Editorial

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Transanal Total Mesorectal Excision for Rectal Cancer: Perioperative and Oncological Outcomes

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Over decades, the total mesorectal excision (TME) has become the standard technique for rectal cancer surgery [1]. Recently, through advances in technology and surgical technique, the TME has been performed by using laparoscopic and robotic techniques rather than an open technique. Recent randomized clinical trials comparing a laparoscopic TME with an open TME have shown better short-term outcomes for the laparoscopic TME, as well as oncological outcomes similar to those achieved using an open TME [2-5]. Compared to laparoscopic TMEs, robotic TMEs have not yet shown any superiority in perioperative and long-term oncological outcomes [6]. Despite the advantage of using a minimally invasive technique, some conditions, including a narrow pelvis, a high body mass index (BMI), and bulky tumors, are obstacles for ontologically safe surgery with a negative resection margin [7-9]. The concept of a transanal TME (taTME) has been proposed as an alternative technique to a laparoscopic and a robotic TME to overcome these practical problems in difficult cases. Since the first taTME resection for rectal cancer by using the laparoscopic technique was reported in 2010 [10], the taTME has shown promising results with regard to pathological quality and short- and mid-term outcomes [11-13]. However, the oncological outcomes of taTMEs, compared to those of laparoscopic and robotic TMEs, remain controversial.

The taTME may overcome some of the difficult conditions of the transabdominal laparoscopic or the robotic approach, such as exposure, rectal dissection, distal cross-stapling of the rectum, and sphincter preservation. The taTME can provide empty pelvic views of the presacral and the perirectal planes. Tissue distention using CO_2 and pneumodissection can be performed effectively during a taTME. The taTME enables the easy dissection of the distal part of the TME in a narrow pelvis with clear circumferential and distal resection margins (DRMs) for oncological safety. With the taTME, specimens can be extracted transanally without the need for an additional abdominal incision [14-16].

The perioperative morbidity rate of 35% for taTMEs is comparable to that (6%–40%) for laparoscopic TMEs [17, 18]. Urethral injury is one of the serious complications related to the taTME and is uncommon during a laparoscopic or a robotic TME. During the taTME, the anterior dissection plane is especially ambiguous, and separating the prostate from the rectal wall correctly is difficult. Therefore, an inadvertent urethral injury may sometimes occur. After completion of the taTME and resection of the rectum, anastomosis is not easy, especially in surgeries involving patients with midrectal cancer. A hand-sewn coloanal anastomosis is usually performed without difficulty in surgeries involving patients with low rectal cancer, but a single-stapled anastomosis through the remaining long distal rectal stump is not easy. Therefore, the ratio of a hand-sewn coloanal anastomosis to a stapled anastomosis was about 2:1 after taTMEs. The most frequently reported postoperative complication after a TME is anastomotic leakage. According to a systematic review, the anastomotic leakage rate of 6.1% in taTMEs is comparable to that of 1.2%–10% reported for laparoscopic TMEs [9, 19].

Velthuis et al. [20] compared the specimen qualities after rectal cancer surgery between laparoscopic TMEs and taTMEs. The complete quality of the mesorectum (96%) in the taTME group was higher than that (72%) in the laparoscopic TME group. However, no differences in the length of the specimen and the positivity of the circumferential resection margin (CRM) or the DRM were seen between the 2 groups. Fernández-Hevia et al. [21] reported no significant difference in the 30-day postoperative complication rate between taTMEs (32%) and laparoscopic TMEs (51%). The taTME group demonstrated a significantly lower early hospital-readmission rate and a shorter operation time compared with the laparoscopic TME group. However, the shorter operation

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time for the taTME group might be attributable to the fact that 2 surgeons simultaneously performed the operation.

One retrospective comparative study compared short-term postoperative and oncologic outcomes between taTMEs (n = 26) and transabdominal robotic TMEs (n = 36) for patients with mid-to-low rectal cancer. The estimated blood loss was greater in the transanal group (P = 0.01). The operation time and the rate of diverting ileostomy and subsequent ileostomy repair were not different between the groups. The DRM was shorter in the robotic than the transanal group (1.8 ± 0.92 vs. 2.4 ± 1.37, P = 0.0534). Neither involvement of the CRM, TME quality, nor number of retrieved lymph nodes was different between the 2 groups, as was the case for postoperative complications, including anastomotic leak and voiding difficulty, and for the recurrence rate. However, this study is a retrospective study with a small number of patients, selection bias, and a short follow-up period of 24 months. The tumor height from the anal verge was shorter in the robotic group than it was in the transanal group (4.5 cm ± 2.00 cm vs. 6.5 cm ± 1.72 cm, P = 0.0001). Furthermore, an advanced pathologic TNM stage of the tumor was more common in the transanal group than in the robotic group (P = 0.03) [22].

The taTME is clearly a new surgical technique, with advantages in some aspects, and may be an alternative to a transabdominal laparoscopic or robotic TME. Perioperative and oncologic safety after a taTME has been shown to be comparable to those after a laparoscopic or a robotic TME. However, proper indications and standardization of the technique are required before the taTME can be generally accepted as a valid treatment for patients with rectal cancer.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Heald RJ, Husband EM, Ryall RD. The mesorectum in rectal cancer surgery: the clue to pelvic recurrence? Br J Surg 1982;69:613-6.
2. Bonjer HJ, Deijen CL, Abis GA, Cuesta MA, van der Pas MH, de Lange-de Klerk ES, et al. A randomized trial of laparoscopic versus open surgery for rectal cancer. N Engl J Med 2015;372:1324-32.
3. Jeong SY, Park JW, Nam BH, Kim S, Kang SB, Lim SB, et al. Open versus laparoscopic surgery for mid-rectal or low-rectal cancer after neoadjuvant chemoradiotherapy (COREAN trial): survival outcomes of an open-label, non-inferiority, randomised controlled trial. Lancet Oncol 2014;15:767-74.
4. Kang SB, Park JW, Jeong SY, Nam BH, Choi HS, Kim DW, et al. Open versus laparoscopic surgery for mid or low rectal cancer after neoadjuvant chemoradiotherapy (COREAN trial): short-term outcomes of an open-label randomised controlled trial. Lancet Oncol 2010;11:637-45.
5. Jayne DG, Thorpe HC, Copeland J, Quirke P, Brown JM, Guillou PJ. Five-year follow-up of the Medical Research Council CLASICC trial of laparoscopically assisted versus open surgery for colorectal cancer. Br J Surg 2010;97:1638-45.
6. Park EJ, Cho MS, Baek SJ, Hur H, Min BS, Baik SH, et al. Long-term oncologic outcomes of robotic low anterior resection for rectal cancer: a comparative study with laparoscopic surgery. Ann Surg 2015;261:129-37.
7. Rouanet P, Mourregot A, Azar CC, Carrere S, Gutowski M, Quenet F, et al. Transanal endoscopic proctectomy: an innovative procedure for difficult resection of rectal tumors in men with narrow pelvis. Dis Colon Rectum 2013;56:408-15.
8. Penninckx F, Kartheuser A, Van de Stadt J, Pattyn P, Mansvelt B, Bertrand C, et al. Outcome following laparoscopic and open total mesorectal excision for rectal cancer. Br J Surg 2013;100:1368-75.
9. Lujan J, Valero G, Hernandez Q, Sanchez A, Frutos MD, Parrilla P. Randomized clinical trial comparing laparoscopic and open surgery in patients with rectal cancer. Br J Surg 2009;96:982-9.
10. Sylla P, Rattner DW, Delgado S, Lacy AM. NOTES transanal rectal cancer resection using transanal endoscopic microsurgery and laparoscopic assistance. Surg Endosc 2010;24:1205-10.
11. Lacy AM, Tasende MM, Delgado S, Fernandez-Hevia M, Jimenez M, De Lacy B, et al. Transanal total mesorectal excision for rectal cancer: outcomes after 140 patients. J Am Coll Surg 2015;221:415-23.
12. Muratore A, Mellano A, Marsanic P, De Simone M. Transanal total mesorectal excision (taTME) for cancer located in the lower rectum: short- and mid-term results. Eur J Surg Oncol 2015;41:478-83.
13. Veltcamp Helbach M, Deijen CL, Velthuis S, Bonjer HJ, Tuynman JB, Sietses C. Transanal total mesorectal excision for rectal carcinoma: short-term outcomes and experience after 80 cases. Surg Endosc 2016;30:464-70.
14. Heald RJ. A new solution to some old problems: transanal TME. Tech Coloproctol 2013;17:257-8.
15. Hompes R, Arnold S, Warusavitarne J. Towards the safe introduction of transanal total mesorectal excision: the role of a clinical registry. Colorectal Dis 2014;16:498-501.
16. Sylla P, Bordeianou LG, Berger D, Han KS, Lauwers GY, Sahani DV, et al. A pilot study of natural orifice transanal endoscopic total mesorectal excision with laparoscopic assistance for rectal cancer. Surg Endosc 2013;27:3396-405.
17. Guillou PJ, Quirke P, Thorpe H, Walker J, Jayne DG, Smith AM, et al. Short-term endpoints of conventional versus laparoscopic-assisted surgery in patients with colorectal cancer (MRC CLASICC trial): multicentre, randomised controlled trial. Lancet 2005;365:1718-26.
18. Gong J, Shi DB, Li XX, Cai SJ, Guan ZQ, Xu Y. Short-term outcomes of laparoscopic total mesorectal excision compared to open surgery. World J Gastroenterol 2012;18:7308-13.
19. Braga M, Frasson M, Vignali A, Zuliani W, Capretti G, Di Carlo V.

Laparoscopic resection in rectal cancer patients: outcome and cost-benefit analysis. Dis Colon Rectum 2007;50:464-71.
20. Velthuis S, Nieuwenhuis DH, Ruijter TE, Cuesta MA, Bonjer HJ, Sietses C. Transanal versus traditional laparoscopic total mesorectal excision for rectal carcinoma. Surg Endosc 2014;28:3494-9.
21. Fernández-Hevia M, Delgado S, Castells A, Tasende M, Momblan D, Díaz del Gobbo G, et al. Transanal total mesorectal excision in rectal cancer: short-term outcomes in comparison with laparoscopic surgery. Ann Surg 2015;261:221-7.
22. Lee KY, Shin JK, Park YA, Yun SH, Huh JW, Cho YB, et al. Transanal endoscopic and transabdominal robotic total mesorectal excision for mid-to-low rectal cancer: comparison of short-term postoperative and oncologic outcomes by using a case-matched analysis. Ann Coloproctol 2018;34:29-35.