Pocket-creation method of endoscopic submucosal dissection to achieve en bloc resection of giant colorectal subpedunculated neoplastic lesions

Endoscopic submucosal dissection (ESD) has become a standard minimally invasive therapy in Japan for large, superficial, colorectal neoplasms [1]. Although polypectomy or endoscopic mucosal resection is generally effective for polypoid lesions, ESD is an effective alternative to achieve en bloc resection in difficult cases, such as giant, subpedunculated, neoplastic lesions that are at least 3 cm in diameter [2]. However, ESD for giant, subpedunculated, neoplastic lesions is associated with technical difficulties because severe submucosal fibrosis occurs at the center of these lesions due to prolapse, resulting in the muscle layer being pulled upward.

The pocket-creation method (PCM) is a new ESD strategy to overcome these difficulties (Fig. 1; Video 1). The key feature of PCM is the creation of a large submucosal pocket under the lesion using a small-caliber tip transparent hood [3]. PCM has two advantages: maintenance of the thick submucosal layer with a minimal mucosal incision, which prevents the leakage of injection solution, and provision of good traction, which allows the submucosal tissue to be stretched and facilitates submucosal dissection.

PCM is very useful for ESD of giant, subpedunculated, neoplastic lesions with severe fibrosis (Video 1). If there is severe fibrosis at the center of the lesion, submucosal pockets should be created on both sides of the fibrosis. By creating pockets on both sides of the fibrosis, the muscle layer can be clearly recognized. The muscle layer is pulled up at the fibrotic area, thus forming the shape of a mountain (Fig. 2b). By using the small-caliber tip transparent hood and creating the pockets, the submucosal space is opened near the fibrotic area. Dissection of the fibrosis can then be easily achieved and the lesion is freed from the muscle layer (Fig. 2c). After this, only dissection of the remaining mucosa is needed (Fig. 2d; Fig. 3). PCM of ESD safely achieves an en bloc and complete resection of giant, subpedunculated, neoplastic lesions with severe fibrosis.

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Fig. 3 Histology of the endoscopic submucosal dissection specimen showed a well-differentiated tubular adenocarcinoma in a high grade tubular adenoma (hematoxylin and eosin, Loupe image). The carcinoma was intramucosal cancer with no lymphovascular invasion and negative resection margins.