

## Endoscopic diagnosis of Barrett's esophagus

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### Abstract

The Prague C and M Criteria have been developed for the objective endoscopic diagnosis of Barrett's esophagus (BE). BE arises between the squamocolumnar junction and the gastroesophageal junction at the proximal margin of the gastric folds. In this study, we reported that 43.0% of the subjects examined were diagnosed with BE based on the Prague C and M Criteria. Previous criticism by John Dent proposed that our data should be considered invalid because the prevalence of BE reported in our study was extraordinarily high and discordant with previous studies. Dent predicted that the position of the gastroesophageal junction in our study was judged to be lower than the actual position due to the effacement of the proximal ends of the gastric folds because of the routine use of a high degree of air distension during typical Japanese

endoscopic examinations. The endoscopic evaluation of the superior gastric folds is certainly influenced by the degree of air distension of the esophagus. However, in our study, the proximal limit of the gastric mucosal folds was prospectively imaged while the oesophagus was minimally insufflated. Then, under a high level of air distension, the distal ends of the palisade-shaped longitudinal vessels were imaged because they are more easily observed when distended. In the majority of patients, the distal ends of the palisade-shaped longitudinal vessels correspond to the proximal limit of the gastric mucosal folds. Our endoscopic evaluation was appropriately performed according to the Prague C and M Criteria. We suspect that the high prevalence of BE in our study may be due to the inclusion of ultra-short-segment BE, which defines BE with an affected mucosal length under 5 mm, in our positive results.

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**Key words:** Barrett's esophagus; Gastroesophageal junction; Squamocolumnar junction; Digital endoscopic images; Endoscopy

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### TO THE EDITOR

In our previously published retrospective study<sup>[1]</sup>, we reported that a total of 43.0% [short-segment Barrett's esophagus (SSBE, 42.6%); long-segment Barrett's esophagus (LSBE, 0.5%)] of the patients examined were diagnosed with Barrett's esophagus (BE) based on the Prague

C and M Criteria<sup>[2]</sup>. The study population included 869 patients, of whom 463 were men and 406 were women. The median age of the patients was 66 years and the patient age ranged from 29 to 91 years. The study population consisted of patients who underwent upper gastrointestinal endoscopic examination as part of a routine health check at the Yokohama City University Hospital. During endoscopic examination and imaging of the esophageal mucosa, the gastroesophageal junction (GEJ) was prospectively photographed prior to air distension. All of the endoscopic images were digitalised and were independently and retrospectively reviewed by two endoscopists trained to diagnose BE based on the Prague C and M Criteria<sup>[2]</sup>. Any inconsistencies in the assessment of the endoscopic images were resolved by a joint review of the questionable endoscopic images by the two endoscopists. The Prague C and M Criteria for the endoscopic diagnosis of BE is based on the presence of columnar-appearing mucosa between the squamocolumnar junction and the GEJ, which composes the proximal margin of the gastric folds.

The findings of our study are consistent with a previous Japanese study on the occurrence of BE diagnosed based on the Prague C and M Criteria<sup>[3]</sup>. The reported frequency of BE could be affected by differences in the interpretation of what constitutes BE, especially with regard to whether histological confirmation of specialised intestinal metaplasia of the esophagus is required. Many physicians from Western countries believe that confirmation of intestinal metaplasia by an esophageal biopsy is necessary to correctly identify BE<sup>[4]</sup> because this condition is considered a risk factor for esophageal adenocarcinoma<sup>[5]</sup>. However, in our study, BE was diagnosed endoscopically based on the Prague C and M Criteria without histological confirmation; therefore, positive results were referred to as endoscopic BE.

In a recent review article, Dent<sup>[6]</sup> opined that our study appeared to be fatally flawed to the extent that our data should be considered invalid. His rationale was that the reported prevalence of BE in our study was extraordinarily high and discordant with previous studies. Dent predicted that the position of the GEJ was judged to be lower than its actual position due to the effacement of the tops of the gastric folds by the routine use of high levels of air distension during our endoscopic explorations.

The endoscopic evaluation of the proximal limit of the gastric folds is certainly influenced by the degree of air distension of the oesophagus. Furthermore, the American Gastroenterological Association workshop in Chicago has concluded that the proximal limit of the gastric mucosal folds is best visualised when the esophagus is minimally distended, although further work

may be required to define minimal insufflation<sup>[2]</sup>. When endoscopically examining and imaging the GEJ, our protocol includes the prospective imaging of the proximal limit of the gastric mucosal folds while the esophagus is minimally insufflated. Then, we image the extreme distal ends of the palisade-shaped longitudinal vessels, which are considered topographical landmarks for the GEJ, under high levels of esophageal air distension<sup>[7]</sup>. The distal ends of the palisade-shaped longitudinal vessels are much more easily observed under high levels of oesophageal air distension than when the oesophagus is minimally insufflated. In most study populations, the most distal ends of the palisade-shaped longitudinal vessels correspond to the proximal limit of the gastric mucosal folds.

Therefore, our endoscopic evaluation of the position of the GEJ was appropriately performed according to the Prague C and M Criteria without histopathological examination. We suspect that the relatively high prevalence of BE reported in our study may be due to the inclusion of ultrashort-segment BE, which defines BE with an affected mucosal length under 5 mm, in our positive results.

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