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## Texture and color enhancement imaging for detecting colorectal adenomas: Good, but not good enough

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### Abstract

Texture and color enhancement imaging (TXI) has been developed as a novel image-enhancing endoscopy. However, the effectiveness of TXI detecting adenomas is inferior to narrow band imaging. Thus, future studies will need to focus on investigating the feasibility of such combination in clinical settings in order to provide patients with more accurate diagnoses.

**Key Words:** White light imaging; Texture and color enhancement imaging; Narrow band imaging; Colorectal adenomas

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**Core Tip:** Texture and color enhancement imaging (TXI) is designed to enhance three image factors in white light imaging (texture, brightness, and color) in order to clearly define subtle tissue differences. Latest articles reported that TXI may likely contribute to the detection of early gastric cancer. Notably, the synergistic added value of TXI and near-focus mode was discovered during saline-immersion endoscopic submucosal dissection by improving submucosal space visibility. As the authors put it, the effectiveness of TXI detecting adenomas is inferior to narrow band imaging.

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## TO THE EDITOR

With great curiosities, we examined the article “Texture and color enhancement imaging in magnifying endoscopic evaluation of colorectal adenomas” recently published by Toyoshima *et al*[1]. In this study, a total of sixty-one consecutive adenomas with completed white light imaging (WLI), texture and color enhancement imaging (TXI), narrow band imaging (NBI), and chromoendoscopy (CE) were investigated. In the present study, the visibility score for tumor margin of TXI was significantly higher than that of WLI, but lower than that of NBI. Additionally, TXI had a higher visibility score for the vessel as well as surface pattern of the JNET classification than WLI and CE, but a lower visibility score than NBI.

To detect colorectal polyp and gastric cancer, endoscopy with WLI is currently the gold standard. However, the accuracy of WLI for detecting early lesions in both the colorectal and gastric regions is yet to be established[2]. Meanwhile, TXI was proposed as a new image enhancement technology to resolve these drawbacks by Sato[3]. To avoid losing subtle tissue differences, TXI is designed to enhance the three imaging factors in WLI (texture, brightness, and color). According to recent publications, it has been suggested that TXI may likely contribute to the increased detection rate of early gastric cancer[4]. Moreover, a significant synergistic value of TXI and near-focus mode was discovered during endoscopic submucosal dissection performed in saline-immersion by improving the visibility of submucosal spaces [5]. In a study by Nishizawa *et al*[6], WLI, TXI, NBI, and chromoendoscopy were performed on twenty-nine patients with serrated polyps. Similarly, the authors indicated that TXI provided higher degree of clarity in visualization for the detection of serrated, colorectal polyps, as well as sessile serrated lesions.

It is noteworthy that Toyoshima *et al*[1] concluded that the effectiveness of TXI detecting adenomas is inferior to NBI under certain circumstances. Furthermore, TXI could also be combined with other optical image enhancement technology such as NBI, since TXI is implemented entirely in the chain of endoscopic image processing. Finally, it is suggested that future researches should focus on investigating the feasibility of such combination in clinical settings in order to provide patients with more accurate diagnoses.

## FOOTNOTES

**Author contributions:** Wang Y and Chen X conceived and designed the study; Wang Y, Sun CY, Lowe S, Wu DD, and Chen X participated in drafting and critical revision of the manuscript; all authors approved the final version of the manuscript.

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