Combination of endoscopic submucosal dissection techniques, a practical solution for difficult cases

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Endoscopic submucosal dissection (ESD) is an effective procedure for treating large superficial colorectal neoplasia because it provides higher en bloc and complete resection rates than conventional endoscopic mucosal resection. However, colorectal ESD is technically challenging and the presence of submucosal fibrosis makes it more difficult. Because locally recurrent or residual colorectal lesions after incomplete endoscopic resection contain submucosal fibrosis in most cases, it is difficult even for experienced endoscopists to perform ESD in such cases. In order to facilitate colorectal ESD or to overcome difficult ESD cases, various modifications of the conventional ESD method have been introduced. The pocket-creation method (PCM) is one such method, which was compared PCM with conventional ESD for colorectal lesions with severe fibrosis in a retrospective study. In this study, PCM showed a higher en bloc resection rate than conventional ESD (95.2% vs. 74.7%, p<0.03). The histological complete resection rate was also higher in the PCM group than in the conventional ESD group (85.7% vs. 54.5%, p<0.04). Nonetheless, the mean procedure time was shorter in the PCM group than in the conventional ESD group (79.6±26.5 min vs. 118.8±71 min, p=0.001). ESD using traction devices (TDs) provide enhanced exposure of submucosal layers, even in lesions with submucosal fibrosis, and thus can facilitate safe and effective submucosal dissection. According to a study on traction-assisted ESD using double clips and a rubber band, traction-assisted ESD seemed to be a safe and effective treatment for residual or locally recurrent colonic lesions.

Although both PCM and traction-assisted ESD seem to be useful technical variations of conventional ESD, the outcomes of their combination have not yet been well investigated. Interestingly, a recent case report suggested that the combination of PCM and traction-assisted ESD would be useful to remove a recurrent colorectal lesion with severe submucosal fibrosis. If so, can the combination of these two methods make the difficult ESD cases easier? Ide et al. answered this question in their study. According to their retrospective data, either PCM with TD or conventional ESD method was applied for the locally recurrent or residual colorectal lesions and more than 60% of the lesions contained severe submucosal fibrosis (65% in PCM with TD group and 63% in the conventional ESD group). Using the PCM with TD method, en bloc resection was achieved in all cases; however, the en bloc resection rate using the conventional ESD method was 78%. In addition, the histological complete resection rate was higher in the PCM with TD group than in the conventional ESD group (97% vs. 66%, p<0.001). As the submucosal layer was effectively exposed, the dissection speed could be accelerated in the PCM with TD group compared to

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the conventional ESD (median 13.0 mm²/min vs. 7.9 mm²/min). Moreover, despite improved procedural parameters regarding therapeutic effectiveness, procedure-related complications, such as perforation and bleeding, were not different between the two groups.

Both the PCM and traction methods are relatively easy to apply during ESD and are also known to be useful to less experienced therapeutic endoscopists. Therefore, the combination of these methods may be more useful for non-experts and in more difficult cases. From a practical viewpoint, if any modification of conventional ESD can improve procedure-related outcomes and reduce procedural difficulty, such procedures can be combined in real-world procedures. In addition to PCM and traction-assisted ESD, underwater ESD appears to be a safe and effective modification of conventional ESD. Because PCM, traction-assisted ESD, and underwater ESD are not mutually exclusive procedures, the combination of these three methods may be applied to overcome difficulties in colorectal ESD. Future studies should investigate how to optimize the combination of procedural techniques, to maximize the efficiency and safety of colorectal ESD.

Conflicts of Interest
The author is the section editor of Clinical Endoscopy. Otherwise, there is no potential conflict of interest to be disclosed.

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