



ASO VISUAL ABSTRACT

ASO Visual Abstract: Whether Using Indocyanine Green Fluorescence Imaging for Tumor Helps Determining Safe Surgical Margin in Real-Time Navigation of Laparoscopic Hepatectomy? A Retrospective Study

Xinran Cai, MD^{1,2,3,4}, Haijie Hong, MD, PhD^{1,2,3,4}, Wei Pan, MD^{1,2,3,4}, Jiangzhi Chen, MD, PhD^{1,2,3,4}, Lei Jiang, MD^{1,2,3,4}, Qiang Du, MD, PhD^{1,2,3,4}, Ge Li, MD^{1,2,3,4}, Shengzhe Lin, MD^{1,2,3,4}, and Yanling Chen, MD, PhD^{1,2,3,4}

¹Department of Hepatobiliary Surgery and Fujian Institute of Hepatobiliary Surgery, Fujian Medical University Union Hospital, Fuzhou, China; ²Fujian Medical University Cancer Center, Fuzhou, China; ³Key Laboratory of Ministry of Education for Gastrointestinal Cancer, Fujian Medical University, Fuzhou, China; ⁴Fujian Key Laboratory of Tumor Microbiology, Department of Medical Microbiology, Fujian Medical University, Fuzhou, China

Resection of the hepatic malignant lesions along ICG fluorescence could only provide safe surgical margin for CRLM, but not for HCC (<https://doi.org/10.1245/s10434-022-12893-3>).

Whether Using Indocyanine Green Fluorescence Imaging for Tumor Helps Determining Safe Surgical Margin in Real-Time Navigation of Laparoscopic Hepatectomy? A Retrospective Study

Purpose: To investigate whether ICG imaging of tumor helps determining safe surgical margin in laparoscopic hepatectomy.

Methods: 86 patients with hepatic malignancies were included in this study. ICG-R15 testing was performed 5-7 days before surgery. Fluorescence staining of the tumor was detected by a fluorescent laparoscope and the width of fluorescence band surrounding tumor was measured by an electronic vernier caliper.

Results:

1. The ICG fluorescence imaging patterns of HCC lesions divided into four types: full, partial, mixed and rim patterns. All the lesions of CRLM uniformly presented rim fluorescence patterns.
2. The average minimum width of fluorescence from the tumor edge in non-rim group with HCC, rim group with HCC and CRLM group were 0 mm, (2.4±1.9) mm, and (2.8±2.5) mm, respectively.
3. The fluorescence imaging pattern of HCC was positively correlated with the histological differentiation ($P < 0.001$), but negatively correlated with tumor size, liver cirrhosis and hepatitis B infection ($P > 0.05$, respectively).
4. The positive rate of ICG fluorescence staining for micro lesions was 8.08% (8/99) and the false positive rate was 37.5% (3/8).

Conclusion:

1. Our data suggests that ICG fluorescence imaging is a reliable navigation tool, which combined with intraoperative ultrasound scan is helpful for tumor detection including the identification of small lesions that cannot be detected preoperatively.
2. Resection along the fluorescence edge can supply a safe surgical margin only for CRLM, but not for HCC. Therefore, wide margin resection should be performed as far as possible for HCC.

Cai X, Hong H, et al. *Ann Surg Oncol*.
Visual Abstract for @AnnSurgOncol

ANNALS OF SURGICAL ONCOLOGY

Xinran Cai and Haijie Hong contributed equally to this work.

© Society of Surgical Oncology 2023

Published Online: 5 January 2023

Y. Chen, MD, PhD
e-mail: chenyanling@fjmu.edu.cn

DISCLOSURES None of the authors have financial/commercial interests to disclose.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.