



Editorial

Endoscopic classification for colorectal tumors using narrow-band imaging

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In recent years, the widespread implementation of colorectal screening programs and image-enhanced endoscopic techniques has increased the detection of neoplastic lesions. Endoscopic resection has also been shown to be the best treatment option for colorectal lesions with no or limited submucosal involvement. Consistently, there is an emerging need for accurate and reproducible diagnostic tools to avoid unnecessary risks associated with endoscopic resection of lesions deeply infiltrating the submucosal layer.

Since the first prototype of narrow band imaging (NBI; Olympus, Tokyo, Japan) presented in 2001, this optical chromoendoscopy technique has been remarkably improved and has now spread worldwide¹. Narrowing the bandwidth of spectral transmittance by simply pushing a button on the endoscope, NBI allows for improved characterization of both the mucosal surface and the mucosal vascular pattern morphology in real time².

Various studies have shown that NBI can distinguish between neoplastic and non-neoplastic lesions, thereby avoiding the need for traditional dye spraying^{2–5}. Several studies have also shown that NBI combined with optical magnification can predict both histological degree and deep submucosal invasion of colorectal lesions, providing an accurate preoperative^{1,5–7}.

Within the past years, several NBI classifications of colorectal lesions have been proposed and validated from either Japanese or international expert groups¹. However, none of these classifications has been widely accepted, and their use is currently hampered by the presence of overlapping terms (e.g. for vessel: ‘meandering’, ‘irregular’ or ‘more irregular’ arrangement, ‘disrupted’).

To overcome these limitations, the Japan NBI Expert Team (JNET) developed a universal NBI Magnifying Endoscopic Classification of Colorectal Tumors. As clearly reported in this issue of *Digestive Endoscopy*, JNET started in 2013 with a web image interpretation study evaluating several NBI findings and histology of 100 still images, thereby reaching a consensus following a modified Delphi method¹. Consistently, previous NBI classification of colorectal lesions and current

expert opinion contributed to developing a unified classification that focused on either vessel or surface pattern morphology allowing the distinction of four lesion types. Based on this expert consensus, the vessel pattern of every colorectal polyp is defined as ‘invisible’ (type 1), ‘regular’ (type 2A, i.e. regular distribution and caliber), ‘irregular’ (type 2B, i.e. distribution or caliber), and ‘absent’ with sharp ‘interruption of thick vessel’ (type 3). The surface pattern classification encompasses ‘regular spots similar to surrounding mucosa’ (type 1), ‘regular tubular or branched or papillary’ structures (type 2A), ‘irregular or obscure’ structures (type 2B), and ‘amorphous areas’ (type 3)¹.

According to the newly proposed JNET classification, normal or hyperplastic lesions and those featuring a serrated phenotype correspond to type 1, low-grade intramucosal neoplasia including intramucosal cancer with low-grade structural atypia correspond to type 2A, high-grade intramucosal neoplasia or shallow submucosal invasive cancer correspond to type 2B, and deep submucosal invasive cancers correspond to type 3.

Because expert colonoscopists have developed the JNET classification, there is a need for multicenter validation studies involving non-expert colonoscopists even in Japan, thereby confirming such potential both in academic and clinical practice. In the meantime, further efforts should be devoted to standardize the interpretation of each NBI finding, especially in Western countries, where average endoscopists’ confidence in characterization of vessel pattern appears to be only moderate. We are looking forward to evaluating the JNET classification by using non-magnified high-definition NBI endoscopy, following the road traced by others^{5,8–10}. In this context, as Western endoscopists, we strongly believe in the validity and applicability of the new classification even in Europe and North America.

Actually, the JNET classification perfectly fits with the emerging need for a standardized preoperative assessment of therapeutic strategy for colorectal tumors, thereby providing a binary and simplified distinction between endoscopically resectable and non-resectable lesions. By disseminating common diagnostic criteria, we believe that the newly proposed JNET classification based on NBI-magnified endoscopy will

become the new standard for the preoperative assessment of colorectal tumors.

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