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Angaben zur Veröffentlichung / Publication details:

Ebigbo, Alanna. 2022. "Thickness of colorectal submucosal (SM) layer in resected specimens: is more better?" *Endoscopy International Open* 10 (06): E727–28.
<https://doi.org/10.1055/a-1830-7598>.

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Thickness of colorectal submucosal (SM) layer in resected specimens: Is more better?



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Bibliography

Endosc Int Open 2022; 10: E727–E728

DOI 10.1055/a-1830-7598

ISSN 2364-3722

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Endoscopic submucosal dissection (ESD) and endoscopic mucosal resection (EMR) are two methods for resection of gastrointestinal neoplasias. With ESD, neoplasias can be resected in one piece (en bloc), enabling the R0 and curative resection of lesions. EMR, on the other hand, is technically easier and faster but is usually performed in a piece-meal fashion [1].

Irrespective of the resection modality, the quality of the specimen remains crucial for correct histopathological assessment, especially in lesions with submucosal (SM) invasive cancer. Due to the resection of one-piece specimens, it seems obvious that ESD will lead to higher-quality histopathological assessment than piecemeal EMR. ESD achieves negative horizontal and vertical margins, which are a prerequisite for curative resection of T1 cancers that fulfill the low-risk criteria [2].

T1 cancer is defined as high-risk when the SM invasion depth exceeds 1000 μm , and there is evidence of lymphatic or blood vessel infiltration as well as tumor budding. The proper description of these criteria may depend not just on resection of the target lesion in one piece, but also on the quality and quantity of SM tissue liberated along with the tumor.

In this paper by Clees et al., an exciting concept of quantifying the amount of SM tissue within a resected specimen with a particular focus on comparing EMR and ESD is proposed. Clees et al. retrospectively analyzed suitable tissue sections from six ESD and six EMR specimens from the right colon. The SM thickness was measured as the perpendicular distance from the muscularis mucosae to the vertical resection margin. Furthermore, the ratio of SM area $\geq 1000 \mu\text{m}$ relative to the total SM area was quantified, with the notion that more SM tissue deeper than 1000 μm will lead to higher-quality histopathological

judgment of the high-risk criteria described previously, especially regarding the invasion depth.

Interestingly, the thickness of the SM layer was more significant in the EMR than in the ESD specimens. This result seems counterintuitive, even to the authors. Instinctively, endoscopists may suspect that the longer procedure times for ESD or use of more viscous solutions in EMR may have led to thicker SM layers in EMR; however, the authors explain that specimens are dehydrated during pre-embedding and before paraffin fixation. One possible explanation for the difference in SM thickness offered by Clees et al. is that most lesions were not suspicious for SM invasive cancer, thereby influencing the operator to direct the dissection plane closer to the mucosal layer. And for EMR, the cutting plane may reach closer to the muscle layer during snare resection, thereby producing more SM tissue. These points may go a long way to show that correct preinterventional diagnosis is crucial before an EMR or ESD procedure is performed.

The study's retrospective nature may have led to some limitations. These include the single operator, the low number of specimens included, the difficulty of specimen matching, and the quality of routine specimens. This notwithstanding, Clees et al. must be commended for embarking on this novel study. The concept of tumor volumetry or the correlation between SM tissue volume and histopathological diagnosis may have the potential to improve the quality of endoscopic diagnosis and treatment. Especially in lesions suspicious for SM invasive cancer, ESD experts encourage a cutting plane close to the

muscle layer to avoid the rich vasculature of the mucosal or surface SM layer and also to enable more correct diagnosis of the invasion depth [3].

The decisive question raised by this study may not be the comparison between ESD and EMR alone, but finally, what amount of SM tissue is necessary to optimize histopathological diagnosis. Is "the more, the better"? Does the SM thickness matter for all lesions, or is it relevant only for lesions suspicious for SM invasive cancer? The endoscopy community looks forward to exciting results on this topic from prospective, interdisciplinary trials.

Competing interests

The authors declare that they have no conflict of interest.

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