



The influence of anastomotic leakage on patients' outcomes after rectal cancer surgery

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Rectal cancer surgery is still evolving and various resection techniques such as laparoscopy, robotics, or transanal minimally invasive surgery have been introduced (1). However, establishing intestinal continuity following tumor resection is an unchanged part of rectal cancer surgery (2). Colorectal anastomosis is performed by stapled or hand-sewn method between the proximal colon and rectal stump (3).

Anastomotic leakage is one of most devastating complication after rectal cancer resection. Anastomotic leakage compromises immediate postoperative outcomes and, although controversial, oncologic outcomes. Earlier studies have reported that anastomotic leakage increases local recurrence rate (4-6) or local and distant recurrence rates (7-9). In some studies, anastomotic leakage deteriorated overall (5,7,10) and disease-specific survivals (5,8,9). Recently, Hain *et al.* (11) investigated the impact of anastomotic leakage on oncological outcomes after rectal cancer surgery. Laparoscopic total mesorectal excision was performed in all patients (n=428) and anastomotic leakage was occurred in 120 patients (28%). Based on multivariate analyses, symptomatic anastomotic leakage was an independent risk factor for local recurrence-free survival (odds ratio =2.13). However, asymptomatic anastomotic leakage was not a meaningful risk factor for local recurrence-free survival. In their series, 28% of anastomotic leakage rate (symptomatic: n=70, 16% and asymptomatic: n=50, 12%) is somewhat high when compared to previous studies (12,13). This reason may be due to difference in

definition of anastomotic leakage or study population.

Unfortunately, the mechanism for unfavorable survival rate has not been clearly elucidated. Potential mechanisms have been suggested that anastomotic leakage may cause implantation of occult tumor cells around the anastomosis site (14). Stress response following anastomotic leakage can suppress the function of cytotoxic T cells and natural killer cells and thereby promote cancer cell survival (15). Inflammatory reaction is related to cancer development and progression. Infectious condition by anastomotic leakage can induce systemic inflammatory response and thereby promote disease recurrence (16). In addition, anastomotic leakage may preclude appropriate adjuvant chemotherapy. Occurrence of postoperative complications such as anastomotic leakage is associated with the lack of chemotherapy or delayed commencement of chemotherapy (6). To understand the impact of anastomotic leakage on oncologic outcomes, underlying mechanism should be revealed. Future study should be directed to translational or prospective clinical studies.

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