CASE REPORT

Perforated Crohn's disease presenting during pregnancy

Jessica Burgers,¹ Oscar Ruiz,¹ Jose Rivers²¹Riverside Methodist Hospital, Columbus, Ohio, USA²Department of Anesthesiology, Baylor College of Medicine, Houston, Texas, USA

Correspondence to

Dr Jessica Burgers, jlburgers@gmail.com

Accepted 12 September 2015

SUMMARY

Severe exacerbations of Crohn's disease (CD) requiring acute surgery are rare, and rarer still are those that occur during pregnancy. We present a case of perforated CD in an obstetric patient. A 24-year-old woman at 27 weeks gestation, with abdominal pain, leucocytosis and concern for preterm labour, presented to our institution. MRI was obtained and demonstrated a phlegmon in the small bowel mesentery near the distal ileum, with concern for perforation. The patient was taken for an emergent exploratory laparotomy. Intraoperatively, an ileal perforation with small bowel fistula was observed and an ileocolicectomy with primary anastomosis was performed. Pathology of the resection revealed CD, a new diagnosis for the patient. She was ultimately discharged on postoperative day 13 and later went on to deliver a healthy term infant, and, 5 years later, has had no significant recurrence.

BACKGROUND

The typical age of onset for Crohn's disease (CD) is 15–30 years, therefore affecting women during their childbearing period. A majority of pregnant patients with inflammatory bowel disease (IBD) are diagnosed prior to pregnancy, however, one review estimates about 4.1% of women with CD are diagnosed during pregnancy. Furthermore, a new diagnosis of CD during pregnancy resulting in surgery is even rarer, limited to reportable cases.¹ We present a case of a patient with previously undiagnosed CD who presented in her second trimester, with abdominal pain; she was ultimately found to have ileal perforation secondary to CD. This case is interesting because it is an uncommon and potentially catastrophic presentation of this disease. Furthermore, it highlights that abdominal pain in pregnancy has a broad differential diagnosis that can result in delays in diagnosis with the potential to result in poor outcomes. For pregnant women who present with an acute abdomen, the best approach is through a multidisciplinary team, including obstetricians, intensivists, anaesthesiologists and gastroenterologists, as well as via timely surgical intervention.

CASE PRESENTATION

A 24-year-old woman at 27 weeks gestation (gravida 1 para 0) presented to our institution, with abdominal pain and concern for preterm labour. The patient had undergone a laparoscopic cholecystectomy for chronic cholecystitis 10 days prior at another institution, which is where she initially presented at a prenatal visit. She was noted to

be febrile, with a temperature of 102.2°F, and was hospitalised for 1 day and discharged; she subsequently returned with symptoms of acute abdominal pain with associated nausea and vomiting. In the transfer record, the patient had multiple recent admissions due to emesis, attributed to hyperemesis gravidarum and cholecystitis. Besides these antepartum conditions, the patient carried no prior diagnosis. She was accepted to the obstetric service under the presumed diagnosis of preterm labour.

INVESTIGATIONS

The patient's admission laboratory tests were significant for a leucocytosis of 26 300 cells/μL. Other studies, including liver function tests, were within normal limits. The obstetric service performed a negative amniocentesis for what was initially suspected to be chorioamnionitis. The patient's pain failed to improve, so she was placed on piperacillin/tazobactam and MRI was obtained approximately 10 h after admission. MRI was significant for a phlegmon in the small bowel mesentery near the distal ileum, with concern for perforation (figure 1).

DIFFERENTIAL DIAGNOSIS

Prior to obtaining the amniocentesis and MRI, the differential diagnosis was broad and included chorioamnionitis, appendicitis, pyelonephritis, IBD, postoperative complication related to the recent cholecystectomy, such as bile leak, retained cholelithiasis, cholangitis and pancreatitis. More specifically, an intraoperative cautery injury to the small bowel could have resulted in a perforation complicated by an abscess.

Figure 1 MRI of the abdomen demonstrating a phlegmon along the right side of the abdomen, with associated bowel wall thickening.

CrossMark

To cite: Burgers J, Ruiz O, Rivers J. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2015-210109

TREATMENT

The patient was taken for an emergent exploratory laparotomy. Intraoperatively, an ileal perforation with small bowel fistula was observed, and an ileocelectomy with primary anastomosis and complex wound closure was performed. During surgery, the surgeon noted fat wrapping and, with the fistulisation, concern was raised for CD. Pathology of the resection revealed CD as evidenced by acute on chronic inflammation with ulceration, lymphoid follicles and crypt abscesses. There was evidence of two enterocolic fistulas in the specimen (figure 2).

OUTCOME AND FOLLOW-UP

The patient required 2 units of packed red blood cells intraoperatively and was transferred to the labour and delivery floor postoperatively. Following surgery, the patient's hospital course was further complicated by ileus and *Clostridium difficile* colitis, which was treated with total parenteral nutrition and vancomycin. The patient was discharged home on postoperative day 13. In spite of this dramatic initial presentation of CD, the patient delivered a healthy term infant. The patient was referred to a gastroenterologist and was started on immunomodulatory therapy with 6-mercaptopurine after delivery, and is currently on maintenance therapy at 100 mg/day with plans to transition to infliximab. The patient has had subsequent colonoscopies and biopsies, which have demonstrated inflammatory changes consistent with CD, yet she has not required any further hospitalisations or surgical intervention. Five years later, the patient continues to struggle with chronic abdominal pain; she has had no further pregnancies, nevertheless, her child is healthy.

DISCUSSION

The typical age of onset for CD is 15–30 years, therefore affecting women during their childbearing period. One review noted that the majority of pregnant patients with IBD were diagnosed prior to pregnancy, however, 4.1% of women with CD were diagnosed during pregnancy. Severe exacerbations of CD requiring acute surgery are rare, and rarer still are those that occur during pregnancy. There are no data to suggest that CD is any

more severe during pregnancy, however, when operative intervention is required, there are unique surgical considerations. The most common surgical procedures for women with CD involve perianal procedures; in one review, 2.6% of pregnant patient with CD had active perianal disease.¹

Surgical indications for a pregnant patient are no different than for a non-pregnant patient, and include haemorrhage, perforation, obstruction and abscess. Diagnosis may often be delayed given the broad differential of abdominal pain during pregnancy.² Furthermore, if the patient has never been previously diagnosed with CD, the consideration for its complications would be low. As in our case, which was further obscured by the patient's recent cholecystectomy, diagnoses of postoperative pain, hyperemesis and chorioamnionitis were all entertained prior to discovering the intra-abdominal abscess by MRI. Diagnostic investigations are limited given the concern for fetal radiation exposure. Typically, contrast CT scans and enemas are avoided in favour of ultrasound and MRI. Rigid and flexible sigmoidoscopy can be safely performed during pregnancy. While these modalities are helpful in suggesting a diagnosis, it should be noted that, in our case, the diagnosis of CD was not entertained until the bowel appearance intraoperatively demonstrated fistulisation. Moreover, the question could be raised that the fistula and abscess were a postoperative complication from an unrecognised small bowel injury during the cholecystectomy. However, the appearance of fat wrapping of the small bowel lowers this suspicion. Additionally, CD was confirmed by the pathologist, as there was evidence of acute and chronic inflammation, with ulceration and cryptitis.

Most patients with CD are able to have successful uncomplicated pregnancies. The most common complications are preterm delivery and decreased neonatal weight.³ Patients are encouraged to conceive in periods of remission and there is no increased risk of relapse. However, patients with active disease at the time of conception are at increased risk of having persistent active disease, even with medical therapy through their pregnancy.² In 2006, an international multidisciplinary panel determined that physicians should advise patients with CD to continue their medical therapy while pregnant. They concluded that the greatest risk to the mother and fetus was active CD.²

It is important to emphasise the use of a multidisciplinary team to optimise the care of a pregnant patient with an acute abdomen. Obstetricians are necessary to evaluate potential complications of pregnancy and, once excluded, to assist with fetal monitoring. Anaesthesia in pregnancy poses its own challenges. The anaesthesiologist must inform the patient that the medications that will be used are safe, and that there is no clinical evidence of teratogenesis (classification B and C). There can, however, be an increased incidence of abortion and premature labour. If possible, regional anaesthesia should be used to decrease airway manipulation, avoid difficult intubation and to expose the fetus to a minimal amount of medications. If regional anaesthesia is contraindicated, general anaesthesia should be used after proper evaluation of the airway, proper pulmonary denitrogenation, and rapid sequence intubation to decrease the risk of hypoxaemia, hypercarbia and pulmonary aspiration. Intensivists may be consulted if the patient requires monitoring in the intensive care unit. In this case, the diagnosis of CD also includes the care of the gastroenterologists to determine the appropriate long-term therapy to maintain remission. Involvement of the surgical team early can expedite the decision to proceed to operative exploration, which may be the key to establishing the diagnosis and reducing morbidity and mortality, for the mother and fetus.

Figure 2 Low-power and high-power histology slides from the patient's surgical specimen, with low power demonstrating transmurial inflammation and high power demonstrating crypt abscess.

Learning points

- ▶ Crohn's disease should be a consideration in the differential diagnosis of a pregnant patient with an acute abdomen with or without a personal or family history.
- ▶ A pregnant patient with an acute abdomen is best managed by a multidisciplinary approach.
- ▶ Timely surgical intervention for pregnant patients with perforated Crohn's disease can improve the morbidity and mortality for the mother and the fetus.

Acknowledgements The authors acknowledge Dr John Leff, the surgeon who took care of this patient during her admission. They wish to thank John Elliott, who helped guide and supervise this case report. They also acknowledge Dr Syed Mohsin for providing the pathology slides. JB expresses the deepest gratitude to Riverside

Methodist Hospital for her training. JB also gives a special thanks to Denise and John Burgers.

Contributors JB conducted the review, wrote the first draft of the manuscript and rewrote new drafts based on input from the coauthors. OR provided input for all manuscript drafts. JR provided a draft regarding anaesthesia in pregnancy and gave input for manuscript drafts.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Bröms G, Granath F, Linder M, *et al.* Complications from inflammatory bowel disease during pregnancy and delivery. *Clin Gastroenterol Hepatol* 2012;10:1246–52.
- 2 Czymek R, Limmer S, Kleemann M, *et al.* Crohn's disease—a chameleon during pregnancy. *Langenbecks Arch Surg* 2009;394:517–27.
- 3 Bortoli A, Saibeni S, Tatarella M, *et al.* Pregnancy before and after the diagnosis of inflammatory bowel diseases: retrospective case-control study. *J Gastroenterol Hepatol* 2007;22:542–9.

Copyright 2015 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow