

# Should we recommend use of non-extension sign in Europe?



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## Bibliography

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Endoscopic submucosal dissection (ESD) is considered first-line treatment for early gastric cancer (EGC) in eastern [1] and western countries [2]. An accurate assessment of submucosal invasion, taking in consideration the horizontal and vertical margins of EGC, is necessary because it is related to curative resection of EGC. In particular, prediction of invasion depth of the EGC allows selection of the most appropriate treatment strategy to achieve a curative resection. For Eastern and Western guidelines, ESD is considered curative when the submucosal invasion is superficial (<500 µm from the muscularis mucosae; T1b1) whereas surgery is required for deep invasion of the submucosal (≥500 µm from the muscularis mucosae; T1b2).

European guidelines recommend a high-quality endoscopy, ideally with contrast or digital chromoendoscopy, by an experienced endoscopist to establish the feasibility of gastric endoscopic resection because it may improve diagnosis and staging and might help in delineating tumor margins, factors that may be important in assessing feasibility and achieving an R0 resection. On the other hand, endoscopic ultrasound, computed tomography scan, or other procedures are not routinely recommended for assessment of gastric superficial lesions prior to endoscopic resection. Several factors can be used for prediction of a curative resection, such as size, location, and several endoscopic features, and this can be incorporated in mathematic models that can be used to predict individualized probabilities of achieving ESD [3].

The non-extension sign is a diagnostic criterion proposed by Nagahama et al. [4] which, when the gastric wall is well distended by endoscopic air insufflation, consists of a protrusion of

surrounding mucosa into the lumen, resembling a trapezoidal shape. This is used to define the invasion depth of EGC as T1b2 carcinoma and showed an accuracy of 96.9%. On the basis of these results, they developed an e-learning program for the non-extension sign based on video lectures and self-study quizzes involving more than 400 endoscopists and showed a final diagnostic accuracy of 80.3%.

We believe that the non-extension sign could be considered a promising sign to evaluate invasion depth but today, application of this sign by its own is difficult in Western countries. First of all, the diagnostic accuracy showed in this study (80.3%) did not reach the accuracy of the original study (96.9%) [4]. The authors tried to explain that difference, saying that the first study was a real-time study, while this was only based on images. This is a valid explanation, but we may speculate that the better results in the first study were due to the fact that the study was conducted in a single center with very experienced endoscopists who were expert in the application of the non-extension sign. In fact, use of the non-extension sign in real time by others endoscopists can decrease its accuracy. Moreover, the value of this non-extension sign over other endoscopic features such as depressed morphology (Paris IIc) remains to be elucidated. For this reason, we believe that a real-time, multicenter validation study should be performed to validate the non-extension sign and to assess its accuracy in a real-time setting before general indication not to perform ESD based on this sign.

In conclusion, the non-extension sign may be another important feature that can help us to predict submucosal invasion of EGC. Moreover, e-learning systems once more showed that

they can be an important tool for the future in endoscopy training [5]. Future studies should evaluate the real potential of this new endoscopic feature before clinical decisions can be made based on its presence, at least in the West.

### Competing interests

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None

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