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Puborectal Sling Interposition Combined With Seton Drainage for Pouch-Vaginal Fistula After Rectal Cancer Surgery With Colonic J Pouch-Anal Reconstruction: Report of a Case

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The management of postoperative rectovaginal fistula (RVF) after rectal cancer surgery is difficult and requires reconstruction of the anastomotic site and fistula. Though various surgical procedures have been reported for the repair of RVFs, the results of surgical repair are often unsatisfactory, and failure of the initial repair leads to difficulty in the later operations. Furthermore, it has been reported that cases associated with local infection result in low success rates. We report a case of an 80-year-old woman with a recurrent colonic J pouch-vaginal fistula after anoabdominal rectal resection with partial internal sphincteric resection, who achieved a good outcome following a repair using a puborectal sling interposition combined with seton drainage. It may be a useful option for RVF management in repair of such pouch-vaginal fistula after coloanal anastomosis with intersphincteric resection.

Key words: Rectovaginal fistula – Colonic J pouch – Intersphincteric resection – Puborectalis – Seton drainage

Treatment of rectal cancer has improved over the past decade with regard to both surgical techniques and adjuvant therapies. The current treatment choice for lower rectal cancer is colorectal or coloanal anastomosis with or without intersphincteric resection, which optimizes oncological outcome and maintains anorectal function. However, the surgical procedure may sometimes result in

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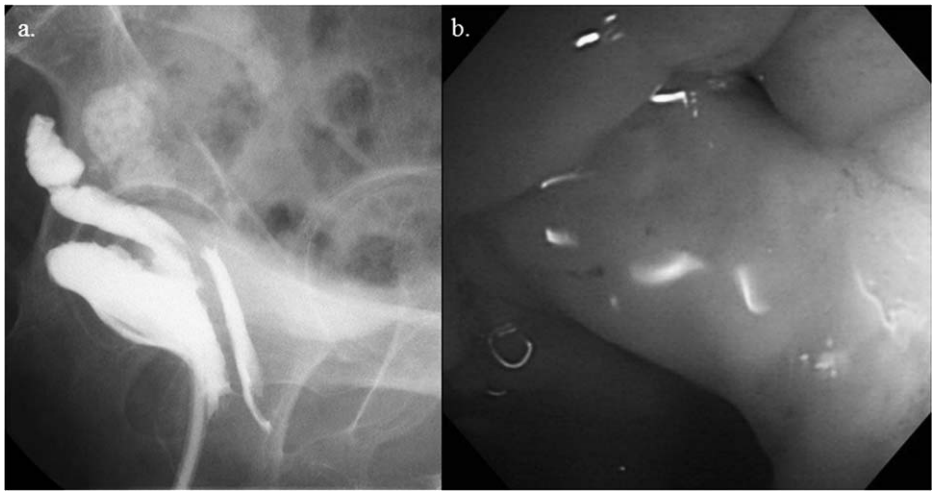

Fig. 1 Barium enema (a) and colonoscopy (b) revealed an RVF just above the level of the colonic J-pouch anal anastomotic line.

rectovaginal fistulas (RVFs) due to clinical technique complications in female patients, and its functional impact is distressing for patients. The incidence of RVF after resection of rectal cancer has been reported to be under 10 percent.[1] Spontaneous healing of such perineal fistulas is rare, and a variety of surgical options have been described, but there is no clear guideline regarding the management of these fistulas.[2–9] Decisions regarding the optimal surgical procedure have become more difficult because of a recent increase in options for rectal cancer surgery, such as coloanal anastomosis and intersphincteric resection. It has been well known that interposition of healthy, well-vascularized tissue may be required for RVF healing, and interposition of the puborectal sling is one of the reliable procedures. We report on our own experience with RVF after coloanal anastomosis for lower rectal cancer, with a good result by means of a repair using puborectal sling interposition combined with seton drainage.

Case Report

An 80-year-old woman with T3N0M0 rectal cancer underwent anoabdominal rectal resection and colonic J pouch-anal anastomosis with diverting loop ileostomy. As the tumor was located 3.0 cm from the anal verge, the upper half of the internal anal sphincter was resected anteriorly to gain a free margin from the tumor. Although the postoperative course was uneventful, the patient developed pelvic sepsis 3 months after the initial surgery, probably due to enteritis during adjuvant chemotherapy. A bloody discharge emerged from the vagina, then RVFs above the pouch-anal anastomosis were found (Fig. 1). Transvaginal repair of the fistula failed at 8 months after the initial surgery. We performed the puborectal sling interposition and seton drainage for the rectum 2 years after the initial surgery. With the patient in the Lloyd Daivis position, the repair was performed through a perineal incision. The neorectum (pouch)-vaginal septum was dissected by using the dissecting hook of the harmonic scalpel. The posterior vaginal wall was separated from the anterior wall of the pouch, and the fistulous tract was resected. The opening in the anterior wall of the pouch was enlarged by removing all fibrotic tissue located at the edge of the opening. The enlarged opening of the pouch was semiclosed and treated with seton drainage. Then the opening in the posterior vaginal wall was closed with interrupted triclosan-coated absorbable sutures (4-0 PDS Plus, Ethicon Inc, Somerville, New Jersey). After each closed opening was estranged possible, both limbs of the puborectal sling were approximated in the mid line and overlapped the thinned anterior wall due to partial resection of the internal anal sphincter and with interrupted 4-0 PDS Plus (Fig. 2). This provided an additional layer of well-vascularized tissue between the anterior wall of the neorectum and the posterior vaginal wall. Finally, the subcutaneous layer and skin were semiclosed with interrupted sutures. Postoperative course was uneventful, and the patient washed the perineal wound by herself every day. Approximately 2 months postoperatively, the opening of the vaginal side was confirmed to be healed, and the seton was removed

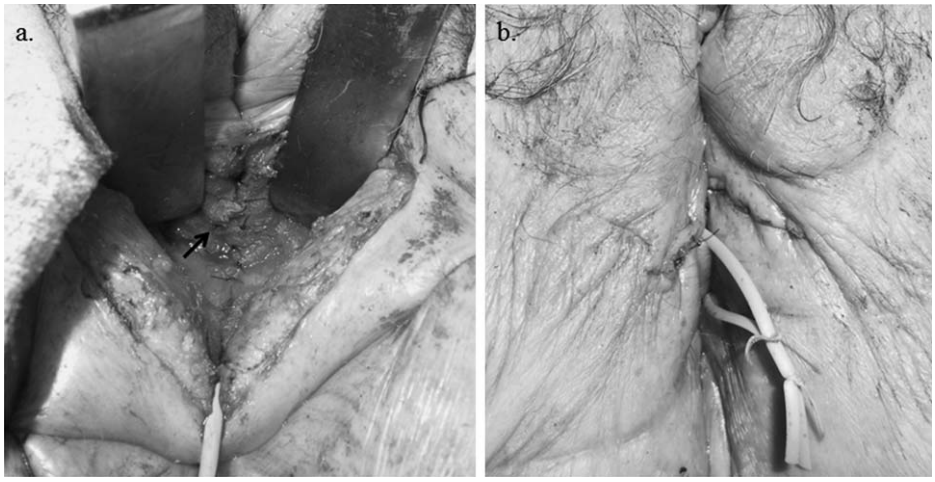

Fig. 2 (a) The puborectal sling (black arrow) was interposed between the anterior wall of the neorectum and the posterior vaginal wall. (b) The combination of puborectal sling interposition and seton drainage.

from the rectum. As colonoscopy and barium enema revealed that the RVFs had completed healed without recurrence (Fig. 3), the ileostomy was closed 6 months after the final surgery. The patient subsequently recovered well, with good pouch function and defecation 3–6 times per day with no soiling.

Discussion

RVFs can develop from a multitude of conditions, including obstetrical trauma, inflammatory bowel disease, carcinoma, radiation, diverticulitis, and infectious process, and as a result of postoperative procedures.[2] In rectal cancer surgery, pelvic infection, including anastomotic leakage, often causes RVFs when an intrapelvic abscess penetrates the posterior vaginal wall. These fistulas do not have a propensity to heal spontaneously and are challenging to repair because of the high pressure in the rectal side and the cavity with a negative pressure in the vagina.

Several techniques have been described for the repair of RVFs. Now, widely accepted surgical techniques for treating RVFs are endorectal and vaginal advancement flaps, and fistulectomy with sphincteroplasty, after diverting colostomy. But the outcomes are often unsatisfactory, especially in patients with previous repairs and those with concomitant wound infection, which are major

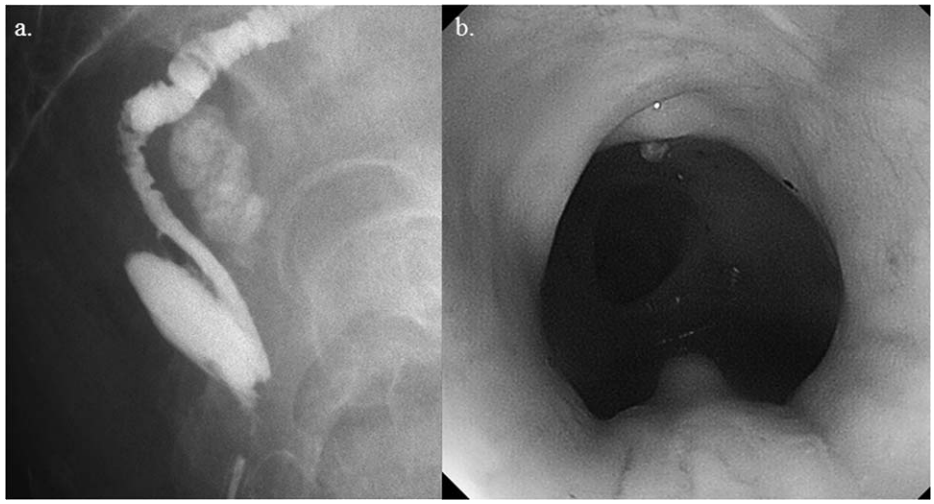

Fig. 3 Postoperative view of barium enema (a) and colonoscopy (b). The RVF was closed completely.

contributing factors responsible for the high failure rate.[9] It has also been suggested that poor blood supply and the presence of scar tissue in the rectovaginal septum preclude healing.[10,11] The interposition of healthy, well-vascularized tissue has been applied to treating RVFs, such as the gracilis, rectus, gluteus, puborectalis, and bulbocavernous muscles and the omentum.[2] However, there are no clear guidelines regarding the management of these fistulas. Conversely, once a fistula occurs, management must be individualized, because there are many options for rectal cancer surgery, such as coloanal anastomosis and intersphincteric resection, furthermore with preoperative chemoradiotherapy.

Some reports in the early 1990s suggested that interposition of the puborectal muscle might be beneficial for the treatment of RVFs, and reported healing rates varied between 92% and 100%, even in patients with Crohn's disease.[12–14] In 2006, Oom *et al*[9] reported that repair using puborectal sling interposition in 26 consecutive patients resulted in an overall healing rate of 62%. They also reported that this procedure had a low success rate in patients with previous repairs and in those associated with infection. We selected for our repair a puborectalis interposition because it was a safe and easy method to repair an RVF, even after the upper half of the internal anal sphincter was resected anteriorly. In addition, we placed a seton drainage through the perineal wound and defect of the rectal wall for the purpose of infection control, which resulted in good outcome for the patient. This procedure is not necessarily standard procedure for RVFs; however, the procedure for RVF after rectal cancer surgery must be individualized depending on the cause and the procedure in the initial surgery.

In conclusion, the combination of puborectal sling interposition and seton drainage can be considered as an easy and effective procedure for correcting RVFs after colonic J-pouch anal anastomosis with intersphincteric resection for lower rectal cancer.

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