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Case Report

Acute intestinal obstruction complicating pregnancy: a rare surgical emergency

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ABSTRACT

Acute intestinal obstruction (AIO) during pregnancy is a rare but potentially life-threatening surgical emergency associated with significant maternal and fetal morbidity and mortality. Physiological and anatomical changes of pregnancy may mask classical symptoms, resulting in delayed diagnosis and management. We report the case of a 41-year-old primigravida at 28+3 weeks of gestation, with a history of diagnostic laparoscopy for infertility, who presented with colicky abdominal pain, recurrent vomiting, obstipation, and progressive abdominal distension. Initial ultrasonography revealed dilated bowel loops, and conservative management was initiated. However, persistent symptoms prompted magnetic resonance imaging (MRI), which demonstrated mechanical small bowel obstruction. Emergency exploratory laparotomy with adhesiolysis was performed, and an adhesive band causing obstruction was identified intraoperatively at the mid-ileum. The postoperative period was complicated by preterm labour, resulting in forceps-assisted vaginal delivery of a 1.15-kg male neonate following antenatal corticosteroids and magnesium sulphate administration. On postoperative day ten, she developed recurrent subacute intestinal obstruction, which resolved with conservative management. Both maternal and neonatal outcomes were favourable. This case highlights the diagnostic challenges of intestinal obstruction during pregnancy and emphasizes the importance of a high index of suspicion, early imaging, timely surgical intervention, and multidisciplinary management in optimizing maternal and fetal outcomes.

Keywords: Acute intestinal obstruction, Pregnancy, Laparoscopy, Ultrasonography, Magnetic resonance imaging, Preterm labour, Conservative management

INTRODUCTION

Acute intestinal obstruction (AIO) during pregnancy is a rare but potentially life-threatening non-obstetric surgical emergency, with a reported incidence ranging from 1 in 1,500 to 1 in 66,431 deliveries.[1,2] Despite its rarity, it is associated with significant maternal and fetal morbidity and mortality, particularly when diagnosis and definitive management are delayed.[1-3]

Adhesions resulting from previous abdominal or pelvic surgery are the leading cause of small bowel obstruction during pregnancy, accounting for approximately 50–58% of reported cases. Other causes include volvulus, intussusception and internal hernia.[1-3]bA history of previous abdominal surgery is an important risk factor, although intestinal obstruction may occasionally occur even after minimally invasive procedures.

Diagnosis during pregnancy is challenging because symptoms such as abdominal pain, nausea, vomiting and constipation may overlap with normal physiological changes of pregnancy and other obstetric conditions.[2,3] Imaging plays a crucial role in establishing the diagnosis. Ultrasonography is generally the initial investigation, while magnetic resonance imaging (MRI) provides additional diagnostic information without exposing the fetus to ionizing radiation. MRI is considered an appropriate imaging modality for evaluating non-obstetric

abdominal conditions during pregnancy when clinically indicated.[4]

Management requires careful consideration of maternal and fetal well-being. Although selected haemodynamically stable patients may benefit from conservative management, persistent obstruction or clinical deterioration necessitates timely surgical intervention.[2,3] Medically necessary surgery should not be delayed because of pregnancy, and a multidisciplinary approach involving obstetricians, general surgeons, anaesthesiologists and neonatologists is essential to optimize maternal and fetal outcomes.[5,6]

We report a case of adhesive small bowel obstruction in a 41-year-old primigravida at 28+3 weeks of gestation, successfully managed with exploratory laparotomy and adhesiolysis, highlighting the diagnostic and therapeutic challenges associated with this uncommon complication.

CASE REPORT

Patient information

A 41-year-old primigravida, married for five years, with a history of infertility treatment and subsequent spontaneous conception, presented at 28+3 weeks of gestation with complaints of colicky abdominal pain, persistent vomiting and progressive abdominal distension for one day. There was no history of fever or vaginal bleeding. She reported absence of bowel movements for the preceding two days.

Her medical history was significant for hypothyroidism, bronchial asthma and pre-gestational diabetes mellitus, for which she was on insulin therapy. She had undergone diagnostic hysterolaparoscopy one year earlier as part of infertility evaluation; laparoscopy was reported as normal, while hysteroscopy revealed an endometrial polyp that was resected. In the current pregnancy, she had undergone amniocentesis at 16 weeks of gestation due to a positive trisomy-21 screening result.

Clinical findings

On admission, the patient was haemodynamically stable with evidence of mild dehydration. Abdominal examination revealed upper abdominal distension, generalized tenderness and absent bowel sounds. The uterus corresponded to the period of gestation, and fetal heart sounds were audible. Speculum examination showed a closed cervical os with no vaginal bleeding.

Diagnostic assessment

Laboratory investigations revealed elevated C-reactive protein levels, hypoalbuminaemia and positive urine ketones. Obstetric ultrasonography demonstrated a single live intrauterine fetus corresponding to gestational age and dilated bowel loops in the left abdominal quadrant, with features suggestive of a faecal-loaded colon and sluggish peristalsis.

In view of persistent clinical suspicion, magnetic resonance imaging (MRI) of the abdomen was performed. It showed features suggestive of mechanical small bowel obstruction, characterized by dilated jejunal loops (Figure. 1) with collapse of the large bowel. Based on the clinical, laboratory and radiological findings, a diagnosis of acute intestinal obstruction was made.



Figure 1: Coronal T2-weighted MRI showing dilated bowel loops with gravid uterus.

Therapeutic intervention

The patient was initially managed conservatively with nasogastric decompression, intravenous fluids, correction of electrolyte imbalance and broad-spectrum antibiotics. Due to non-resolution of symptoms and worsening abdominal signs, an emergency exploratory laparotomy was performed under general anaesthesia after administration of the first dose of antenatal corticosteroids.

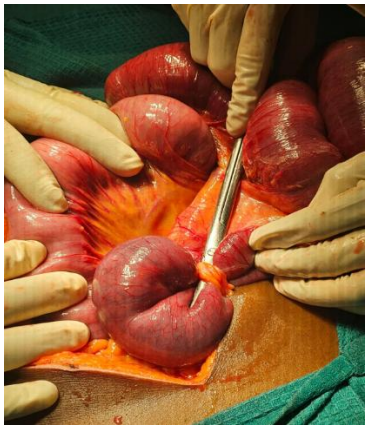


Figure 2: Intraoperative photograph demonstrating adhesive band at the mid ileum between mesenteric surfaces.

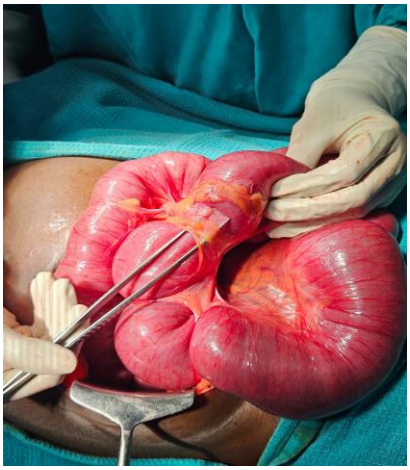


Figure 3: Adhesive band involving the mid jejunum.

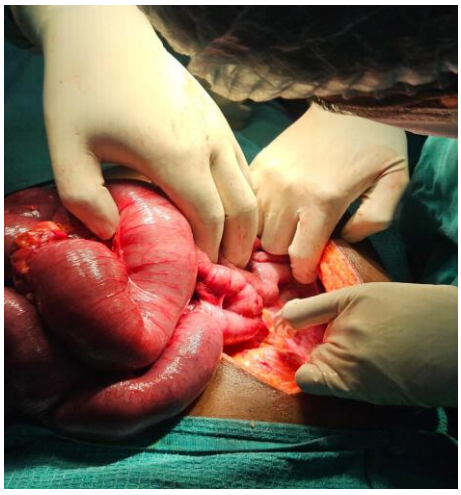


Figure 4: Dilated jejunal loops with collapsed mid and distal ileum.

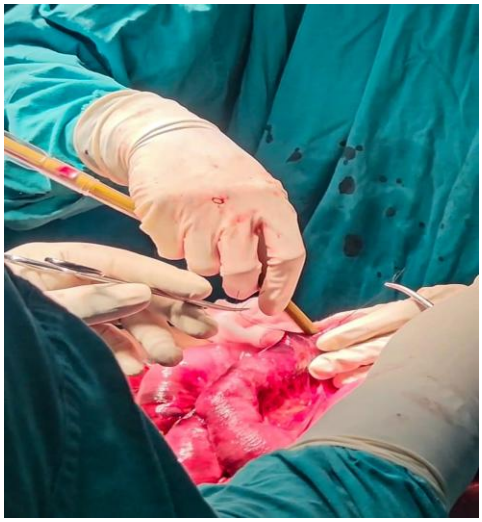


Figure 5: Decompression enterotomy performed at the proximal ileum.

Intraoperatively, a transition point was identified at the mid-ileum (Figure 2), caused by an adhesive band between mesenteric surfaces extending to the mid-jejunum (Figure 3). Multiple flimsy adhesions were noted between bowel loops and the lateral peritoneal wall in the right iliac fossa. The mid and distal ileal loops distal to the transition point were collapsed (Figure 4), while the large bowel appeared healthy. Adhesiolysis with decompression enterotomy (Figure 5) at the proximal ileum was performed.

Follow-up and outcomes

On postoperative day one, the patient developed preterm labour. On examination, the cervical os was found to be dilated, and labour progressed spontaneously. She delivered a 1.15-kg male neonate by forceps-assisted vaginal delivery after administration of magnesium sulphate for fetal neuroprotection and completion of the second dose of antenatal corticosteroids.

Postoperatively, the patient was managed in the intensive care unit with intravenous antibiotics, analgesics, thromboprophylaxis and supportive care, and her condition gradually improved. On postoperative day ten, she developed recurrent vomiting; imaging suggested subacute intestinal obstruction, which was successfully managed conservatively. Both the mother and the neonate recovered well and were discharged in stable condition.

DISCUSSION

Acute intestinal obstruction (AIO) during pregnancy is an uncommon but serious surgical emergency, with reported incidence ranging from 1 in 1,500 to 1 in 66,431 pregnancies.[1,2] Although rare, it is associated with significant maternal and fetal morbidity, particularly when diagnosis and surgical intervention are delayed.[1-3] The present case illustrates several important challenges in the diagnosis and management of AIO in pregnancy, especially in the context of advanced maternal age, infertility treatment and prior minimally invasive procedures.

Etiology and relevance of prior surgery

Adhesive small bowel obstruction is the most common cause of AIO in pregnancy, accounting for approximately 50–58% of reported cases.[1-3] In the present case, the patient had undergone diagnostic hysterolaparoscopy one year previously during infertility evaluation. Although laparoscopy is generally associated with a lower risk of adhesion formation compared with laparotomy, adhesions may still develop following minimally invasive procedures. The presence of multiple flimsy adhesions and a defined transition point in the mid-ileum supports adhesions as the underlying aetiology.

Diagnostic challenges in pregnancy

Diagnosis of AIO in pregnancy is often delayed due to the overlap between symptoms of bowel obstruction and common pregnancy-related gastrointestinal complaints such as nausea and vomiting.[2,3] In this case, the patient presented with classical obstructive symptoms, including colicky abdominal pain, persistent vomiting, abdominal distension and obstipation, which appropriately raised suspicion of a surgical abdomen. Physical examination findings of abdominal distension with absent bowel sounds further supported the diagnosis.

Studies have demonstrated that delayed diagnosis and intervention increase the risk of bowel ischaemia, bowel resection, sepsis and adverse fetal outcomes.[1-3] Therefore, persistent gastrointestinal symptoms during pregnancy should not be attributed solely to physiological changes, and a high index of suspicion is essential.

Role of imaging

Imaging plays a critical role in confirming the diagnosis while balancing fetal safety. Ultrasonography, although safe and readily available, may not always reliably identify the site or cause of mechanical small bowel obstruction. In the present case, ultrasonographic findings were suggestive but not definitive.[2,4]

Magnetic resonance imaging (MRI) provided additional diagnostic clarity by demonstrating dilated jejunal loops with collapse of the large bowel, supporting the diagnosis of mechanical obstruction. MRI is an important imaging modality during pregnancy because it provides excellent soft tissue resolution without exposing the fetus to ionizing radiation. Current recommendations support the use of ultrasonography and MRI for evaluating clinically indicated conditions during pregnancy.[4] Early use of MRI in this patient facilitated surgical decision-making.

Management and timing of surgery

Initial conservative management with nasogastric decompression, intravenous fluids and correction of electrolyte imbalance may be considered in selected haemodynamically stable patients. However, failure to improve or worsening clinical signs necessitates early surgical intervention.[2,3] In the present case, persistence of symptoms and deterioration in abdominal signs appropriately prompted emergency exploratory laparotomy. Adhesiolysis with decompression enterotomy was performed, relieving the obstruction.

Administration of antenatal corticosteroids before surgery was an important obstetric intervention, considering the gestational age of 28+3 weeks and the potential risk of preterm delivery following non-obstetric abdominal surgery during pregnancy. Guidelines recommend considering antenatal corticosteroids when preterm delivery is a possibility and emphasize appropriate perioperative obstetric monitoring.[5]

Surgical approach and postoperative course

Both laparoscopic and open surgical approaches may be considered for abdominal emergencies during pregnancy, depending on gestational age, maternal condition, bowel distension, surgical complexity and the expertise of the operating surgeon.[6] In the present case, exploratory laparotomy was performed in view of advanced gestation, dilated bowel loops and complex adhesions.

Postoperatively, the patient developed preterm labour on day one, a recognized complication following non-obstetric abdominal surgery during pregnancy.[2,5] Prompt administration of magnesium sulphate for fetal neuroprotection and completion of corticosteroid therapy were important components of obstetric management. Operative vaginal delivery was appropriately chosen to shorten the second stage of labour in the context of recent laparotomy and poor maternal efforts.

Maternal and fetal outcomes

Maternal mortality associated with AIO in pregnancy has declined over time but remains significant, with historical reports describing maternal mortality of approximately 6% and fetal mortality of 26%.[1] Contemporary reviews have reported lower maternal mortality and fetal loss rates, although outcomes remain dependent on the underlying cause, severity of obstruction and timing of intervention.[2,3]

In the present case, although preterm delivery occurred, both maternal and neonatal outcomes were favourable due to timely diagnosis, prompt surgical intervention and coordinated multidisciplinary care.

The episode of recurrent subacute intestinal obstruction on postoperative day ten, which resolved with conservative management, highlights the possibility of persistent or recurrent adhesion-related complications and the importance of close postoperative surveillance.[2,3]

Clinical implications

This case emphasizes the need for a high index of suspicion for intestinal obstruction in pregnant women presenting with persistent abdominal symptoms, particularly in those with a history of previous abdominal procedures, even if minimally invasive. Early imaging, timely surgical management and integrated obstetric care are key to optimizing outcomes. Additionally, anticipation and preparedness for preterm labour following surgical intervention are essential components of management.

CONCLUSION

Acute intestinal obstruction in pregnancy is a rare but serious condition requiring a high index of clinical

suspicion. Persistent abdominal pain, vomiting and abdominal distension in pregnancy should prompt early evaluation for non-obstetric causes, particularly in women with a history of prior abdominal procedures. Timely imaging, preferably with magnetic resonance imaging when appropriate, and early surgical intervention are essential to prevent maternal and fetal morbidity. A multidisciplinary approach involving obstetricians, surgeons, anaesthesiologists and neonatologists is critical, as preterm labour and neonatal complications may occur despite optimal management. Early recognition and prompt, coordinated care can result in favourable maternal and neonatal outcomes even in complex cases.

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