

Endoscopic Submucosal Dissection of a Rectal Neuroendocrine Tumor Using Linked Color Imaging Technique

Xiao-Tian Sun^{1,2}, Min Min¹, Yi-Liang Bi¹, Yang Xu¹, Yan Liu¹

¹Department of Gastroenterology, 307 Hospital of Academy of Military Medical Science, Beijing 100171, China

²Department of Internal Medicine, Clinic of August First Film Studio, Beijing 100161, China

To the Editor: Endoscopic submucosal dissection (ESD) has been widely applied in clinical practice for resecting gastrointestinal mucosal lesions. However, the risk of post-ESD complications is relatively high, and the bleeding is one of the most common complications after ESD, which needs timely detection and treatment. At recent, several new endoscopic imaging techniques have been developed to improve the diagnostic efficiency. Linked color imaging (LCI), which is a newly developed endoscopic technique,^[1,2] could enhance the color contrast and thus have advantage of identifying bleeding points during ESD. So far, whether the application of LCI in ESD procedure is feasible and safe has not been ever explored. In this report, we described a patient with rectal neuroendocrine tumor who was successfully treated by ESD using LCI.

A 37-year-old man complained of intermittent lower abdominal distension for over 1 month. Diagnostic colonoscopy revealed the presence of 0.6 cm × 1.0 cm rectal mucosal lesions at a distance of 5.0 cm from the anus. Thus, ESD was administrated to obtain *en bloc* resection of the lesion and LCI was used during the procedure. The postoperative pathological examination and immunohistochemistry analysis confirmed the diagnosis of rectal neuroendocrine tumor with negative surgical margin [Figure 1a and 1b].

A forward-viewing endoscopy (Fujifilm, Tokyo, Japan) equipped with LASEREO laser system was used. The mucosa was observed by LCI, blue laser imaging (BLI), BLI-bright, and white light endoscopy (WLE) in turns [Supplementary Video 1]. It was difficult to dissect the mucosa without vascular injuries under LCI, for LCI mode could only clearly observe the superficial submucosa, but not the deeper layer [Figure 1c and 1d]. The dissection was completed under WLE mode, which could clearly observe the mucosa and submucosal

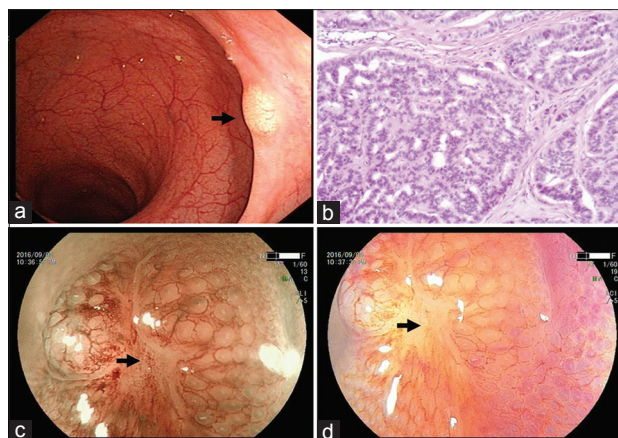


Figure 1: Typical images of the lesion (black arrows). White light colonoscopy detected a rectal mucosal lesion (a), which was pathologically diagnosed as a rectal neuroendocrine tumor (b, hematoxylin-eosin staining, original magnification, ×100). Magnified blue laser imaging (c) and linked color imaging (d) technique observed the lesion (black arrow).

vessels. If the bleeding was suspected, LCI mode was used, which was easier to detect the bleeding point located in superficial submucosa [Supplementary Video 2]. The postoperative wound should be observed combining WLE and LCI mode, which could effectively handle the superficial and deep vessels and prevent postoperative bleeding.

LCI can make the red mucosal area redder and white mucosal area whiter.^[1,3,4] Our previous study has proved that LCI technique could improve the endoscopic

Address for correspondence: Dr. Yan Liu,

Department of Gastroenterology, 307 Hospital of Academy of Military Medical Science, 8 East Street, Fengtai District, Beijing 100071, China
E-Mail: 13911798288@163.com

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DOI:
10.4103/0366-6999.204937

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Received: 06-01-2017 **Edited by:** Peng Lyu

How to cite this article: Sun XT, Min M, Bi YL, Xu Y, Liu Y. Endoscopic Submucosal Dissection of a Rectal Neuroendocrine Tumor Using Linked Color Imaging Technique. *Chin Med J* 2017;130:1127-8.

diagnostic accuracy for gastrointestinal mucosal lesions compared with WLE, and pixel brightness could be introduced as a quantifiable marker for analyzing the endoscopic images.^[5] This report demonstrated that LCI technique could be safe and effective in the application of ESD for rectal neuroendocrine tumor. LCI is a new endoscopic technique, which has a high diagnostic field. The report rarely demonstrated that the application of LCI during ESD was feasible and safe. Furthermore, the observation under LCI mode could identify the bleeding points, enabling the complete hemostasis. LCI mode is quite efficient in detecting the bleeding points during ESD, while WLE mode is recommended for the dissection procedure to avoid vascular damage. The clinical application of LCI might be further examined in future clinical trial.

Supplementary information is linked to the online version of the paper on the Chinese Medical Journal website.

Declaration of patient consent

The authors certify that they have obtained appropriate patient consent form. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understand that his name

and initial will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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