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A straw entering the abdominal cavity through the female reproductive tract: a case report

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Abstract

In this article, an unusual case of a 27-year-old woman, who presented with abdominal pain for the previous 2 days, is presented. Ultrasonography revealed a perforated uterus and a straw in the abdominal cavity. A foreign body in the abdominal cavity was diagnosed and removed by laparoscopic surgery, and antibiotics were administered. The patient reported no discomfort during follow-up for 1 month. This report highlights the rare case of a foreign body crossing the uterus into the abdominal cavity. The only possible action was immediate surgery to remove the foreign body from the abdominal cavity.

Keywords

Foreign bodies, abdominal pain, laparoscopy, case report, reproductive tract, perforated uterus

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Introduction

Among the numerous potential causes of acute abdominal pain in women, foreign bodies in the abdominal cavity are very rare. Occasionally, foreign bodies may enter the abdominal cavity through vaginal and uterine pathways, and a proportion of these occurrences are due to uterine perforation by intrauterine devices (IUDs).[1] Herein, a unique case in which a straw was introduced into the abdominal cavity through the reproductive tract, and was finally removed laparoscopically, is described.

Case report

A 27-year-old woman with a history of three pregnancies and three vaginal deliveries was admitted to SSL Central Hospital of Dongguan City, Guangdong Province,

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China, in January 2018, because of lower abdominal pain for the previous 2 days. The patient had placed a straw into her vagina during the night 2 days previously. After the straw was inserted, the patient developed transient lower abdominal pain with a little vaginal bleeding, but no fever, nausea, vomiting or other discomfort. No history of surgery, or alcohol or drug misuse was reported. Speculum examination showed blood in the vaginal vault, but no clots, discharge, or vaginal laceration, and the cervix appeared closed. Bimanual examination revealed no cervical motion tenderness, however, there was slight tenderness in the uterus. Subsequent abdominal and transvaginal ultrasound examination suggested a little intrauterine effusion, but no foreign body was observed in the intrauterine cavity, and uterine perforation was considered (Figure 1). A tubular echo was then observed in the right upper abdominal cavity (Figure 2), and the patient was diagnosed with an abdominal foreign body. The differential diagnosis included consideration of pelvic inflammatory disease, appendicitis, and bowel perforation. After hospital admission, routine blood examination revealed a white blood cell count of 5.78×10^9 cells/l (with 52% neutrophils), a C-reactive protein level of 18.98 mg/l, and normal coagulation function. In addition, liver and kidney function, and abdominal x-ray results were all found to be normal. Laparoscopic surgery was performed. During the operation, a perforation was found in the posterior wall of the uterus without active bleeding (Figure 3). A white plastic tube was discovered in front of the transverse colon, that was about 8-cm long, wrapped by the omentum, and one end of the straw was loose (Figure 4 and 5). The bowel was not perforated, and no pus was observed near the straw. During the operation, the straw was removed from the abdominal cavity and antibiotics (1.5 g cefuroxime sodium for injection, once per 8 h) were administered. The patient was discharged 1 day after surgery, and did not report any discomfort during 1 month of follow-up.

Ethics approval for the study was not deemed necessary because the institutional review board of SSL Central Hospital of Dongguan City does not require approval

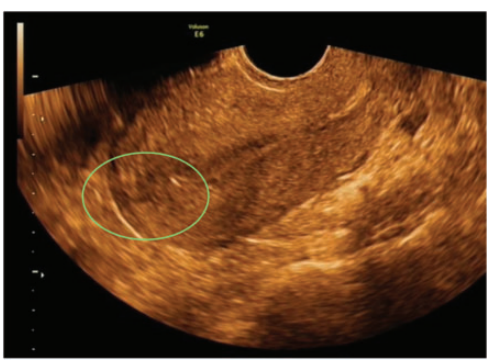

Figure 1. Transvaginal ultrasound image from a 27-year-old female patient who presented with lower abdominal pain for the previous 2 days after placing a straw into the vagina. Ultrasound examination suggested that the serosa at the bottom of the uterus was interrupted, and uterine perforation was considered (green circle).

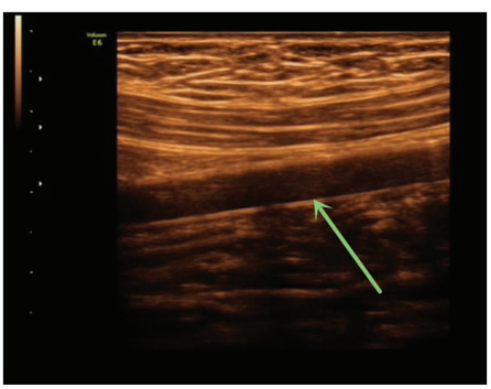

Figure 2. Abdominal ultrasound image from a 27-year-old female patient who presented with lower abdominal pain for the previous 2 days after placing a straw into the vagina, displaying evidence of a tubular foreign body in the abdomen (arrow).

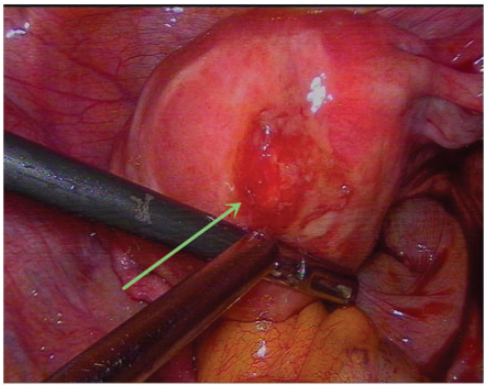

Figure 3. Intraoperative image from a 27-year-old female patient who presented with lower abdominal pain for the previous 2 days after placing a straw into the vagina, showing perforation of the posterior uterine wall (arrow) without active bleeding.

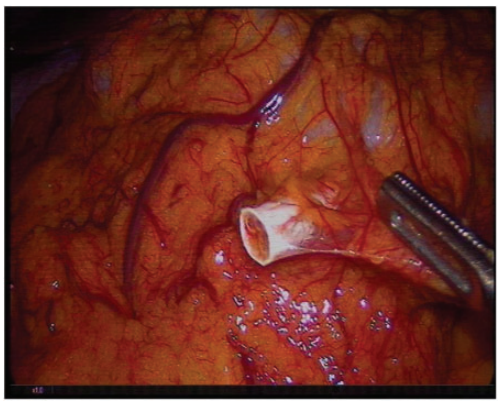

Figure 4. Intraoperative image from a 27-year-old female patient who presented with lower abdominal pain for the previous 2 days after placing a straw into the vagina, showing the visible straw under laparoscopy.

for case reports. Written informed consent for treatment was obtained from the patient. All patient details were de-identified for the case report, and the report was written in accordance with CARE guidelines.[2]

Discussion

In the present case, the patient had a history of three vaginal deliveries, and the cervix

Figure 5. Intraoperative image from a 27-year-old female patient who presented with lower abdominal pain for the previous 2 days after placing a straw into the vagina, showing the visible straw under laparoscopy.

was relatively wide and loose, which provided the necessary conditions for the straw to enter the uterine cavity. The straw was relatively hard, with a length of 8 cm, and a slightly slanted head, which enabled it to penetrate into the uterine myometrium, eventually causing uterine perforation and entry into the abdominal cavity. Fortunately, the straw did not penetrate the bowel. In terms of the reason for the patient inserting the straw into the vagina, the patient may have been worried that menstrual blood was unable to flow out, due to a delay in menstruation, and she thought of using a straw for drainage, which eventually caused uterine perforation. The advantages of this case were definite diagnosis and early surgical treatment.

Common sources of foreign bodies in the abdominal cavity include the following: (1) items passing through the upper and lower digestive tract, such as through the oropharynx and anus; (2) medical sources, such as surgical needles, gauze blocks, and surgical instruments, left in the body during surgery. These are serious medical accidents, and clinical medical personnel should strictly abide by the medical code

of conduct to avoid such incidents; (3) trauma, such as gunshot injury and industrial injury; and (4) transurethral foreign body insertion through the urogenital tract, such as the urethra and vagina. Most reports describe male patients who choose to insert the foreign body into the urethra for autoerotism.[3] However, gynaecologists often see intrauterine devices displaced to the abdominal cavity, even penetrating the intestinal tube.[4]

The clinical manifestations and symptoms of abdominal foreign body implantation vary, with some patients having no symptoms at all. Some patients have acute abdominal symptoms, such as pain, sepsis, abscess, a non-healing wound, fistula and intestinal obstruction. The human body's reaction to foreign bodies in the abdominal cavity may be classified into two categories, as previously described:[5] (1) Acute inflammatory reaction with or without secondary abscess formation. Such patients often have obvious abdominal pain, fever and other manifestations, which are easy to find clinically. As presented in the current case, the patient experienced abdominal pain symptoms the day after the straw was placed, and during laparoscopy, the straw was found to be wrapped by the greater omentum in the abdominal cavity; and (2) reaction accompanied by fibrosis and pathological tumour formation, which is often caused by sterile foreign bodies, such as surgical instruments and gauze blocks. Foreign bodies stimulate the abdominal cavity to form chronic inflammatory granuloma. The clinical manifestations in patients are often not obvious. The longer that foreign bodies are left in place, the increased likelihood of granulation tissue being generated. In addition, it is suspected that the mass may be misdiagnosed as a tumour in the abdominal cavity, and the operation is more difficult.[6,7]

Methods of diagnosing foreign bodies in the abdominal cavity include B-ultrasound, computed tomography (CT), X-ray, and nuclear magnetic resonance imaging. X-ray has unique advantages for metal foreign bodies, such as detection of retained surgical needles.[8] CT tomography plays an important role in determining the location of foreign bodies in the abdominal cavity and identifying the relationship between foreign bodies and surrounding tissues. Particularly in patients with foreign bodies inserted through the digestive tract, CT tomography is the best choice for clinicians.[9] However, transvaginal ultrasound plays an important role in the diagnosis and treatment of gynaecological diseases.

For the best treatment outcomes, patients with abdominal pain need to present at hospital in a timely manner. Once the foreign body in the abdominal cavity has been diagnosed, the relationship between the foreign body and the surrounding organs, particularly the relationship with the bowel, should be further examined and the foreign body should be removed as soon as possible.

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Author contributions

Jincheng Huang: Data collection and analysis, drafting, revision and final approval.
Min Guo: Data collection, drafting and final approval.
Wenjian Zhang: Revision and final approval.
Cuifen Li: Read and checked the case report before submission and final approval.

Data accessibility

Datasets supporting the conclusions of this article are included within the article.

Declaration of conflicting interests

The authors declare that there is no conflict of interest.

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