CLINICAL CASE

UNUSUAL PRESENTATION OF ACUTE INTESTINAL OBSTRUCTION
DUE TO TRANSVERSE COLON VOLVULUS IN LATE PREGNANCYMuad Gamil M. Haidar^{1,2,3}, Nuha Ahmed H. Sharaf^{2,3}, Mayada Mohamed Al-Dankali^{2,4}¹Department of General Surgery and Endoscopy, Al Gamhoria Teaching Hospital, Aden, Yemen²University of Aden, Faculty of Medicine and Health Sciences, Aden, Yemen³Al Nageeb Hospital, Aden, Yemen⁴Department of Obstetrics and Gynecology, Al Sadaka Teaching Hospital, Aden, Yemen

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Abstract

Transverse colon volvulus is the rarest type of colonic volvulus, with a higher morbidity and mortality rate. In pregnancy, intestinal obstruction due to transverse colon volvulus is rare and seldom reported, and its timely diagnosis can be difficult. We report an unusual case of transverse colon volvulus in a young female at late-term pregnancy. A 28-years-old, pregnant woman, gravida 2, para 1, at 34 weeks of gestation, presented with progressive abdominal pain and distention, commencing about 12 hours prior to admission, associated with vomiting and obstipation. Vital signs were stable. However, the abdomen was asymmetrically hugely distended. The initial abdominal ultrasound showed a single viable intrauterine fetus and dilated loops of bowels. As fetal distress progressed throughout the admission, a laparotomy was performed, which revealed an unexpected transverse colonic volvulus. Resection of the twisted segment and primary anastomosis were performed, followed by a cesarean section to deliver the baby. The mother made a satisfactory recovery. Although this patient's preoperative clinical findings suggested colonic obstruction, the diagnosis of transverse colonic volvulus was only made intraoperatively and has seldom been previously described. Chronic constipation, the enlarging uterus, and the anatomical redundancy of the transverse colon may have been contributing factors. Transverse colon volvulus in late pregnancy is uncommon. Early diagnosis and prompt surgical intervention can significantly minimize maternal and fetal mortality.

Keywords: *colonic intestinal obstruction, colonic volvulus, colonic volvulus in pregnancy, intestinal obstruction in pregnancy*

Introduction

As indicated by Sparks et al., “the term ‘volvulus’, derived from the Latin word *volvere*, meaning ‘to turn’, describes the abnormal twisting of the bowel, often leading to a closed-loop obstruction. This twisting usually occurs along the mesenteric axis of the bowel, resulting

in venous obstruction and eventually arterial compromise” [1].

Colonic volvulus is a relatively uncommon cause of large bowel obstruction, accounting for 10% of colonic obstructions [2]. The sigmoid colon is involved in 65–80% of cases reported, followed by the right colon (cecal) in 15–30% of cases. Splenic flexure and transverse colon

volvulus (TCV) are the rarest types of colonic volvulus, accounting for less than 11% of all cases, but with the highest mortality. These types of volvulus tend to occur more often in the young, with most series showing a peak incidence in the second through the fourth decades of life, with a twofold to threefold female predominance [3,4,5,6].

The incidence of intestinal obstruction due to volvulus is rare during pregnancy, and fewer than 100 cases of true volvulus in pregnancy have been reported in the literature, accounting for 4–11% of reported cases of colonic volvulus [2].

We report a rare and unusual case of TCV in a young Arab/Yemeni lady in the late stage of pregnancy, which to the best of our knowledge has not been described in the literature before.

Case presentation

A 28-year-old female, gravida 2, para 1, 34 weeks of gestation, was referred by her obstetrician complaining of progressive, colicky abdominal pain and abdominal distention commencing 12 hours prior to presentation. The pain was associated with nausea, vomiting, and inability to pass flatus. Her pregnancy had been uneventful, and she had no prior medical or surgical history.

On examination, she was afebrile and slightly dyspneic, with a blood pressure of 110/60 mmHg, pulse rate of 90 bpm, and respiratory rate 25 bpm with normal breathing sounds.

The abdomen was asymmetrically distended with marked upper abdominal distention above the gravid uterus (Figure 1). There were scant bowel sounds. The abdomen was soft with diffuse moderate tenderness; the uterus was appropriate to the gestational age. The upper abdominal distended region was hypertympanic and tender on percussion. Digital rectal examination showed an empty, nontender rectum.

Laboratory tests including a complete blood count, blood urea, creatinine, and serum electrolytes were unremarkable apart from mild elevation of the white blood cell count.

An abdominal radiography was not performed due to the possible risk of radiation exposure to the fetus, and the diagnosis of intestinal obstruction was clinically ascertained.

Figure 1 – Large epigastric distention above the gravid uterus, anterior and lateral view

The initial abdominal ultrasound (US) reported by the obstetrician showed a single cephalic, viable fetus at 34 weeks of gestation with a normal heartbeat and severely gas dilated bowels.

Nasogastric tube aspiration drained approximately 200 mL of bilious fluid (without any resolution of the abdominal distention). After a short period of observation and conservative therapy with intravenous (IV) fluids and an antiemetic, the abdominal distention sustained, and uterine contraction and fetal distress were detected by the obstetrician despite administration of antispasmodics, analgesics, and oral nifedipine for tocolysis. Dexamethasone was also given to enhance fetal lung function. Our initial diagnosis, based on the clinical findings, was acute intestinal obstruction (IO) because of colonic obstruction, mostly due to volvulus.

After consultation with the obstetrician and the pediatrician (neonatal services being unavailable in our center), we decided to perform an emergency laparotomy. This revealed a grossly, distended (subacute), viable, transverse colon with significant twist on its mesentery (the lateral third toward the splenic flexure) with features of impending venous infarction of the

affected segment (Figure 2). A mobile and unfixed ascending colon was observed too.

No other adhesions or anatomical variations were found. The twisted TCV segment was resected, and a primary end-to-end, hand-sewn anastomosis was performed. The obstetrician then performed a lower segment cesarean section (LSCS) and delivered the baby, who was viable and subsequently transferred to the pediatric unit. Postoperatively, the patient had an uneventful course and was discharged seven days later with a clean surgical site and on a normal diet. Unfortunately, the baby died 5 days later, as we were informed.

Figure 2 – Severely twisted and dilated transverse colon with congested dark vessels and the gravid uterus

Discussions

TCV was first described by Kallio in 1932 and still remains a very uncommon cause of intestinal obstruction. In a normal situation, the transverse colon has a short mesocolon and is fixed at both its ends (the hepatic and splenic flexures), thus being less prone to undergoing volvulus [7].

There are various factors that can play a role in the development of TCV, similar to those in other variations of colonic volvulus, such as congenital abnormalities (fixity of the mesentery, congenital midgut malrotation); mechanical

(previous surgery, inflammation, adhesions, distal obstruction) and physiological (chronic constipation in pregnancy, colitis) [6].

In their case report and literature review, Dhar et al. noted that although uncommon, the sigmoid remains the most common site for volvulus, even in pregnant women, which increases the risk of SV because the enlarging uterus can cause a redundant or abnormally long sigmoid colon to twist [8].

In this case, there were other factors which may also have contributed to the development of TCV, like those seen in SV. These include an enlarged uterus and chronic constipation during pregnancy, as well as the intraoperative findings of a redundant transverse colon and abnormal fixation of the ascending colon.

Due to the paucity of available literature describing TCV in pregnancy, there is no data that clearly identifies possible causes or a reliable method of diagnosing of this medical emergency preoperatively.

Acute abdominal pain in pregnancy is usually serious and challenging. Obstetric causes of this pain include a ruptured ectopic pregnancy, premature labor, placental abruption, ovarian torsion, and ruptured uterus [9].

Although focus has always been towards obstetric pathology in pregnancy issues, general non-obstetric causes must also be taken seriously into consideration and should be excluded.

In general, radiological studies (X-rays and CT scans) are important investigations for the diagnosis of colonic obstruction; however, in pregnancy, these must be used with extreme caution because of radiation risk to the fetus [9]. Abdominal US is a useful, noninvasive, and routinely used safe method for pregnant women. It is also useful to exclude other visceral and obstetric surgical emergencies that can mimic bowel obstruction. In this case, it not only suggested the primary diagnosis, but also gave clear information about the fetal condition and helped to guide our emergent management.

Management of colonic volvulus in pregnancy is similar to that in non-pregnant patients. By 1889, most contemporary surgical options had been described for volvulus, including detorsion, with or without fixation, which carries a high recurrence rate, and resection with or without a stoma [6]. In general, resection of the volvulus segment with or without

stoma according to the intraoperative findings and according to many authors in the literature, is the preferable decision to provide definitive treatment and reduce the risk of recurrence.

This case of subacute TCV was diagnosed and operated in a timely manner and we believe that resection of the twisted segment without detorsion and primary end-to-end anastomosis were appropriate and successful.

Conclusion

Transverse colon volvulus is extremely rare in late pregnancy, and its diagnosis remains challenging. Early referral and management are crucial to prevent serious maternal and fetal morbidity, or mortality. The diagnosis can be suspected based on clinical findings and non-invasive investigations. The management approach should ideally be decided via discussion between the surgeon and the obstetrician.

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