Hernia of the broad ligament of the uterus

Satoshi Tokuda, Hajime Orita, Tomoaki Ito, Mutsumi Sakurada, Tomoyuki Kushida, Hiroshi Maekawa, Miki Yamano, Ryo Wada, Koichi Sato

ABSTRACT

Introduction: Intestinal obstruction is commonly seen at emergency services but is not usually caused by internal hernias (organs or intestinal tract invaginated in the abdominal cavity, purse and hiatus). Herniation through defects of the broad ligament is especially rare. In this study, we report a case that was difficult to diagnose due to a lack of useful information; a 49-year-old woman with intestinal obstruction because of hernia of the broad ligament of the uterus.

Case Report: A 49-year-old female presented with intermittent abdominal pain. Laboratory findings showed only slight leukocytosis (white blood cell count 12,500/ μ l). Four days later, her condition had worsened. Computed tomography (CT) scan showed distended loops and fluid in the Douglas' pouch. We thought that the cause was internal hernia and decided to operate. During surgery, the hernia of the broad ligament of the uterus was discovered. We resected the fallopian tube and proper ligament of the ovary and released the hernia. The postoperative course was uneventful and the patient was discharged on the day-8.

Conclusion: We treated a case of an internal broad ligament hernia which was difficult to diagnose.

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CASE REPORT

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Keywords: Broad ligament, Ileus, Internal hernia, Intestinal obstruction, Uterus

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INTRODUCTION

Internal hernias are very rare accounting for about 1% of all hernias [1]. Add to that, herniation through defects of the broad ligament of the uterus is even rarer (5% of internal hernias) [2]. The broad ligament of the uterus is one of the structures which fix the position of the uterus (along with the round ligament of the uterus, transverse cervical ligament and uterosacral ligament). This hernia can be caused by congenital abnormality, pregnancy, pelvic inflammatory disease, aging and so on.

We report a difficult case to diagnose the hernia from the clinical features and were anxious about the surgical indications.

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CASE REPORT

A 49-year-old woman presented with intermittent abdominal pain around her umbilicus and nausea. There was no rebound tenderness and abdominal guarding. She had the symptoms for a half day before coming to our hospital. She had myoma of the uterus and cavernous hemangioma but had never undergone surgery. Laboratory findings showed only slight leukocytosis, and X-ray showed a few dilated small bowel loops in the abdomen. We found the same distended small bowel loops in the CT scan (Figure 1).

The patient was admitted to Department of Surgery, Juntendo Shizuoka Hospital, Shizuoka, Japan with ileus and treated with fast transfusion (fluid resuscitation) and nasogastric tube. From the tube, we found drainage of about 400–500 ml/day.

Four days later, her stomachache had worsened, so we did another X-ray and CT scan (Figure 2).

Laboratory results had not changed (only leukocytosis was found) and there was no indication of intestinal disorders. We found an increase in the size of the small bowel loops with air on the X-ray. The CT scan showed distended loops and fluid in the Douglas' pouch. There was large volume ascites in the abdomen, so we decided to operate for the ileus.

For her safety, we selected a laparotomy. At surgery, we saw the ascites (serous) about 700 ml. The small intestines were edematous, the mesentery was strangulated by the fallopian tube and the blood flow to the intestine was decreased.

We resected the fallopian tube and proper ligament of the ovary and released the hernia. We washed the intraperitoneal with warm saline solution. We did not need to resect the intestine because of the recovery of the blood flow (Figure 2C–E).

The postoperative course was uneventful and the patient was discharged on day-8.

DISCUSSION

Internal hernias are rare and are classified into seven groups; paraduodenal, foramen of Winslow, pericecal, intersigmoid, transmesenteric, transomental and retroanastomotic [3]. Of internal hernias, the paraduodenal type is the most common (30–53%) [4]. An internal hernia of the broad ligament is an extremely rare cause of small bowel obstruction [1, 2].

The causes of the type of hernia can be roughly divided into two types; congenital (ruptured cystic structures reminiscent of the mesonephric or mullerian ducts) and acquired (operative trauma, pregnancy and birth trauma, or prior pelvic inflammatory disease) [5]. In addition, the type of hernia often occurs on the left side because of the defect of the broad ligament [6].

Hunt classified hernias into two types; fenestra and pouch [7]. The fenestra type is an internal hernia that

Figure 1: (A, B) The X-ray and computed tomography (CT) scan were taken on admission. The X-ray showing no abnormal gas. Axial CT scan of the abdomen with intravenous contrast administration showing only distended small intestine.

Figure 2: (A, B) The X-ray and computed tomography (CT) scan were taken four days later. X-ray showing an increase in the small intestinal gas. Computed tomography scan showing the distended loops with air-fluid level in the Douglas' pouch. Mesenteries and blood vessels concentrate in the vicinity of uterus. The distended loops push the uterus to contralateral and ventral side. In addition, the loops push the sigmoid colon and rectum to the back side, (C) The mesentery was tightened by the Fallopian tube, (D) The situation after dissection of the fallopian tube and ligament of ovary, (E) The mesentery congested with blood.

goes through the broad ligament, on the other hand the pouch type is formed by a defect in the anterior or posterior aperture. Our case was a fenestra type hernia.

We found cases in the literature illustrating the effectiveness of CT scan for the diagnosis of internal hernia of the broad ligament. Symptom included (i) distended loops with air-fluid level in the Douglas' pouch, (ii) distended loops pushing against uterus, rectum and sigmoid colon, and (iii) convergence of the mesentery and blood vessels for the uterus [8]. In our case, the patient had no history of surgery.

We saw the leukocytosis in her laboratory report, but were not able to get other useful information from it.

On admission, CT scan showed only enlargement of a portion of the small intestine, so there was no indication of internal broad ligament hernia. We retrospectively checked the CT scan which had been performed four days after admission and noticed the distended bowel loops pushed against the uterus, rectum and sigmoid colon. We could see the convergence of the mesentery and blood vessels on the uterus. It is said that the certain features of the CT scan are very useful for the diagnosis [8]. However, the CT scan which had been performed on admission did not have the features.

It was very important to check the chronological change after hospitalization. We found the change in her condition and consequently were able to treat her.

Internal hernia of the broad ligament has no characteristic physical symptoms, so a CT scan is very valuable in diagnosis. We should not hesitate to take CT scans repeatedly, even if the first image does not have specific features. If the condition is diagnosed in advance, the operation can be performed using laparoscope.

We can see the effectiveness of laparoscopy for this type of hernia in the literatures [9, 10]. Laparoscopic surgeries result in a better postoperative course and shorter hospitalization than open surgeries [11].

CONCLUSION

We treated a case of an internal broad ligament hernia which was difficult to diagnose. Computed tomography (CT) is very useful for diagnosing of such cases. The CT scan which was performed in our case showed the features of the hernia retrospectively. We should keep this condition in mind when we treat women with ileus.

Author Contributions

Satoshi Tokuda – Substantial contributions to conception and design, Acquisition of data, Drafting the article, critical revision of the article, Final approval of the version to be published

Hajime Orita – Substantial contributions to conception and design, Acquisition of data, Drafting the article, critical revision of the article, Final approval of the version to be published

Tomoaki Ito – Acquisition of data, Drafting the article, Final approval of the version to be published

Mutsumi Sakurada – Acquisition of data, Drafting the article, Final approval of the version to be published

Tomoyuki Kushida – Acquisition of data, Drafting the article, Final approval of the version to be published

Hiroshi Maekawa – Acquisition of data, Drafting the article, Final approval of the version to be published

Miki Yamano – Acquisition of data, Drafting the article, Final approval of the version to be published

Ryo Wada – Acquisition of data, Drafting the article, Final approval of the version to be published

Koichi Sato – Acquisition of data, Drafting the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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