



Combined laparoscopic and cystoscopic surgery for colovesical fistula due to colonic diverticulitis

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The incidence of diverticular disease has been increasing in recent years. Colovesical fistula is an abnormal connection between the colon and urinary bladder, and is found in approximately 3–5% of patients with diverticulitis. The presence of colovesical fistula usually requires surgical intervention because it can cause poor quality of life, impaired renal function, and urosepsis. The standard surgical procedure for colovesical fistula consists of bowel resection and primary anastomosis or temporary colostomy with or without bladder wall resection [1, 2]. Complicated diverticular disease is a surgical challenge associated with postoperative complications. The practice guidelines of the American Society of Colon and Rectal Surgeons (ASCRS) recommend the use of the laparoscopic approach to elective colectomy for diverticulitis if expertise is available [3]. However, recent studies have reported that the conversion rates of laparoscopic surgery for colovesical fistulas were as high as 30–40% [4, 5], which indicates that laparoscopic colectomy for colovesical fistula is technically demanding. While resection of the involved colon is necessary due to the high risk of recurrence, there is no consensus on the surgical management of the bladder side of the fistula [1, 2]. The bladder side of small fistulas does not usually need any treatment, whereas larger fistulas often required fistulectomy followed by bladder wall repair.

In the attached video, we demonstrate a novel use of intraoperative cystoscopy during laparoscopic surgery for

colovesical fistula due to colonic diverticulitis. A 76-year-old woman with a history of sigmoid colon diverticulosis developed a sigmoid-vesical fistula. She was admitted to our hospital with a chief complaint of continuous urinary incontinence, fecaluria and chronic abdominal pain. Computed tomography (CT) scan showed sigmoid colon diverticula, bladder wall thickening, air retention in the bladder, and sigmoid-vesical fistula. Cystoscopy revealed that there was a severe inflammatory mucosal change of the left posterior bladder wall and that an opening of the colovesical fistula was close to the left ureteral orifice (i.e., at a distance of 2 cm). Colonoscopy was performed to rule out colonic malignancy.

A left ureteral stent was placed preoperatively. First, mobilization of the left-sided colon and ligation of the inferior mesenteric vessels were performed with a partial resection of the small intestine. Next, the rectum was divided using a linear flexible stapler to obtain a good surgical view. After detachment of the sigmoid colon, only the fistulous tract was left between the bladder and sigmoid colon. Finally, fistulectomy was safely performed while the position of the left ureteral orifice was checked using an intraoperative air cystoscopy. The urinary balloon catheter was placed for 7 days postoperatively. The resected specimen showed multiple colonic diverticula and a colovesical fistula connected to the lumen of the small intestine. At 12 months after surgery, no recurrence or clinical symptoms were observed.

In conclusion, combined laparoscopic and cystoscopic surgery for colovesical fistula is a safe and useful approach for visualizing the ureteral orifice intraoperatively. To our knowledge, this is the first report of the combination of laparoscopic and cystoscopic surgery for the management of colovesical fistula.

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Compliance with ethical standards

Conflict of interest Drs Kenji Kawada, Takashi Kobayashi, Takeshi Watanabe, Susumu Inamoto, Takayuki Goto, Rei Mizuno, and Yoshiharu Sakai have no conflicts of interest or financial ties to disclose.

Ethical approval All the procedures performed in studies involving human participant were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from the patient included in the study.

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