

Colonic diverticular disease during pregnancy

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ABSTRACT

Colonic diverticular disease consists in the presence of several diverticula in the colon. A diverticulum is a sac-like bag of varying sizes, resulting from hernias of the colonic mucosa outside the lumen. At the level of the digestive tract diverticula are most frequently found in the sigmoid colon. This pathology is rarely found in young people, so it is not considered when making a differential diagnosis in pregnant women with abdominal pain. This article will present two case reports of diverticulitis in pregnancy, published in the literature, as well as their diagnosis and management.

Keywords: pregnancy, colonic diverticulosis, colonic diverticulitis, colonic diverticular disease

INTRODUCTION

Colonic diverticular disease represents the presence of sac-like protrusion of mucosa (diverticula) through the muscular colonic wall [1]. Diverticular disease includes diverticulosis (asymptomatic diverticulum) and diverticulitis (inflammation of the diverticula). Also, diverticulitis can be complicated (i.e., associated with abscess, fistula, stricture, or perforation and peritonitis) or uncomplicated [2].

Colonic diverticular disease is rare in young patients [3]. As a result, diverticular disease rarely affects pregnant women and does not represent one of the most common differential diagnoses for pregnant women with abdominal pain.

Risk factors associated with diverticular disease are a diet high in red meat and refined carbohydrates and low in fiber [2,4].

From the entire digestive tract, the distribution of diverticula is more frequent in the sigmoid (95% of cases) [4].

Because of the recent rise in older patients conceiving, as well as the growing use of assisted reproductive technology modalities, particularly ovum donation in menopausal women, diverticular dis-

ease should be considered for differential diagnosis when a pregnant patient presents to the hospital with digestive symptoms such as abdominal pain, nausea, vomiting [5].

This review aims to present a rare pathology of pregnant women, that, when undiagnosed, can be dangerous for both the mother's and the unborn child's lives.

MATERIAL AND METHOD

Research of literature was conducted in the database of PubMed, to select full-length articles published in English language, in peer-reviewed journals, from 2000 to December 2021. The keywords along with respective combinations included in the search strategy were: pregnant, pregnancy combined with colon diverticulosis, colon diverticulitis, or colon diverticular disease. We found only two case reports.

DISCUSSIONS

Diverticulosis is defined by the appearance of sac-like protrusion of the colonic mucosa through

the muscularis mucosa that develops along natural weak spots in the intestinal wall [6].

Diverticular disease is more common as people become older, with rates from 10% in those under the age of 40 and 50 to 70% in those over the age of 80 [3,7,8,9].

A diet high in red meat, refined carbohydrates, and a low fiber diet represent some of the most important risks factors [2,4]. For people under 40 years old, obesity represents another risk factor [4]. A diet rich in fiber, especially fiber derived from cellulose (fruits and vegetables), can help preventing diverticular disease [4,10].

Painter and Burkitt were the first to propose a low fiber diet as a possible causative factor in the development of diverticular disease in the late 1960s [11,12]. Later on, the role of dietary fiber was also demonstrated by Talbot et al. in their study [13]. Also, Wess et al. demonstrated in their study on rats that maternal diet and subsequent progeny nutrition appear to be important in the development of colonic diverticulosis [14].

Up to now, only three case reports presented this condition. During pregnancy, diverticular disease is rarely considered for differential diagnosis. Besides this, pregnancy is known to reduce peritoneal symptoms, which can often disguise intra-abdominal surgical issues [15].

In the cases presented by Bodner et al. and Sherer et al., the patient has abdominal pain [5,15]. During pregnancy, abdominal pain is clinically challenging. The differential diagnosis of abdominal pain during pregnancy is complex since it can be caused by obstetric or gynecologic disorders, as well as by other intraabdominal diseases [16].

Both patients had also nausea and vomiting and mild constipation, but these symptoms accompany normal pregnancy [5,15]. Both patients were afebrile, so no infectious disease was taken into consideration [5,15].

Regarding laboratory findings, the patient in Bodner's case has an elevated white blood cell count and an elevated C-reactive protein [15]. The patient presented in Sherer et al. case had a normal white blood cell count, but potassium was 2.4 mEq/ml and urine was tested positive for cocaine metabolites [5]. This patient had medical history of high rectovaginal fistula that was repaired successfully 4 months postpartum, she was illicit drug user, she was treated previously for multiple sexually transmitted diseases (gonorrhea, chlamydia, and syphilis), and also had uterine leiomyomas [5].

Laboratory tests in diverticulitis show an elevated white blood cell count [4]. This is also frequently observed during gestation [15]. Usually laboratory studies may be helpful in diagnosis of diverticulitis, but in these cases they were not useful.

During pregnancy imaging studies that can be used for diagnosis and therapy include sonography, radiography, and magnetic resonance imaging (MRI) [17]. The optimum technique for diagnosing diverticulitis is a multislice computed tomography (CT) imaging with intravenous and luminal contrast material, which showed great sensitivity and specificity (98 percent and 99 percent, respectively) [2,18,19].

During pregnancy, patients fear the effect of radiation and contrast agents on fetus, and many do not want this type of investigation. This is the case of the patient in Bodner's case [15].

If available, MRI should be taken into consideration as a safer alternative to CT imaging during pregnancy [20]. MRI has no contraindications specific to the pregnant women [20].

In Sherer's case a MRI was performed and it revealed diverticulosis of the descending and sigmoid colon and findings suggestive of proximal sigmoid diverticulitis [5].

In both cases an abdominal ultrasonography was performed. In Bodner's case the ultrasonography revealed an inflammatory infiltration of the paracaecal tissue and a faecalith of unclear location at the site of the appendix or the caecum [15]. The suspected diagnosis was the onset of appendicitis [15]. In the case presented by Sherer et al. several intramural uterine leiomyomas were noted, and in the left uterine wall a semicystic, semisolid leiomyoma measuring 10/8/6 cm [5]. Diagnostic ultrasonography methods, including duplex Doppler imaging, have not been linked to any confirmed fetal harm [20].

In the case reported by Bodner et al. the patient was treated with intravenous hydration, parenteral double antibiotics and analgesics [15]. In the other case the patients received intravenous hydration, supplemental potassium, and received repeated doses of intramuscular analgesics [5].

In the first case, the one presented by Bodner, surgical intervention was necessary because the patient's symptoms did not improve after one day of medical treatment [15]. A cesarean section and abdominal exploration were performed [15]. A right colonic diverticulitis with perforation and a peritrophic abscess were found [15]. The histopathologic examination confirmed the clinical diagnosis [15]. Both the mother and the baby recovered completely [15].

Sherer's case ended with a premature birth at 34 weeks of pregnancy [5]. Postpartum the patient had signs and symptoms of small bowel obstruction [5]. A CT imaging confirmed the diagnosis and showed some findings consisting of perforated sigmoid diverticulitis [5]. An exploratory laparotomy was performed [5]. The surgery was complex, due to the

phlegmon that was formed near the sigmoid colon and a Hartman's procedure was performed [5]. During surgery the left ureter was transected and a left ureteroureterostomy was used [5]. The diagnosis was confirmed by the histopathologic examination [5]. In day 11 postoperative the colostomy was revised due to necrosis and after six months an elective re-anastomosis of the colostomy was performed [5].

Although in the first case the surgical management was without complications, in the second one an extensive operation with multiple risks and complications was necessary. Given these, diverticular

disease is a serious pathology worth considering when making a differential diagnosis in pregnant patients with abdominal pain.

CONCLUSIONS

Having discussed these cases, it is now clear that more data is necessary before we can draw a conclusion as to which guidelines are to be followed during its diagnosis, treatment, and follow-up. However, we should not ignore it in making a differential diagnosis when abdominal pain is present in pregnant patients.

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