



Is Whole-Mount Section in Rectal Cancer Effective for Measuring Lateral Margin?

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Total mesorectal excision (TME) was first described by Heald et al. [1] in 1982, and since then, TME has been the standard technique of rectal cancer surgery [2]. Since the introduction of this technique, it has contributed to reducing local recurrence and improving survival after rectal cancer surgery [3-5]. However, local recurrence remains a serious problem after rectal cancer surgery and affects the patient's quality of life [6]. Several studies reported that circumferential resection margin (CRM) involvement is a powerful predictor of local recurrence [6, 7]. Therefore, in order to evaluate the exact radical resection of rectal cancer, the accuracy of CRM involvement and quality of completeness of TME are the most important [8, 9]. According to the 8th edition of the American Joint Committee on Cancer staging manual published in 2018, a new nodal stage called "N1c" has been added. N1c indicates that the local lymph nodes are not positive, but there are tumor deposits in the subserosa, mesentery, or perirectal/mesorectal tissues. This means that tumor invasion into mesorectal tissue affects local recurrence and prognosis of rectal cancer. Several studies [10, 11] suggested that whole-mount sections provide a more accurate and effective assessment of rectal cancer, especially in the spread of the mesorectal region of the discontinuous microscopic tumor nodules compared to a conventional section. In addition, all whole-mount sections showed the overall morphological characteristics of the surgical specimen including the primary tumor, the bowel wall and the mesorectum. In a recent study, whole-mount sections were used to analyze lateral margins

and micrometastasis more accurately for radical resection of rectal cancer [12]. They categorized the patients with perirectal tissue invasion by the 3 groups according to the length of the lateral margin (LM: 1 mm, 1.5 mm, 2 mm). They analyzed recurrence, overall survival, disease specific survival and clinicopathologic features including lymphovascular invasion, perineural invasion and micrometastasis according to each group. In all groups, lymphovascular invasion was significantly frequent and the N state was higher when LM was short. There were more micrometastasis in group LM ≤ 1 mm (53.3% ≤ 1 mm vs. 26.6% > 1 mm, $P = 0.039$). And overall survival was worse when LM was short in each analysis based on 1 mm and 1.5 mm ($P < 0.001$). In all groups, disease specific survival was worse when LM was short.

In summary, the results of improvement in local recurrence and survival through TME technique in the treatment of rectal cancer are obvious, but inadequate resection margin or incomplete CRM causes poor prognosis of rectal cancer. Therefore, a precise pathologic examination method for accurate resection margin and incomplete CRM in rectal cancer is needed. According to recent study results, specimen analysis through the whole-mount section may be a more effective alternative to conventional section analysis for lateral margin measurement. Also, based on continuous additional studies, it may have a good effect on the prognosis of rectal cancer patients.

CONFLICT OF INTEREST

No potential conflicts of interest relevant to this article were reported.

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