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Acute intestinal obstruction in pregnancy after previous gastric bypass: A case report

T. Loukopoulos [a,*], A. Zikopoulos [b], A. Galani [a], C. Skentou [a], E. Kolibianakis [c]

[a] University Hospital of Ioannina, Department of Obstetrics and Gynecology, Ioannina, Greece
[b] Obstetrics and Gynecology Royal Cornwall Hospital, Cornwall, UK
[c] 3rd Department of Obstetrics and Gynecology, Aristotle University of Thessaloniki, Thessaloniki, Greece

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ABSTRACT

Background: Intestinal obstruction is an extremely rare condition among pregnant women, but it can be life-threatening for both mother and fetus.
Case presentation: A woman in her late twenties with no history of previous pregnancies was admitted to hospital due to regular preterm contractions and cervical shortening. Seven days after her admission, while the contractions had stopped and cervical length was stable, she complained of acute abdominal pain. Bowel obstruction was suspected due to the patient's history of gastric bypass 5 years earlier for weight loss. Computed tomography was not performed due to risk of fetal irradiation. Conservative management was attempted, but the patient stopped passing flatus and started vomiting. The fetus was delivered by emergency exploratory laparotomy, during which small bowel obstruction due to adhesions was identified and resolved.
Conclusion: Although uncommon during pregnancy, small bowel obstruction is far more common in women who have had previous abdominal operations, especially involving the stomach. Obstetricians must maintain a high level of suspicion since this condition can be life-threatening for both the mother and the fetus.

1. Introduction

Multiple physiological changes that occur during pregnancy can cause a variety of gastrointestinal symptoms, such as constipation, nausea and vomiting, heartburn and abdominal pain [1]. Acute abdomen in pregnancy is an urgent [2] condition characterized by sudden onset of pain around the belly, often accompanied by nausea and vomiting. Obstetric causes such as septic abortion or ectopic pregnancy can be responsible during the first trimester, while in late pregnancy the most frequent causes include placental abruption, chorioamnionitis and premature labor [3]. Non-pregnancy-related causes include acute appendicitis [4], acute cholecystitis [5] and gastroenteritis [6]. Small bowel obstruction (SBO) is a very uncommon cause of acute abdomen during pregnancy, with a reported incidence of 1 in 17.000 deliveries [7]. Despite being rare, SBO is life-threatening for both the mother and the fetus, with fetal loss reported in 15% of cases and maternal mortality reaching approximately 2% [8]. Postsurgical adhesions are the most common cause, reported in about half of all cases [9]. The second most prevalent cause is incarcerated hernias while tumors, inflammatory bowel disease, faecal wedging and volvulus can also lead to bowel obstruction [10]. Diagnosis and treatment of acute abdomen during pregnancy can be challenging [11], mainly due to the multiple potential causes, the physiological and anatomical changes because of the growing uterus as well as the reluctance of obstetricians to perform diagnostic tests such as computed tomography due to risk of fetal irradiation. When the obstruction has been confirmed, surgical management is the most common type of treatment, although conservative management in certain conditions has also been described [8].

2. Case Presentation

A 29-year-old Caucasian woman presented at 34 weeks and 6 days of gestation at a regional hospital due to regular preterm contractions and cervical shortening. She was immediately transferred to a university hospital with a neonatal intensive care unit due to the risk of a premature birth. Her past medical history included papillary thyroid carcinoma managed by thyroidectomy, laparoscopic cholecystectomy, right salpingectomy for ectopic pregnancy and a gastric bypass. The patient was on levothyroxine and reported allergic reaction to metronidazole. She had been a smoker for the last 11 years (5 cigarettes per day). Due to

* Corresponding author at: University General Hospital of Ioannina, Greece.
E-mail address: themistoklis.loukopoulos@gmail.com (T. Loukopoulos).

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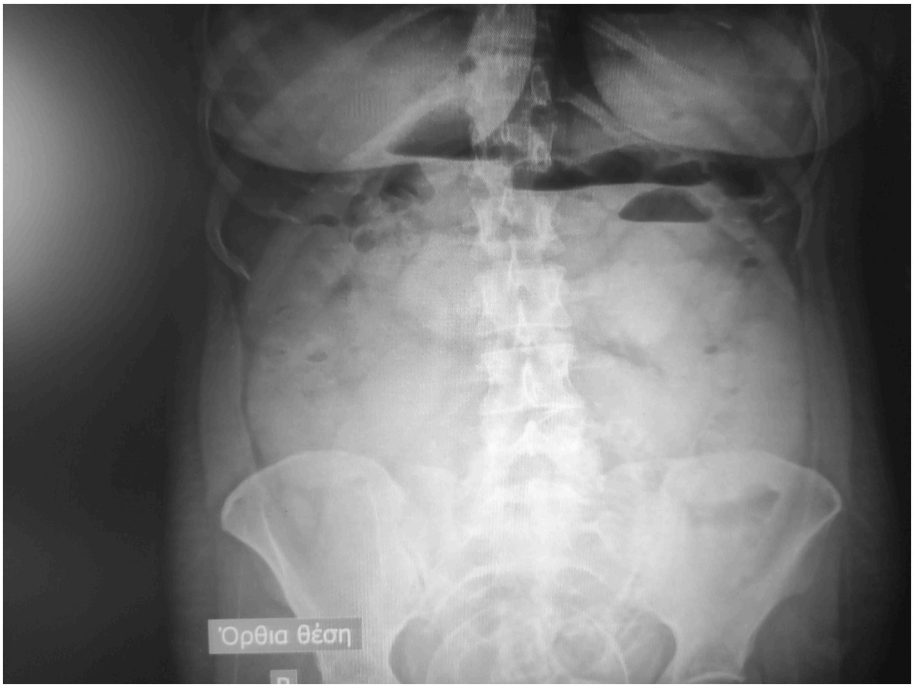

Fig. 1. Abdominal X-ray with gastrografin oral contrast medium seen in the small bowel, with the 35-week-old fetus seen in the lower abdomen and pelvis. There are few fluid levels, a mild dilation of small bowel loops and no presence of sub-diaphragmatic air.

Fig. 2. A mechanical obstruction due to adhesions is seen during the operation.

the risk of premature birth, two corticosteroid injections were administered in a 24-h interval to accelerate fetal lung maturation.

During her first week of hospitalization, the patient was managed with nifedipine, she had no regular contractions, and the cervical length remained stable at 1.4 cm after admission. On the eighth day of hospitalization she complained about colicky abdominal pain, nausea, and vomiting. She was still passing flatus and she had opened her bowel two days previously. She had normal vital signs; however, her abdomen was distended, sensitive but soft to palpation with insufficient bowel sounds. Obstetric ultrasound was normal regarding uterine anatomy and fetal development; cardiotocography was also normal. Rectal examination revealed an empty vault with no blood. Laboratory investigations showed leucocytosis of 15.670×10^9/l and neutrophilia of 12.10×10^9/l. Haemoglobin was 10.7 g/dl, haematocrit was 34.4%, platelets were 226.000/mcl, C-reactive protein was 14 mg/l and erythrocyte sedimentation rate was 43 mm/h. Her urinalysis indicated 1+ protein and 2+ ketones. Electrolytes, renal and liver function tests were all normal. Abdominal ultrasound scan showed multiple, modestly dilated small

bowel loops and hyperperistalsis, pointing to a provisional diagnosis of small bowel obstruction due to adhesions. A phosphate enema was administered but it was ineffective, and the patient refused to have a nasogastric tube (NG) inserted. Four hours later her symptoms worsened, and she no longer passed flatus. She was given radiation safety advice before gastrografin oral contrast medium was administered followed by an abdominal X-ray. The plain radiograph demonstrated superolateral displacement of mildly dilated bowel loops with the presence of fluid levels without free sub-diaphragmatic air (Fig. 1).

The patient continued not to pass flatus until the next morning and she began vomiting bilious fluid. She was taken to the operating room after discussion by a multidisciplinary team consisting of obstetricians, general surgeons and the neonatal team. An exploratory laparotomy was performed. After the delivery of a healthy baby boy weighing 2270 g, a structural obstruction caused by adhesions was recognized and resolved (Fig. 2). Her post-operative recovery was uncomplicated, and both mother and infant were discharged seven days later. The patient was in excellent condition 40 days later, at follow-up.

3. Discussion

Although widespread in the general population, small bowel obstruction is very rare among pregnant women and when it happens it is usually due to postsurgical adhesions [12]. SBO is one of the most common side-effects of gastric bypass and is a result of either adhesions (73%) or internal hernias (27%). The surgical technique (closure or nonclosure of mesenteric defect) does not seem to be an important factor for its occurrence [13]. Since the obesity rate is increasing worldwide, bariatric surgical procedures have become more and more common, with increasing use of sleeve gastrectomy and gastric bypass [14]. Although obesity rates are similar in men and women, women are four times more likely to undergo a weight-loss procedure than men [15]. Moreover, women tend to present for the operation at a younger age, most commonly during their reproductive years (between 20 and 54 years of age) [14,15].

The diagnosis of SBO is often challenging, since symptoms are frequently erroneously attributed to pregnancy, and there is a reluctance to perform imaging techniques involving x-rays due to the risk of fetal irradiation. When the woman is stable, an urgent MRI scan is the gold standard for diagnosis. If SBO due to adhesion is demonstrated, conservative management can be attempted, but with a low threshold for surgical intervention. If the obstruction is due to other causes, for example volvulus or internal hernia, or the woman is hemodynamically unstable, an emergency laparotomy is the solution [8].

4. Conclusion

SBO is an extremely rare condition during pregnancy but is linked to significant maternal and fetal mortality. Since it is usually due to postsurgical adhesions, obstetricians should maintain an increased suspicion for this condition in the presence of previous abdominal operations. Since obesity is currently a global epidemic and the number of bariatric surgery procedures is constantly growing among women of childbearing age, it is likely that the incidence of SBO during pregnancy will increase. The gold standard diagnostic tool for SBO is MRI, when the woman is haemodynamically stable. Conservative management can be initially attempted but if the obstruction does not resolve rapidly or the woman becomes unstable, urgent laparotomy is unavoidable.

Contributors

Themistoklis Loukopoulos was involved in patient care and made substantial contributions to the conception and design of the study, acquisition, analysis and interpretation of data, drafting of the article and revising it for important intellectual content.

Athanasios Zikopoulos made substantial contributions to the conception and design of the study, acquisition, analysis and interpretation of data, drafting of the article and revising it for important intellectual content.

Apostolia Galani made substantial contributions to the conception and design of the study, acquisition, analysis and interpretation of data, drafting of the article and revising it for important intellectual content.

Chara Skentou was involved in patient care and made substantial contributions to the conception and design of the study, acquisition, analysis and interpretation of data, drafting of the article and revising it for important intellectual content.

Efstratios Kolibianakis made substantial contributions to the conception and design of the study, acquisition, analysis and interpretation of data, drafting of the article and revising it for important intellectual content.

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Patient consent

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Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

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