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Duodenojejunal Intussusception Presenting with Persistent Nausea and Vomiting and Transient Liver Derangement in Late Pregnancy with Spontaneous Postpartum Resolution: A Case Report

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Abstract

Background: Intussusception during pregnancy is rare and may present with nonspecific gastrointestinal symptoms, making diagnosis challenging. Duodenojejunal intussusception is particularly uncommon because the duodenum is fixed in a retroperitoneal position.

Case: We report a case of a 26-year-old primigravida who presented at 34 weeks' gestation with persistent nausea and vomiting and abnormal liver function tests. Abdominal ultrasound demonstrated a target sign suggestive of intussusception, and subsequent magnetic resonance imaging confirmed significant duodenal dilatation and suspected duodenojejunal intussusception. Differential diagnoses included superior mesenteric artery syndrome. The patient was managed conservatively with close clinical monitoring.

Outcome: At 34 weeks' gestation, she experienced spontaneous rupture of membranes and subsequently delivered vaginally without complication. Following delivery, her gastrointestinal symptoms resolved, and her liver function tests improved spontaneously without surgical intervention.

Conclusion: Duodenojejunal intussusception should be considered in pregnant patients presenting with persistent gastrointestinal symptoms and unexplained biochemical abnormalities, particularly when imaging demonstrates bowel dilatation or a target sign. In clinically stable patients, conservative management may be appropriate, as symptoms may resolve after delivery.

Keywords: Intussusception; Pregnancy; duodenal intussusception; duodenojejunal intussusception; conservative management; management in pregnancy.

Introduction

Intussusception during pregnancy is a rare but potentially serious cause of intestinal obstruction. It occurs when a proximal segment of bowel telescopes into an adjacent distal segment, which may lead to obstruction, bowel ischaemia, and necrosis if not recognised promptly. Diagnosis during pregnancy can be challenging because presenting symptoms such as nausea, vomiting, and abdominal discomfort are common in normal pregnancy and may mimic other obstetric or gastrointestinal conditions. Duodenal and duodenojejunal intussusception are particularly uncommon because of the duodenum's fixed retroperitoneal position and are usually associated with a structural lead point in adults. Reports of this condition during pregnancy are extremely limited. We report a case of suspected duodenojejunal intussusception presenting in the third trimester with persistent gastrointestinal symptoms and abnormal liver function tests, with spontaneous resolution after delivery and conservative management.

Case Report

A 26-year-old primigravida presented to the emergency department of a rural public hospital at 34 weeks' gestation

with a one-week history of persistent nausea and vomiting and an inability to tolerate oral intake. She denied abdominal pain, diarrhoea, constipation, melaena, pruritus, or changes in stool or urine colour. Fetal movements were normal, and there was no vaginal bleeding or abdominal pain. Her pregnancy had been uncomplicated to this point. Past medical history included iron deficiency anaemia and a previous thyroid storm more than a year earlier, for which she had received treatment but was not currently taking medication. Notably, she had not experienced nausea or vomiting earlier in the pregnancy. On examination, she was afebrile, with a pulse of 96 beats per minute and a blood pressure of 120/70 mmHg. She appeared mildly pale and icteric. Abdominal examination revealed a soft, non-tender gravid abdomen with no palpable masses. Obstetric examination demonstrated a uterus consistent with gestational age, cephalic presentation, and normal amniotic fluid volume. Initial laboratory investigations showed haemoglobin 117 g/L and a white cell count of 10×10^9/L with a normal differential. C-reactive protein was 12.3 mg/L. Liver function tests were abnormal, with bilirubin 28.2 µmol/L, AST 192 U/L, ALT 265 U/L, GGT 48 U/L, and ALP 201 U/L. Bile acids were 21 µmol/L. Renal function, electrolytes, lipase, and thyroid function tests were within normal limits. Viral hepatitis screening was negative, although CMV IgM was equivocal. The admission cardiotocograph was reassuring. Obstetric ultrasound confirmed a single live fetus with appropriate growth parameters, an amniotic fluid index of 12 cm, and normal umbilical artery Doppler indices. The estimated fetal weight was 2115 g (14^{th} percentile), with an abdominal circumference at the 3rd percentile. In addition, abdominal ultrasound demonstrated a non-tender bowel loop with a characteristic "target sign" suggestive of intussusception.

Further imaging with magnetic resonance cholangiopancreatography and abdominal MRI demonstrated marked duodenal dilatation (up to 6 cm). As the duodenum passed beneath the superior mesenteric artery, the bowel appeared to form a significant intussusception. Superior mesenteric artery syndrome was considered a possible differential diagnosis. The biliary tree and pancreas appeared normal. Given the imaging findings, inpatient gastroscopy at a tertiary center was planned to exclude an underlying duodenal mass. However, shortly after admission, the patient developed painful uterine contractions and vaginal fluid loss. On sterile speculum examination, the cervix was approximately 0.5 cm dilated and 2 cm long, with clear fluid in the vagina. Amniotic fluid testing with Amnisure confirmed rupture of membranes. She received antenatal corticosteroids, nifedipine, and benzylpenicillin. A multidisciplinary decision was made involving the patient, surgical, paediatric, and obstetric teams to allow labour to progress spontaneously toward delivery. She progressed without concern and delivered a healthy infant vaginally following an episiotomy, with an estimated blood loss of 400 mL. Following delivery, the patient's nausea and vomiting resolved completely, and she was able to tolerate a normal diet. Liver function tests improved spontaneously, with ALT 120 U/L, AST 35 U/L, GGT 65 U/L, ALP 180 U/L, and bilirubin 6.2 µmol/L one week postpartum. A postpartum CT scan of the abdomen demonstrated persistent duodenal dilatation, likely related to the previously identified intussusception, and a polypoid-appearing lesion in the proximal jejunum. Given the clinical improvement, conservative management was continued, and the patient was discharged home on proton pump inhibitor therapy with planned outpatient gastroenterology follow-up and endoscopic evaluation.

Discussion

Intestinal obstruction during pregnancy is uncommon, with reported incidences ranging from approximately 1 in 2,500 to 1 in 3,500 pregnancies. Among these cases, intussusception accounts for approximately 5% of intestinal obstructions [1,2]. Intussusception occurs when a proximal segment of bowel telescopes into an adjacent distal segment, potentially leading to obstruction, bowel wall ischaemia, and necrosis if untreated. Diagnosis may be challenging because symptoms such as nausea, vomiting, and abdominal discomfort are common in normal pregnancy and may also occur in a variety of medical and obstetric conditions. In addition, the enlarged gravid uterus displaces abdominal viscera from their usual anatomical positions, which may obscure physical examination findings and delay clinical suspicion. Imaging also presents challenges in pregnancy, as computed tomography—one of the most sensitive modalities for diagnosing intussusception—is often avoided because of concerns about fetal radiation exposure. In adults, intussusception is frequently associated with intestinal tumours or polyps, while reported causes during pregnancy include Meckel's diverticulum, adhesions, and volvulus [3-5]. The most common forms involve the small bowel (enteroenteric) or colon (colocolonic). Duodenal and duodenojejunal intussusception are particularly rare because the duodenum is largely fixed in the retroperitoneum and therefore less mobile than other bowel segments. When duodenal intussusception occurs in adults, it is usually associated with an identifiable structural lead point, such as a polyp or tumour [6].

El Aouadi et al. reported a case of duodenojejunal intussusception without an identifiable lead point in a woman at 28 weeks' gestation presenting with biliary obstruction [7]. Our case shares several features with this report, including presentation in late pregnancy and abnormal liver function tests, and is the second of only two published reports in which duodenojejunal intussusception in pregnancy was successfully managed conservatively. Superior mesenteric artery syndrome was considered a differential diagnosis in this case because imaging demonstrated marked duodenal dilatation as the bowel passed beneath the superior mesenteric artery. SMA syndrome results from compression of the third part of the duodenum between the aorta and superior mesenteric artery and typically presents with postprandial abdominal pain and recurrent vomiting [8]. Ultrasonography and CT of the abdomen are useful diagnostic tools, and management options include both conservative and

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surgical approaches.

Although rare, superior mesenteric syndrome has been described during pregnancy and may result in low fetal weight gain due to severe nutritional compromise and preterm labour. Conservative options, such as feeding tube placement, may help support the pregnancy until delivery, after which surgical correction is usually offered. Spontaneous resolution of the syndrome may also occur after delivery, suggesting a reversible role for physiological vascular changes in its evolution [9]. The precise aetiology of duodenojejunal intussusception in pregnancy remains unclear. Several mechanisms may contribute. Altered peristaltic activity has been suggested to play a role [10]. Additionally, as the uterus enlarges during the third trimester, displacement of surrounding abdominal structures may alter the orientation of the duodenum and proximal jejunum. These anatomical changes, combined with altered gastrointestinal motility associated with elevated progesterone levels, may predispose to abnormal peristalsis and telescoping of bowel segments. The smooth-muscle-relaxant effects of progesterone and the increased vascularity and oedema associated with pregnancy may further influence intestinal motility. Although these mechanisms remain speculative, they may help explain the occurrence of intussusception in late pregnancy in the absence of an identifiable structural lead point.

Interestingly, jaundice or biochemical cholestasis is not typically associated with enteroenteric or colocolonic intussusception in adults, making the abnormal liver function tests observed in this case noteworthy. To our knowledge, reports of duodenojejunal intussusception presenting with biochemical liver dysfunction in late pregnancy and resolving after delivery without surgical intervention are extremely limited. In contrast to paediatric intussusception, where nonoperative reduction is frequently successful, most cases in adults require surgical management because the risk of bowel ischemia and obstruction is higher. However, the clinical course in this case differed from the typical presentation. The patient remained hemodynamically stable without signs of bowel obstruction or peritonitis, allowing conservative management with close monitoring. Following delivery, the patient's gastrointestinal symptoms resolved, and liver function tests improved spontaneously. This temporal association suggests that pregnancy-related anatomic or physiologic factors may have contributed to the development of the intussusception and that resolution may occur following delivery. This case highlights the importance of careful multidisciplinary assessment, which considers intussusception in the differential diagnosis of persistent nausea and vomiting during late pregnancy, particularly when symptoms are atypical or accompanied by unexplained biochemical abnormalities. Despite the potential for clinical deterioration, this case demonstrates that conservative management may be appropriate in carefully selected clinically stable patients.

Conclusion

Duodenojejunal intussusception is an extremely rare cause of gastrointestinal symptoms during pregnancy and may present with nonspecific clinical features that mimic common obstetric conditions. This case underscores the importance of considering uncommon surgical causes when pregnant patients present with persistent gastrointestinal symptoms, such as nausea, vomiting, or unexplained biochemical abnormalities. In clinically stable patients without signs of bowel obstruction or peritonitis, conservative management with careful multidisciplinary monitoring may be appropriate. Resolution of symptoms after delivery in this case suggests that pregnancy-related anatomical or physiological factors may contribute to the development of this rare condition.

Learning Points

i. Intussusception is a rare cause of gastrointestinal symptoms in pregnancy.

ii. Persistent nausea and vomiting with abnormal liver function tests should prompt consideration of atypical gastrointestinal pathology.

iii. Conservative management may be appropriate in clinically stable patients when imaging suggests duodenojejunal intussusception.

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