Case Report

A rare complication of uterine rupture following C-section: Intestinal obstruction due to internal hernia

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Abstract

Although post-operative acquired internal hernias at the cesarean (C) section incision site of the uterus were reported previously, there is no case in the literature in which intestinal herniation into uterine cavity at a different site than C-section uterine incision was reported. We report here for the first case in which bowel was herniated into uterine cavity from an un-incised location. A thirty-six year old woman was hospitalized with mechanical intestinal obstruction who had a C-section operation 2 weeks ago at 36th gestational week. During laparotomy about 20 cm of small bowel was found to be herniated into uterine cavity from a 3x2 cm defect, on the right of uterus isthmus. Because herniated bowel was perforated and necrotized, resection and anastomosis were performed. Uterine perforations mostly heal spontaneously without any complications. However, possibility of herniation into uterine cavity should be kept in mind when bowel obstruction symptoms are encountered after a C-section.

Key Words:
Uterin rupture, internal herniation, intestinal obstruction

Introduction

Internal hernia, as a rare cause of intestinal obstruction, is defined as protrusion of abdominal organs to peritoneal cavity or retroperitoneal space. Internal hernias can be classified into 6 groups; para-duodenal, pericecal, foramen Winslow, transmesenteric, pelvic, supravesical, and intersigmoid. Internal hernias may be congenital or acquired [1]. Paraduodenal hernias, which accounts nearly 50% of congenital hernias, is responsible for 1% of all intestinal obstructions [2]. Acquired hernias, which may develop following a trauma or surgical operations, are less common than congenital hernias. Due to rarity of the cases and nonspecific clinical symptoms, diagnosis of internal hernia presents a challenge for clinicians. If not diagnosed and treated in a timely manner, internal hernias may develop complications of intestinal obstruction, ischemia or necrosis [1,2,3]. After a cesarean section (C-section) complication rate is 14.5%, infection being the most common reason (13.3% of cases) [4]. Rupture of uterus after C-section is a rarely seen occasion, however, it is well known especially in a scarred uterus. The risk of uterus rupture in women with a previous lower segment C-section is reported to be 0.2-1.5%, significantly higher than unscared uterus, which is extremely rare (<1 per 10,000) [5]. Small bowel obstruction following uterus perforation, whether conservatively treated or unrecognized, is also extremely rare incidents. However, it a surgical emergency as a delay in diagnosis and treatment may have detrimental consequences for the mother [6,7].
In this study, we report a case of internal intestinal herniation into uterine cavity as a result of post C-section uterus rupture during neoadjuvant chemotherapy in a patient who was diagnosed with metastatic cancer at 36th week of pregnancy.

**Case Presentation**

A 36-year-old woman was consulted for complaints of abdominal pain, nausea-vomiting, constipation, and flatulence for 2-3 days while she was receiving neoadjuvant chemotherapy for metastatic breast cancer at Medical Oncology clinic of Dicle University Medical School. Patient was admitted to general surgery clinic with a diagnosis of mechanical intestinal obstruction. The patient had 4 vaginal delivery before the last pregnancy in which she was diagnosed with metastatic cancer of her right breast at 36th week. She had a C-section operation 2 weeks ago. Physical examination revealed a fair general state, conscious and cooperating. Pfannenstiel incision scar and distension were noticed during abdominal examination. While sensitivity was observed with palpation on all quadrants, neither rebound nor defense detected. White cell count was 14,700/mm\(^3\), blood urea nitrogen level was 94 mg/dL and creatinine level was 2.91 mg/dL. There was no pathological findings in other parameters. Multiple gas-liquid level of small bowel was detected with direct abdominal X-ray (Figure 1). A lesion of 11x9 cm was detected in the pelvic area, where gas-liquid level was detected, via abdominal computed tomography (CT). High dilation was observed in proximal of this lesion (Figure 2). Based on these observations, oral intake of the patient was terminated, intravenous liquid support and nasogastric tube decompression was initiated. After resuscitation, patient was admitted to surgery room with diagnosis of mechanical intestinal obstruction. Uterus was found to be larger than normal during laparotomy, and about 20 cm of the bowel was found to be herniated into uterine cavity from a 3x2 cm defect, on the right of uterus isthmus (Figure 3). Herniated portion of bowel was perforated and necrotized. The segment of the bowel with necrosis was resected and anastomosis was performed. The defected segment of uterus was closed via primary suture. The abdomen was washed with warm serum physiological and closed after placing rubber drains. No postoperative complication was observed and patient was discharged on the 8th day of operation.

**Figure 1.**

*Multiple gas-liquid level of small bowel on direct abdominal X-ray*

**Figure 2.**

*Herniated bowel segments are seen on computered tomography. Arrows shows defect of uterus.*
**Discussion**

Intestinal obstruction due to internal herniation (IH) are seen rarely (0.6-5.8 %) [4]. Majority of internal hernias are observed as congenital herniation. The most observed reason for acquired hernias is inadequate closure of mesenteric defect after surgical interventions [8]. Omentum and mesenter’s traumatic or post-operational defects are prone to IH. Clinically, IH can be asymptomatic or cause significant discomfort ranging from constant vague epigastric pain to intermittent colicky periumbilical pain [9]. The main problem in the management of IH is delay in diagnosis, as no specific symptom is associated with the condition. This delay may cause bowel gangrene and increase the mortality rate to as high as 30%, as IHs are rarely diagnosed preoperatively [3]. The diagnosis may delay in patients who have previous surgery because the nonspecific symptoms are usually thought to be related to the previous surgery. Our case had the symptoms nausea, vomiting and abdominal pain due to intestinal obstruction. However, as she had underwent a cesarean operation 2 weeks ago, the intestinal obstruction was thought to be associated with previous operation.

**Figure 3.**

3x2 cm defect on the right posterolateral of uterus isthmus.

The risk of uterine rupture ranges from 0.5% to 9% depending on the type and location of previous uterine incision. However, these ruptures are conservatively treated and rate of complication is low in these cases. There are only few cases in the literature in which herniation of bowel into uterine cavity due to uterus rupture is reported. [7,10] Seven percent of IHs are encountered on pelvic base. These IHs are classified as ischiadic, obturator, and perineal based on their anatomical localization. There are also few reports of internal hernias due to post-operational rupture of bladder and uterus after pelvic surgery, opening of vaginal cuff following hysterectomy, and uterus rupture following an abortion [4]. Rupture of uterus is well documented, especially if the uterus is scarred. Risk of rupture is 0.2-1.5% in women with lower segment C-Section. However, it is very unusual in women without a surgical history. Perforation of unscarred uterus may be result of myomectomy, thermal injury, or undiagnosed previous perforations [3]. Post- abortion uterus ruptures and intestinal obstructions due to IH as a result of uterus ruptures are reported in literature [2,3,11]. However, there is no report in literature describing an internal hernia due to rupture of uterus on unscarred segments after C-section. This case the first case in the literature in which an IH occurred following a C-section operation from an unscarred location. Hernial sac is usually filled by bowel since it has mobilization potential. Colon and omental tissue are not frequently reported to be present in hernial sac. The size of sac varies as it can contain a small intestinal segment or entire bowel. IH may be mortal due to strangulation, and they are considered to be risky [7,12]. This case was considered to be life threatening since about a 20 cm segment of distal ileum was moved to the sac and this segment has developed necrosis. Additionally, the segment was also perforated. Diagnosis of IH is difficult due to absence of specific symptoms and this cause delay in diagnosis [6]. Clinical symptoms of IH are, repetitive, cramp like abdominal pain, or pain, nausea, vomiting, distension, gas pressure or constipation due to strangulation of intestine. The clinical symptoms may vary based on the obstruction, whether partial or complete [1]. Incomplete obstructions may be asymptomatic or may cause occasional attacks of intestinal obstructions which may be treated with conservative treatments. However, acute intestinal obstruction and strangulation usually indicate a complete obstruction. According to the report of Tong et al., 66% of internal hernias are accompanied with obstruction and strangulation [13]. In the case
reported here, we monitored the patient with diagnosis of incomplete intestinal obstruction at first, however, with occurrence of complete obstruction and strangulation symptoms, we decided on surgical operation. Herniated segment of the bowel was seen to be necrotized during laparotomy. Imaging methods can significantly assist in diagnosis of uterine perforation containing abdominal contents. Although ultrasound image of uterus following a C-section may highly vary, a careful examination of images can help identify the bowel in a uterine perforation. While some authors claimed that X-R may also be useful in the late phases, CT is a key method in diagnosis of IHs [6]. Dignac et al. was the first to report CT diagnosis of incarcerated bowel in a uterine perforation [14]. CT examination is crucial in diagnosis in cases where ultrasound is ambiguous or non-gynecological pathology is suspected [5]. Likewise, a 12x9 cm transition zone was detected via CT in this case.

In conclusion, intestinal obstruction symptoms are observed due to development of IH following a post C-section uterus rupture. Ignoring these as nonspecific symptoms of surgery may delay diagnosis of IH, which may develop into ischemia or necrosis and eventually into mortality. IH due to uterus rupture should be considered as possibility when a patient is admitted with nonspecific clinical symptoms of intestinal obstruction, occasional abdominal pain, and nausea-vomiting episodes.

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Conflict of Interest Statement
The authors declare no conflict of interest

References