3]. The majority of bowel obstruction during pregnancy is caused by adhesions or volvulus caused by the enlarging uterus and shifting relationships between the intraabdominal viscera [2–5]. However, the gravid uterus in the third trimester is protective against incarcerated hernias and subsequent bowel obstruction because the enlarging uterus pushes the intestine away from the hernia, preventing it from becoming entrapped [1, 2]. Additionally, increased intraabdominal pressure during pregnancy causes the fascial defect to enlarge making bowel incarceration less likely [1].

An incarcerated hernia with bowel obstruction during pregnancy is an obstetrical and surgical emergency because of the risk of bowel ischemia resulting in maternal and fetal mortality. One case series of 66 pregnant patients with intestinal obstruction found a maternal mortality rate of 6% and a fetal mortality rate of 26% [3]. Ischemic bowel can result in electrolyte abnormalities, dehydration, lactic acidosis, and skin changes over the hernia [4]. This patient had no overt signs of bowel strangulation; her lactic acid level and electrolytes were normal and her white blood cell count was in the physiologic range for pregnancy. Her urine output remained adequate.

Any complication of pregnancy requires the consideration of optimal management of both maternal and fetal well-being which often requires a compromise, particularly in instances of premature gestation. The literature advocates timely surgical exploration of incarcerated hernias with small bowel obstruction regardless of whether or not the patient is pregnant [3, 5]. The exact duration between onset of symptoms and bowel strangulation is unknown. The study by Perdue found that the median length of time from onset of symptoms to admission was 48 h with an additional 24–48 h mean time until laparotomy [3]. Another study of small bowel obstruction in pregnancy found that the time from admission to laparotomy was between 1 and 12 days with 3 fetal deaths and no maternal deaths. The fetal deaths occurred no earlier than 6 days from admission [6]. In this study, there was one (13%) bowel resection for necrotic bowel. Clearly, any delay in patients who show evidence of bowel strangulation contributes greatly to maternal and fetal mortality. However, postponing surgical exploration for 24 h for betamethasone administration may be reasonable in patients with bowel obstruction secondary to an incarcerated hernia, no evidence of strangulation, and a recent onset of symptoms.

In this case, there was only a matter of hours between the onset of our patient's symptoms and her presentation to labor and delivery. The diagnosis was made promptly and a timely plan was made for surgical evaluation and concurrent delivery. Upon physical exam and laboratory evaluation, the patient was clinically stable without overt evidence of bowel ischemia. Given the early diagnosis and the clinical stability of the patient, the multidisciplinary team decided to delay surgical exploration for 24 h in order to gain some fetal benefit from antenatal steroids. A Cochrane meta-analysis has shown a decrease in the neonatal death rate for antenatal steroids even if only 24 h has elapsed since administration [7]. Despite the continued stability of the patient after 24 h of serial abdominal exams, the decision was made to proceed with surgical exploration and hernia repair with concurrent cesarean delivery at 33 weeks and 6 days. Further expectant management to complete the full antenatal steroid course was not pursued given the risk of progression to bowel strangulation and the overall positive outcome for infants at this gestational age.

This report highlights the rare presentation of incarcerated hernia with small bowel obstruction in the third trimester requiring urgent surgical correction that led to a positive outcome. Despite the low incidence of incarcerated hernia with bowel obstruction, an obstetrician must be mindful of this presentation in a pregnant patient with a prior surgical history or with a known incisional hernia in order to effectively treat the maternal and fetal status with a multidisciplinary approach. Fortunately, this event occurred at a gestational age that delivery within a short period of time resulted in a good outcome for both the patient and the infant.

Conflict of interest statement None.

References

1. Barber HRK, Graber EA (1974) Hernias in pregnancy. In: Barber H, Graber E (eds) Surgical disease in pregnancy. WB Saunders, Philadelphia, pp 165–167
2. Beck W (1974) Intestinal obstruction in pregnancy. Obstet Gynecol 43:374–378
3. Perdue P, Johnson H, Stafford P (1992) Intestinal obstruction complicating pregnancy. Am J Surg 164:384–388
4. Connolly M, Unti J, Nora P (1995) Bowel obstruction in pregnancy. Surg Clin North Am 75:101–113
5. Parangi S, Levine D, Henry A, Isakovich N, Pories S (2007) Surgical gastrointestinal disorders during pregnancy. Am J Surg 193:223–232
6. Meyerson S, Holtz T, Ehrinpreis M, Dhar R (1995) Small bowel obstruction in pregnancy. Am J Gastroenterol 90:299–301
7. Roberts D, Dalziel S (2006) Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth. *Cochrane* database of systematic reviews, issue 3. Art. No. CD004454. doi:10.1002/14651858.CD004454.pub2