

STRANGULATION OF A SMALL BOWEL LOOP CAUSED BY A DEFECT IN THE BROAD LIGAMENT OF THE UTERUS

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The broad ligament of the uterus is formed by the peritoneal layers covering its two surfaces. A defect may involve one or both peritoneal layers, and this frequently occurs on both sides of the broad ligament. Etiological factors to be considered include: 1) defects as a sequel of surgically created openings in the broad ligament, performed in the past as a treatment of uterine retroversion known as Webster-Baldy operation;¹ 2) delivery trauma; 3) congenital anomaly, and 4) pelvic inflammatory disease.²

Herniation and obstruction with or without strangulation of the abdominal contents into these defects are extremely rare. We report a case of a patient who presented at King Khalid University Hospital, Riyadh, with intestinal obstruction and strangulation due to bowel entrapment through a defect in the broad ligament of the uterus. We discuss here the historical background, clinical features, management and a review of the literature in this case which we believe is the first to be reported from Saudi Arabia.

Case Report

A 42-year-old Eritrean woman, gravida IV para III with one previous abortion, was admitted with a history of colicky pain which was initially umbilical, but shifted to the the suprapubic region of the lower abdomen, and accompanied by the absence of flatus two days prior to admission. Nausea and vomiting occurred only on the first day of the attack. There were neither urinary symptoms nor history of previous vaginal discharge. Menstruation was regular but painful. The patient had a history of dyspareunia. No previous history of definite pelvic or abdominal surgery was known.

General examination revealed a febrile woman with

unremarkable vital signs. The abdomen showed no scars or distension, but a physical examination elicited tenderness of the abdominal muscles guarding the right iliac fossa. Although bowel sounds were normal and no masses were felt, plain x-ray showed the presence of some gas and fluids.

A provisional diagnosis of intestinal obstruction was made. Laboratory investigations showed white blood count (WBC) of 11,300. The hemoglobin, hematocrit, platelets, urea, electrolytes and liver function tests were all within the normal limit. The patient was put on nothing per os, and a nasogastric tube (NGT) and intravenous line were inserted. Ultrasonic examination revealed distended loops of small bowel containing gas and fluids. Gallstones were also noticed. There was no organomegaly. The patient declined surgical intervention and was treated conservatively. The following day, a re-examination of the abdomen again revealed no abdominal distension. Tenderness and guarding remained unchanged. The patient expressed an improvement in her condition but according to her, had still not passed any stool or flatus. The amount of fluid collected from the NGT was 85 mL in the preceding 24 hours.

Repeated abdominal plain x-ray demonstrated no improvement. Exploratory laparotomy, initially refused, revealed a herniation and strangulation of approximately 108 cm of ileum, through a defect in the right broad ligament of the uterus. Resection of the strangulated ileum was performed, and end-to-end anastomosis was made. The broad ligament defect was closed with non-absorbable suture. Inspection of the contralateral side of broad ligament revealed no defect.

The postoperative course was uneventful, apart from a seroma in the upper pole of the wound which was evacuated. The patient made good recovery and remained free of symptoms during the follow-up period.

Discussion

Intestinal obstruction usually presents as an acute condition necessitating surgical intervention. The small

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bowel is usually implicated in this disorder. Among the known causes, adhesions, strangulated groin hernias and neoplasms are the most common.³ Other less common causes of intestinal obstruction include internal hernia, which is defined as herniation of abdominal structures, usually the bowels, into an anatomical aperture or surgically created defect in the visceral peritoneum.

Herniation through a defect in the broad ligament of the uterus is extremely rare. Slezak mentioned that Quain was the first to report a case of herniation and incarceration of bowel through a defect in the broad ligament of the uterus, which he found during autopsy.¹ This type of herniation represents less than 7% of all internal hernias.⁴ In most of the reported cases, the herniating organ was the ileum.⁵ However, other structures such as the colon, ovary, omentum, appendix and ureter have also been implicated.¹

The defect in the broad ligament is divided into primary and secondary types. In the past, secondary defect, usually the result of a Webster-Baldy operation as a treatment of uterine retroversion, was the cause of bowel entrapment and intestinal obstruction in more than 35% of cases.^{6,7} More than 70 cases of primary defect in the broad ligament with intestinal obstruction with or without strangulation have been reported in the world literature. More than 80% of the primary defect in the broad ligament occurred in multiparous women, which may favor the belief of delivery trauma as a major possible etiological factor of this defect.⁷ Bordenca also reported intestinal obstruction in a pregnant woman caused by herniation of the sigmoid colon into a broad ligament defect.⁸ However, other causes, such as congenital anomaly and pelvic inflammatory conditions, also have to be considered.²

Preoperative diagnosis of herniation through a defect in the broad ligament of the uterus is difficult to make due to the absence of typical clinical and investigative signs. However, recent reports indicate that a correct preoperative diagnosis can be made by CT scan.⁹⁻¹¹ The lack of symptoms and signs of the condition during the initial presentation may subsequently lead to a delayed diagnosis, which could play a role in the progression of the disease, resulting in a higher rate of morbidity and mortality.

Surgical reduction of the hernia is accomplished if a viable bowel is found. If a loop of the bowel is non-viable, as in our case, resection has to be carried out. Ishihara et al. reported a similar case that necessitated resection and anastomosis.¹⁰

In conclusion, we have described a rare case of herniation of intestinal loop into a defect of the broad ligament of the uterus, which resulted in intestinal obstruction and strangulation necessitating resection of the non-viable intestine. Awareness of this condition, and available diagnostic measures such as ultrasound, CT scan and barium enema, may make an early diagnosis possible, thereby reducing the rate of morbidity and mortality.

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