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Totally laparoscopic treatment of vaginal cuff dehiscence: A case report and systematic literature review

T. Thomopoulos^{a,*}, G. Zufferey^b^a Oesogastroduodenal and Bariatric Unit, Department of Abdominal Surgery and Transplantation, Cliniques Universitaires Saint-Luc, 10 Avenue Hippocrate, 1200 Brussels, Belgium^b Department of General Surgery, Hospital of Nyon (GHOL), Nyon, Switzerland

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ABSTRACT

INTRODUCTION: To highlight the laparoscopic management as a feasible treatment option for vaginal cuff dehiscence with intestinal evisceration after hysterectomy.**PRESENTATION OF CASE:** We report a rare case of a 49-year-old postmenopausal woman who was admitted to the emergency department with vaginal herniation of approximately 40 cm of small bowel 3 months after total laparoscopic hysterectomy, treated laparoscopically exclusively.**DISCUSSION:** The patient underwent a laparoscopic reduction of the protruded mass, inspection of the entire small bowel and closure of the vaginal dehiscence. She was discharged home in a good health and the postoperative course remains uneventful 6 months later.

Our systematic review of the literature found 116 cases of vaginal evisceration, which were described as early as 1864. There is no consensus on the ideal method of surgical repair. To our knowledge, only 2% (3 cases) were treated totally laparoscopically and 10% by a combined approach (laparoscopic and vaginal). Although the current evidence does not suggest that one approach is preferred to the others, the laparoscopic approach seems to be the new trend for the management of this surgical emergency.

CONCLUSION: Totally laparoscopic repair in experience hands seems to be a safe approach to cure vaginal evisceration after pelvic surgery.© 2016 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Vaginal evisceration is a relatively rare event with a significant risk of morbidity and mortality if the diagnosis and treatment are delayed. Since the first case reported in 1864 by Hyernaux [1], to date, only 116 cases have been described worldwide [2].

Vaginal cuff dehiscence and evisceration are serious postoperative complications after pelvic surgery and especially hysterectomy, requiring prompt resuscitation and surgical intervention. Vaginal evisceration can occur at any time after an hysterectomy and has been reported as early as 3 days and as late as 30 years postoperatively [3,4]. The most common organ to eviscerate through the vagina is the terminal ileum, but there have also been cases reported of evisceration of omentum, colon, salpinx and the appendix through the vagina [3,5].

There is no consensus on the ideal method of surgical repair. Possible approaches include transvaginal, transabdominal, laparoscopic or a combination of these. Although the laparoscopic approach seems advantageous avoiding associated morbidity of

laparotomy, it has been very rarely reported in the literature as a treatment option.

In our paper, we report a case of vaginal cuff rupture with small bowel herniation, describe the most important risk factors, review the literature concerning this issue and highlight the laparoscopic management as a feasible treatment option for this surgical emergency.

2. Presentation of case

A previously healthy 49-year-old postmenopausal woman was admitted to the emergency department complaining of acute onset of lower abdominal pain and a mass, consisted of a part of small bowel, protruding from the vagina. A detailed history revealed that the patient had engaged in intercourse, without the use of foreign bodies, 6 h prior to presentation. During straining on defecation, she felt fullness between her legs with a loop of bowel prolapsing of her vagina.

From her medical history, she had undergone a total laparoscopic hysterectomy for multiple episodes of menorrhagia because of a leiomyoma 3 months ago. She had an uncomplicated course after her hysterectomy, she was not receiving hormonal

* Corresponding author.

E-mail address: teothomopoulos@yahoo.com (T. Thomopoulos).



Fig. 1. Vaginal herniation of intestinal content.

replacement therapy or steroids and she was sexually active without history of vaginal trauma.

Upon admission to the emergency department, she was hemodynamically stable with significant lower abdominal pain, abdominal tenderness and distension without peritoneal signs. The pelvic examination showed an evisceration of approximately 40 cm of small bowel through the vagina (Fig. 1). The intestinal loops were congested, erythematous and edematous without signs of ischemia and with contraction when touched.

A detailed blood test revealed only a mild leukocytosis without excess of lactate. No radiological exam was performed. The protruded mass was wrapped in sterile warm saline solution-soaked gauze, intravenous fluid replacement and prophylactic broad spectrum antibiotics were administered and finally the patient was immediately conducted to the operating room.

After induction of general anesthesia, the patient was placed in the lithotomy position. An abundant washing of the protruded bowel as well as a failed maneuver to reduce it intraperitoneally from the vagina were undertaken. The decision was, therefore, made to proceed to a diagnostic laparoscopy and repair. The patient was placed in the Trendelenburg position. We used 4 ports: a 10-mm infra-umbilical laparoscopic port, a 5-mm left lateral flank port, a 5-mm right lateral port and a 5-mm lower left port. The herniated bowel, which seemed to be a part of the ileum, was carefully reduced into the abdominal cavity laparoscopically, by using blunt and atraumatic graspers. Surgical packs were inserted in the vagina to maintain the pneumoperitoneum and helped us to trace a 5 cm horizontal dehiscence of the vaginal cuff (Fig. 2).

We started with the exploration of the abdominal cavity which did not reveal any significant abnormality. There was no abnormal intra-abdominal liquid, the small bowel was inspected by running it with atraumatic laparoscopic forceps from the ligament of Treitz to the ileocaecal valve and was free of adhesions. The herniated portion of what appeared to be ileum (40 cm) was erythematous but was clearly viable without signs of ischemia or perforation.

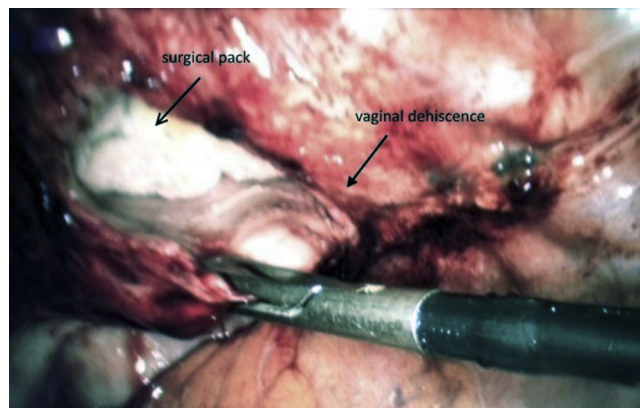


Fig. 2. Laparoscopic aspect of vaginal cuff dehiscence.

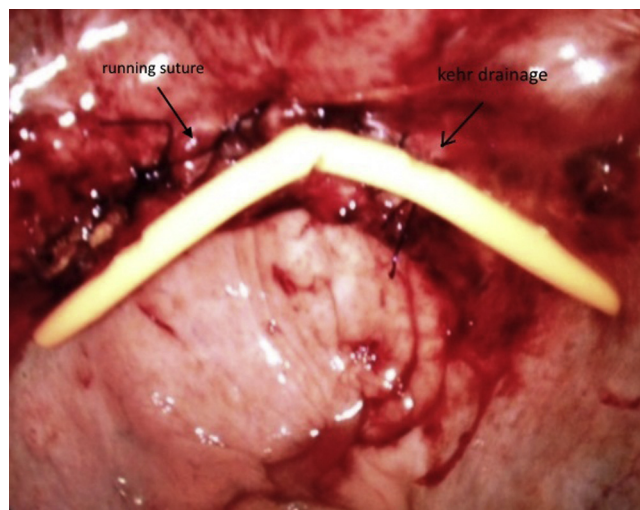


Fig. 3. Suture of vaginal cuff and drainage.

There was no evidence of intra-abdominal or pelvic abscess. The vaginal cuff appeared wide open. The wound edges were hypertrophic but without inflammation or signs of malignancy and the tissue seemed to be viable and proper for suture. The vaginal cuff was mobilized laparoscopically, was closed with a running Vicryl absorbable suture without problem and was catheterized with a Kehr drain (Fig. 3). The operation was ended by a copious irrigation of the abdominal cavity.

The postoperative course was uneventful. The drain as well as the intravenous antibiotics was removed on the third postoperative day and the recovery was supported by laxatives to prevent constipation and straining on stool. The patient remained stable hemodynamically and she was discharged home on the fourth postoperative day. A 6 month follow-up speculum examination revealed a complete healing of the dehiscence without any abnormality and the patient reports lack of any symptom, even after the resumption of her sexual life from 6 weeks after her operation.

3. Discussion

Vaginal cuff rupture and evisceration are a rare surgical complication of pelvic surgery, specifically hysterectomy, which can be even life threatening if it is misdiagnosed. Mainly bowel evisceration can lead to very serious complications as thromboembolism, septicemia, bowel infarction, ileus, bowel necrosis and peritonitis. Early recognition and prompt surgical intervention are imperative

for an adequate management, to prevent its potential morbidity and mortality.

The very low incidence of this serious emergency as well as the very low number of published papers until now makes it difficult to study and get into any conclusion about the risk factors, underlying cause, groups at risk, methods of prevention and the ideal surgical approach. The data in the literature are sparse and conflicted. We performed a MEDLINE review of the literature with the following search terms: *vaginal evisceration, vaginal herniation, hysterectomy and vaginal dehiscence*.

The majority of the related publication in this issue was case reports or case series, retrospective cohort studies [6–8], and retrospective descriptive studies [9–12]. There was only one randomized clinical trial as well [13]. From the above studies, the rate of vaginal dehiscence ranges from 0.14% to 4.1% [9–12]. Studies including only robotic and total laparoscopic hysterectomy reported higher incidence rates (1%–4.1%) [6,12] than studies including all types of hysterectomy (0.14%–0.27%) [9,11].

In older reviews, vaginal evisceration was more common (63%) after vaginal hysterectomy compared to the other forms of hysterectomy [5]. However, the last years with the increased interest in minimally invasive surgery, the distribution of reported cases of vaginal dehiscence has changed significantly and approximately 50% occurred after total laparoscopic or robotic hysterectomy. Hur et al. found that the rate of this complication increased from 0% to 0.7% between 2000 and 2006 [9]. Nick et al. have reported incidence rates of 1.1%–4.9% for cuff rupture and evisceration after total laparoscopic hysterectomy and 3% after robotic hysterectomy compared to rates of 0.29% and 0.12% after total vaginal hysterectomy and total abdominal hysterectomy, respectively [6]. In light of these evidence, we conclude that total laparoscopic and robotic hysterectomy may well confer an increased risk of vaginal cuff rupture and evisceration, probably due to the use of thermal energy. Blikkendaal et al., conducted a retrospective cohort study between 2004 and 2011 to compare the incidence of vaginal cuff dehiscence after various suturing methods of closing of the vaginal vault in total laparoscopic hysterectomy, without being able to prove any statistical superiority of one of these suturing methods over the other [14].

The etiology of this rare condition is multifactorial. In premenopausal women, vaginal trauma due to sexual intercourse [15], rape, obstetric procedures like transvaginal ultrasonography [16] or foreign body insertion are the most precipitating events. In postmenopausal women, hypoestrogenism and thus atrophy of the tissue of the pelvic floor, as well as surgical changes following hysterectomy like suboptimal vascularity of the scarred tissues and alteration of the normal anatomic axis of the vagina are the leading causes of this serious complication [17]. Nevertheless, in postmenopausal women other risks are older age, multiparity, previous vaginal surgery, enterocele repair, a sudden increase in intra-abdominal pressure (straining, coughing, defecating), and conditions that impair proper wound healing such as administration of corticosteroids or presence of diabetes mellitus or postoperative cuff infection or hematoma or radiotherapy [5,18].

There is no one standard method for the surgical management of the vaginal herniation. There are several approaches including abdominal (open or laparoscopic), vaginal or combined abdominal and transvaginal. The current evidence available does not suggest the superiority of one approach over the other. Each condition is different and the choice should be tailored to the judgment of the surgeon, the bowel viability and the ability to obtain the best visualization of the cuff dehiscence and of the entire abdominal cavity.

Our literature review shows that the repair of the vaginal cuff rupture by laparoscopy has been very rarely described in the literature. To our knowledge, from the 116 cases reported only 2% (3 cases) were treated totally laparoscopically [19–21] and 10% by

a combined approach (laparoscopic and vaginal). The first entirely laparoscopic repair of vaginal herniation was reported in 2002 [20].

In our opinion, the laparoscopic approach seems and has to be the new trend of management of this unusual condition. The minimally invasive surgery is the future as it allows obtaining the same results intra-operatively with less postoperative pain, faster recovery, fewer postoperative complications, shorter length of stay and thus less cost of hospitalization for the patients. The great disadvantage is the increased technical expertise required. Hence the choice of the laparoscopic repair of this rare and delicate complication should be advocated by the experience of the surgeon.

We highlight the laparoscopic approach as it allows thorough inspection and meticulous irrigation of the abdominal cavity, visualization and running of the entire small bowel. If signs of necrosis or perforation, the bowel resection could be performed intracorporeally or extracorporeally through a small Pfannestiel incision, without the need to convert to laparotomy, something which could raise the postoperative morbidity.

In our case, the patient was mobilized and nourished even from the first postoperative day without encountering any problem of ileus postoperatively, the pain was treated with very mild painkillers, and was discharged early on the fourth postoperative day, mainly because of the drainage and the prophylactic administration of broad spectrum antibiotics. A six months follow-up after a gynaecological examination with a speculum revealed a complete healing of the dehiscence and the patient reports a resumption of her sexual life without problems, but with caution.

4. Conclusion

Laparoscopic approach seems to be, in our eyes, a safe option to cure vaginal evisceration after pelvic surgery. We recommend this procedure because of the benefit to be expected from the minimally invasive surgery. Because of the lack of adequate evidence and the rarity of this condition, in the future more retrospective randomized cohort or prospective studies should be undertaken comparing the postoperative course of patients with vaginal cuff dehiscence treated by an entirely laparoscopic, vaginal or combined approach and, depending on each situation, making conclusions for the most suitable operative choice each time.

Conflicts of interest

None.

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Ethical approval

No need for an approval from an ethics committee for such a type of article (case report).

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

T. Thomopoulos: conception and design of the study, acquisition of data, analysis and interpretation of data.

G. Zufferey: revising the study critically, analysis and interpretation of data, final approval of the version to be submitted.

Guarantor

T. Thomopoulos.

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