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Perineal Hernia after Laparoscopic Abdominoperineal Resection for Rectal Cancer: A Case Report and Review of the Literature

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Abstract

Perineal hernias are uncommon complications following laparoscopic abdominoperineal operations. There is still very little known about perineal hernia. There are only few case reports to describe the repair of postoperative hernias after laparoscopic abdominoperineal resection (APR) in the literature. Here we present one patient with a perineal hernia after laparoscopic abdominoperineal resection for rectal cancer. The surgical management with manual purse-string suture is described and discussed in this case report.

Keywords

Perineal Hernia, Laparoscopic, Abdominoperineal Resection

1. Introduction

Perineal hernia is defined as an intra-abdominal content protruding through the pelvic floor into the perineal region, and it is an infrequent complication after open abdominoperineal resection (APR). The reported incidence of patients requiring surgical correction may be between 0.62% and 3.5% [1]-[3] following rectal resection procedures. However, the wide acceptance of laparoscopic procedures has resulted in more laparoscopic surgery being performed for colorectal cancers [4] [5]. Internal hernia through a mesenteric defect after laparoscopic colectomy has been occasionally described [6] [7]. Nonetheless, perineal hernia after laparoscopic APR (L-APR)

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is extremely rare. Here we report a case of a perineal hernia after L-APR for rectal cancer, and describe our successful repair of this hernia with transperineal manual purse-string suture.

2. Case Report

A 68-years-old woman underwent L-APR for rectal cancer and formation of colostomy. The patient was discharged home 16 days later with no postoperative complications and wounds intact. Pathological examination revealed a moderately differentiated tubular-papillary adenocarcinoma. The depth of tumor invasion was the deep muscularis propria, and no lymph nodal metastases were identified (0/19). And the tumor was classified as T2N0M0 according UICC stage [8]. About 6 months after L-APR, the patient complained of a reducible, slight painful perineal swelling, which made her uncomfortable. On examination, manual palpation of the perineal can suggest a perineal soft lump bulging in the subcutaneous (**Figure 1(A)**), especially on standing. When auscultation, bowel sounds could be heard. The patient wore a self-designed T hernia bandage to prevent enlargement of the perineal hernia. X-ray of the abdominal orthostatic and computed tomography (CT) showed the small intestine protruding through the pelvic floor into the perineal area (**Figure 1(B)** and **Figure 1(C)**).

After some discussion, the patient was placed in the jack-knife position under epidural anaesthesia, and a transperineal approach was used. The hernial sac was opened to reveal small bowel content and surgical exploration revealed there were intra-abdominal adhesions (**Figure 2(A)**). The hernia sac was dissected free; and the small bowel was returned to the pelvic cavity. Then three manual purse-string sutures were made with 4 - 0 PDS (polydiaxonone sutures) (**Figure 2(B)**). The thin, attenuated, residual perineal fascia was then closed with interrupted 2 - 0 sutures. The skin was closed with vertical mattress 4 - 0 reabsorbable sutures.

The operative time was 54 minutes with minimal blood loss, and there were no technical difficulties. Furthermore, the postoperative course was uneventful. Following repair, the patient remained asymptomatic with free of any sign of recurrent hernia for 6 months since her operation.

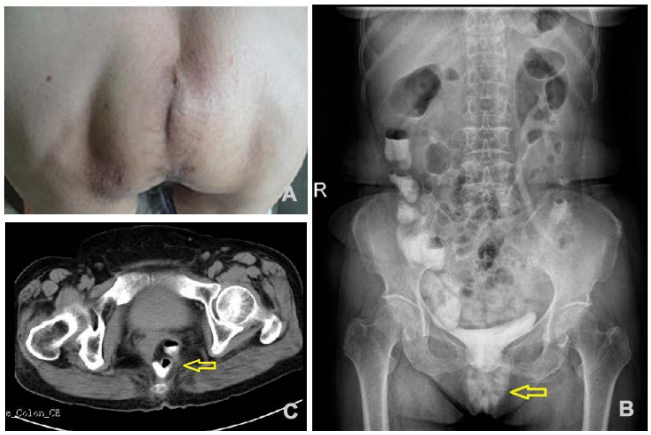

Figure 1. (A) Preoperative picture showing the perineal hernia defect; (B) X-ray of the abdominal orthostatic showing hernia; (C) Computed tomography (CT) scan showing the small bowel sliding through the pelvic floor into the perineal area.

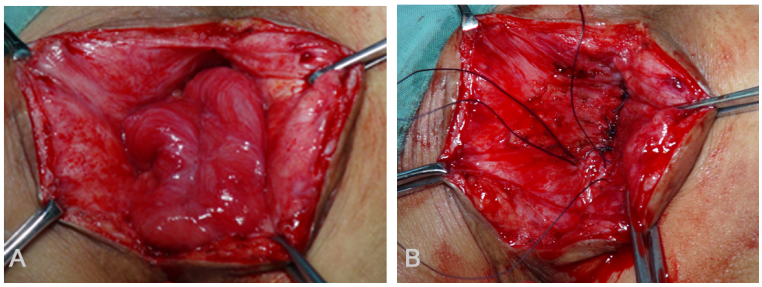

Figure 2. (A) Excision of the hernia sac revealed intra-abdominal adhesions; (B) Three manual purse-string sutures were made with reabsorbable sutures.

3. Discussion

Perineal hernia still remains uncommon events. The incidence of perineal hernias after L-APR is extremely low and most publications appeared as case reports. Up to date only a total of six cases have been reported in the literature (**Table 1**).

Perineal hernias after APR may be the result of a complex interaction among various risk factors including the larger size of the female pelvis, previous hysterectomy, radiotherapy, coccygectomy, excessive length of small bowel mesentery, and perineal wound infection. These suggest that local factors have an important role in the development of these hernias.

Mesenteric or peritoneal reconstruction is not always performed with laparoscopic rectal surgery. This apparent higher risk observed after laparoscopic resections may be associated with some predisposing factors. First, the pelvic peritoneum is usually left open at the end of the laparoscopic procedure because the suture is commonly not possible in patients undergoing large resections after preoperative chemoradiotherapy leading to tissue fibrosis and retraction. Furthermore, as laparoscopic techniques exhibits a smaller potential for adherence formation when compared with laparotomy [9], there exists a favorable scenario predisposing some intestinal loops to slide toward the pelvis [2]. In this report, the patient was a woman with a large outlet of the pelvis though no previous gynecologic surgery. Beside, the pelvic peritoneum had not been closed during the L-APR approach. In addition, more extensive resections of the pelvic floor probably lead to perineal hernia. So, synchronous peritoneal repair should be recommended for selected patients undergoing L-APR, especially those at high risks of these types of hernia. Therefore, primary closure of the pelvic peritoneum and perineal wound and prevention of wound infection are important to avoid hernia formation.

Several methods of repair have been advocated for the treatment of perineal hernia, including transabdominal [10], perineal [11] and combined abdominoperineal approaches via various techniques including flaps or synthetic mesh. But there are obvious advantages and disadvantages to each of these repair techniques. Perineal mesh implantation has the simple advantage of being less morbidity and less invasive because the abdominal cavity is not entered. However, its main disadvantage is the limited exposure of the perineum, making any po-

Table 1. Perineal hernia after laparoscopic abdominoperineal resection (L-APR) for rectal cancer.

Case	Sources	Year	Age (years) gender	L-APR		Operative time (hernia repair)	Hospital stay days	Pathological examination	Perineal hernia				
				Perineal wound infection	Pelvic irradiation				Interval from APR (months)	Symptom	Approach	Intra-abdominal adhesion	Repair
1	Veenhof, *et al.* [10]	2007	59, F	no	prochemo-radiation	unknown	3	Astler-Coller B2 adenocarcinoma	11	pain and discomfort, pollakisuria	perineal recurrent abdominal	no	mesh
2			55, F	yes	irradiation	unknown	10	Astler-Coller C2 adenocarcinoma,	7	pain	abdominal	yes	mesh
3	T. Akatsu *et al.* [11]	2007	89, F	no	no	43	unknown	moderately differentiated tubular adenocarcinoma,	4	pain and discomfort	perineal	no	mesh
4	Jessica Rayhanabad, *et al.* [17]	2009	67, M	unknown	unknown	unknown	1	T3N0, anal cancer	10	symptomatic perineal hernia	laparoscopic	unknown	mesh
5	Stephen Ryan, *et al.* [18]	2010	69, M	no	neoadjuvant chemoradio therapy	unknown	2	T2N0MO	6	reducible, painless incisional perineal hernia extending into the scrotum	laparoscopic abdominal	no	mesh
6	Maria Svane, *et al.* [19]	2011	70, M	no	unknown	153	6	middle differentiated adenocarcinoma, T3N0M0	12	reducible, slight painful perineal swelling	transperineal	yes	mesh
7	Zhenhua He, *et al.**	2015	68, F	no	no	54	5	adenocarcinoma, T2N0M0	6	pain and discomfort	transperineal	no	manual purse-string suture

M: male; F: female. *Current case.

tential tumor recurrence difficult to exclude. The abdominal approach allows the surgeon to have better exposure for dissecting out sac contents like small bowel and to confirm the absence of abdominal recurrence. However, the abdominal approach is much more invasive and is accordingly being reserved for recurrent hernias. Laparoscopic access has the same advantages as abdominal approach and it combines the advantages of transabdominal approach and minimally invasive surgery as quick recovery time, faster bowel function and decreased trauma. Nevertheless, mesh fixation difficulties may lead to a high rate of hernia recurrence.

However, adequate fixation of meshes in perineal hernia repair can be difficult and it may be one reason why perineal hernia recurrence is frequent. Some studies describe the technique of transperineal mesh repair of recurrent symptomatic perineal hernia after previous transabdominal mesh repair [12]-[16]. So, from our personal experience, the perineal approach in prone position gives adequate exposure and the lack of adhesions after initial L-APR did not necessitate dissection of the small bowel out of the pelvic cavity. No additional surgical access is necessary, as the surplus skin overlying the hernia has to be resected anyway in case of significant bulging. Therefore the perineal approach is probably the first choice in uncomplicated perineal hernia.

In conclusion, symptomatic perineal hernias after L-APR require surgical repair. Many approaches have previously been described. However, the choice of the best approach must take into account individual characteristics and risks.

Conflict of Interest Statement

There are no conflicts of interest to report.

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