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Case Report
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Uterine Perforation: An Unusual Cause of Acute Small Bowel Obstruction

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Keywords

Uterine perforation; Acute small bowel obstruction; Omentum

Introduction

Small Bowel Obstruction (SBO) mostly occurs after abdominal surgery, other frequent causes are hernia, inflammatory bowel diseases or tumoral spreads of malignant tumors.

We present a rather infrequent cause of SBO small bowel obstruction in the early post-operative period. A curettage for placenta remnants was complicated with a uterine perforation, causing an intra-uterine displaced of a small bowel loop, resulting in an obstruction. No damaged occurred to the intestinal wall through direct trauma, strangulation or necrosis.

After pregnancy the uterus retaining placental remnants is at risk for perforation by curettage. Although uterine perforation is not infrequent after curettage, the exact ratio is unknown, because of the usually mild complaints, like nausea, fever and mild abdominal pain. More important complaints usually are due to obstructions or bleedings.

Obstructions are dependent on the diameter of the perforation and the type of obstruction (the presence of a bowel loop, associated herniation of omentum, presence of adhesions causing an entrapment with strangulation and even necrosis) [1-3].

The severity of complaints depends also on the possible associated bleeding at the perforation site, a detachment of bowel mesentery giving transvaginal or transabdominal bleeding or a combination of both.

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Case Presentation

A 28-year-old female was admitted to the emergency department with persistent and increasing pain, fever and signs of obstruction. Three days before she underwent an intrauterine curettage for the removal of placental remnants after a delivery that occurred 50 days before.

Initial presentation the first day after the curettage was abdominal pain without fever or troubles of the transit. Analgetic therapy relieved the abdominal pain.

Two days after the curettage there was nausea, vomiting an increasing crampiform abdominal pain, increasing pelvic pain and bilateral fossa pain, leading to the admission to the emergency ward.

Laboratory findings revealed an inflammation and a high white blood cell count, with mainly neutrophils. A gynecological ultrasound showed a uterus filled with a structure with peristalsis. The contrast enhanced Computed Tomography (CT-scan) examination of the abdomen showed an important small bowel obstruction (Figure 1), accompanied by a caliber jump in the right fossa and a perforation of the right uterine wall with a diameter of 1.7 cm. A small bowel loop was displaced through this uterine perforation and was wedged into the uterine cavity (Figure 2). These findings were also accompanied by ascites in the Douglas cavity but no collection or abscess formation. Neither clear signs of bowel sufferance (strangulation) or evidence of perforation of the bowel structures were present on the CT-scan examination [4,5].

At surgery trapped small bowel loop through a perforation of the right side of the fundus of the uterus was confirmed. During this intervention the direct inspection showed no signs of intestinal bowel strangulation or direct lesion of the bowel wall. A direct extraction of this clamped intestinal loop was not possible. Only after internal uterine lavage and raising pressure a remove of this

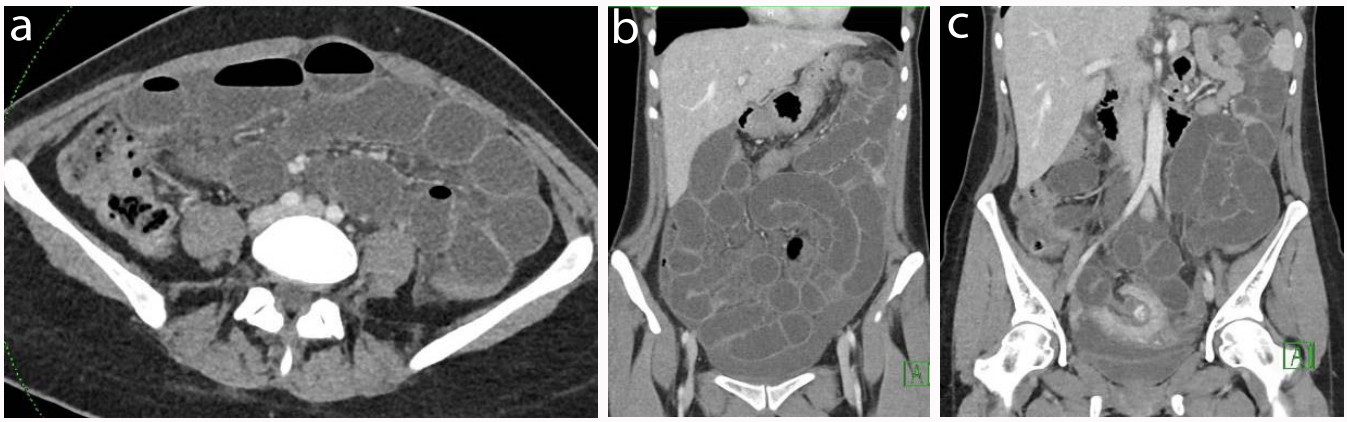

Figure 1: In figure (a,b,c): Abdominal small bowel obstruction with the right sided perforation of the uterine cavity, without signs of perforation or active bleeding.

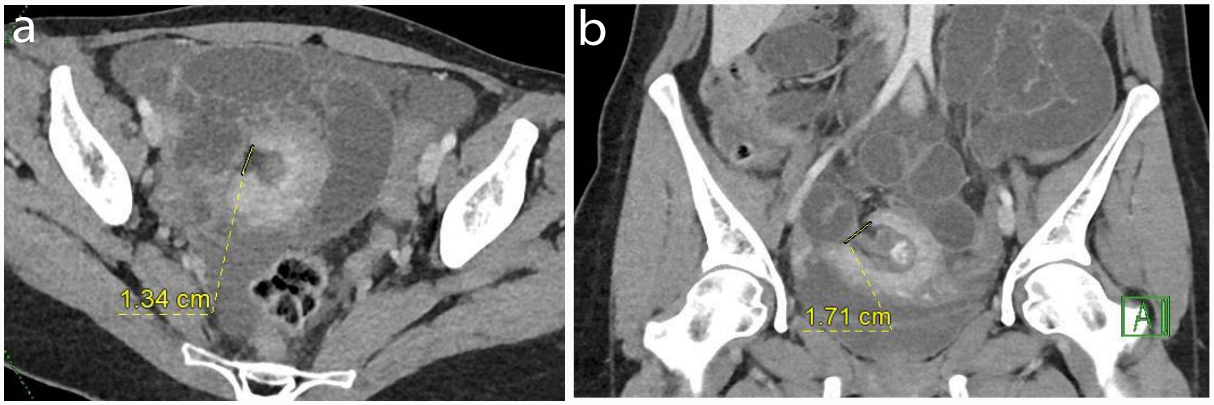

Figure 2: In figure (a,b): Axial (a) and coronal (b) reconstructions showing the uterine perforation with the entrapped small bowel loop through the perforation into the uterine cavity and the ascites in the Douglas cavity.

entrapped intestine loop from the uterus was obtained. After ICH a good flow of the small intestine was obtained. Subsequently, a suture of the uterine perforation was performed, with a good restore of the small bowel transit, and without any bowel suffering and good clinical and post-operative out-come with relief of the abdominal complaints and normal transit at the control examination two weeks later.

Discussion

An obstruction of the small bowel can occur at all ages.

The most frequent causes are adhesions after abdominal surgery (which the main cause of small bowel obstruction) [6]. The early postoperative small bowel obstruction was most often due to adhesions and inflammatory processes, mostly after procedures involving the colon.

Other common causes are hernias (through a weakened section of the abdominal wall), inflammatory bowel disorders (Crohn's disease or diverticulitis, etc.), which cause damage of the small intestine with strictures or fistulas. Other frequent causes are malignant tumors, mostly spreads to the small bowel from the colon, female reproductive organs, breasts, lungs or skin. Also internal herniation by endoluminal lesion, tumor or diverticula is a possible cause.

The most common cause is post-operative complication, occurring by formation of adhesions, mostly Tardive after abdominal or pelvic surgery [7]. Immediate or early small bowel obstruction is less frequent (10%) in the immediate post-operative period and can be safely and effectively managed by nasogastric decompression in the majority of cases, with low morbidity and no mortality. In general, re-exploration was be reserved for those patients whose symptoms do not resolve within six days of nasogastric decompression [8].

Our case shows a rather infrequent complication 3 days after performing a curettage for intrauterine removal of placental remnants after delivery 7 weeks before.

This curettage went well without any surgical complications and with an initial good clinical outcome, with the patient being able to leave the hospital the same day [9].

In the following days there was an increasing abdominal pain, fever, signs of obstruction and peristaltism of the uterus with signs of inflammation and a high white blood cell count, mainly neutrophils. At that moment, a possible complication after curettage with possible abscess formation, adnexitis or possible uterine perforation, with a secondary bowel obstruction was suspected. The CT scan showed however an unexpected perforation (given the normal course of the procedure performed, without complications or bleeding and because the initial good outcome) of the uterus with an incarceration of a small bowel loop and with an overlying small bowel obstruction [10].

After uterine curettage or hysteroscopic surgery, uterine perforation is not a rare complication, although these complications are rather mild presenting usually with hemorrhage, post-surgical fever and metabolic complications [11]. The real incidence of uterine perforation is unknown, because they resolve without complications,

the first small bowel obstruction due to uterine perforation was published in 1864.

Intervention with uterine synechiae is associated with the greatest risk of complications.

The uterine perforation can be divided into two groups (1) due by dilation and passing through the cervix uteri (cervical laceration, creative a false cervix uteri, perforation, bleeding, impossibility to pass through the inner orifice of the cervical canal, insufficiency of the cervix uteri) or (2) due to the operative technique itself by direct uterine perforation, fluid overload (the most severe could indeed be the fluid overload) or thermal or mechanical trauma of the inner urinary and gastrointestinal tract and infection [12].

Small bowel obstruction caused by uterine perforation due to curettage for retained parts of the placenta after previous pregnancy, as one of major complications, is extremely rare.

This perforation during surgical intervention with curettage is due to a rare occurrence of instrumental uterine perforation and also gives a spontaneous healing of most (recognized and unrecognized) uterine perforations without further complications [13].

A small bowel obstruction after uterine intervention is extremely rare: The larger the size of perforation the easier for the bowel to incarcerate through the uterine wall or even given risk to eviscerate of bowel loops. The described size of uterine perforation had diameter larger than more than 1 cm and mostly larger than 2 cm. The small bowel mostly prolapses through uterine perforation due to inadvertent aspiration, spontaneous protrusion through large perforation or by inadvertent pulling of small bowel. The incidence of small bowel incarcerated amounts to about a quarter, which increases the larger uterine wall perforation, with sometimes by the most pronounced herniation the present of small bowel loops are pulled out of vaginal canal.

There is also the possibility of bowel obstruction, who accompanied by an incarcerated herniated omentum and a band attached to the omentum strangulates a segment of the extrauterine small bowel producing obstruction. Another mechanism can be caused by entrapment of small bowel in adhesions at and around the site of uterine perforation.

There's also a fourth type of obstruction is known as the Richter hernia when the antimesenteric wall of the intestine protrudes through a defect in the uterine wall (rare, with an incidence estimated of 3%).

Usually, uterine perforations are recognized at the time of the dilation and curettage. But even unrecognized, the majority of patients have uncomplicated course with spontaneous healing of uterine perforations, without intestine obstruction.

The clinical presentation, severity, intensity and time of presentation of obstruction (without iatrogenic bowel perforation) is depending mainly two coexisting two pathophysiologic processes:

The first is the mechanism of small bowel obstruction itself: If adhesions are the cause of partial or progressive small bowel obstruction than non-specific symptoms including abdominal pain with/without distension, vomiting, (paradoxal) diarrhea or absence of flatus and/or stool is present [14].

These symptoms cause the delay in diagnosis (between 4 days to 4 months); therefore patients with partial obstruction are commonly managed conservatively. In the advanced stage fever and chills are present in when small bowel gangrene ensues. A serious consideration of this possibility is necessary, as the intrauterine location of strangulated bowel may mask the characteristic peritoneal signs [15,16].

An ischemic bowel perforation should be pathophysiological differentiated from the direct bowel injury during instrumental uterine perforation, but will develop an early clinical picture mostly within few hours after the procedure.

The second mechanism is the present of associated bleeding, either coming from the uterine wall around perforation or from the detached mesentery from its bowel.

Like mentioned before the presentation can be delayed after 2 years due to Richter type of hernia.

Conclusions

A Small Bowel Obstruction (SBO) associate with a uterine perforation after curettage is quite rare.

It is also presumed that the real incidence of uterine perforation is probably higher because the mild symptoms and also underreported of perforations.

There are a lot of risk factors for uterine perforation, with an increasing risk depending of the number of gestations, woman's age, and the possibility of adhesions due to earlier gynecologic interventions.

The case we present is however, a young healthy primipara who underwent a curettage for placenta remnants rather lately after delivery 7 weeks before.

Although this procedure was performed normally without complications and the patient was able to leave the hospital the same day. She developed at home quite rapidly but intermittent symptoms, relieving with analgesia. Only after increasing abdominal pain and also developing fever she was admitted to the emergency room. Further examination shows a leukocytosis and the present of bilateral pelvic pain without clear signs of obstruction. A first the diagnosis of pelvic abscess was retained.

The CT-scan examination however showed the uterine perforation with an intra-uterine small bowel loop causing an SBO, with without complications of strangulation or bleeding neither abscess formation.

By uterine perforation the size of perforation in combination of positive intra-uterine pressure increases the possibility for displacement of bowel loops into the uterine cavity and in extremely even into the vaginal canal, with possible intermittent or total bowel obstruction.

If the perforation is accompanied by laceration of blow vessels from the uterus, omentum or other underlying structures, also a transvaginal or intra-abdominal bleeding can be present, with an earlier presenting.

In our case there was no accompanying blooding or abscess formation at the CT-scan examination neither at laparoscopy. There was no significant sufferance of the entrapped bowel loop, although in extreme strangulation gangrene with perforation and abscess formation may occur. After extraction of the entrapped bowel loop

a normal transit was obtained and the uterine perforation was closed.

It is important like in this case to be beware of the possible complications after uterine curettage, even by women without important risk factors and to exclude uterine perforations and its possible associated complication like SBO by bowel incarceration and bleeding as well direct trauma to bowel or other surrounding structures by performing enhanced CT-scan examination.

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