

# World Journal of *Gastrointestinal Surgery*

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The primary aim of *World Journal of Gastrointestinal Surgery* (WJGS, *World J Gastrointest Surg*) is to provide scholars and readers from various fields of gastrointestinal surgery with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

WJGS mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal surgery and covering a wide range of topics including biliary tract surgical procedures, biliopancreatic diversion, colectomy, esophagectomy, esophagostomy, pancreas transplantation, and pancreatectomy, etc.

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## Providing higher value care for hepatocellular carcinoma rather than diagnosis: What can current radiologists do?

Shan Yao, Yi Wei, Bin Song

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### Abstract

Medical imaging is of great value for the comprehensive evaluation of hepatocellular carcinoma from diagnosis to prognosis, which contributes to optimal clinical management making.

**Key Words:** Hepatocellular carcinoma; Medical imaging; Clinical management

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**Core Tip:** Medical imaging plays a vital role in the accurate diagnosis and grading of hepatocellular carcinoma as clinical treatment decision-making. Moreover, it is of powerful value for noninvasively preoperative evaluation of the treatment outcomes, prognosis, and survival with high sensitivity and repeatability. The comprehensive assessment involving preoperative, perioperative, and postoperative indicators for treatment option selection will assist surgeons precisely and maximize the benefits for patients.

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### TO THE EDITOR

In the current issue, we read with interest a retrospective study by Delvecchio *et al*[1], where liver resection (LR) and radiofrequency ablation (RFA) were evaluated as the

treatment of choice for single hepatocellular carcinoma (HCC) ( $\leq 30$  mm) located in posterosuperior segments (PSS) in elderly patients. Based on operative time, hospital stay, and short- and long-term outcomes, RFA was recommended as a suitable option.

The critical value of tumor size for LR or RFA differs in various criteria and guidelines, most of which is 20 mm. Single HCC with a tumor size of  $\leq 30$  mm was mainly targeted in this study. Locations with difficulties in surgery (PSS) and age (for the elderly  $\geq 70$  years old) were considered while making the treatment decision. It offered an insightful perspective and a specific focus, providing a supplement to this field with certain guiding significance for clinical management practice.

As described in the study, all subjects underwent computed tomography (CT) or magnetic resonance imaging (MRI) before treatment to access the tumor location and size, which are the two key points of this study. The diagnosis and stage of HCC were based on the European Association for the Study of the Liver criteria[2], which also regard medical imaging manifestations as a dominant support. Thus, medical imaging plays a vital role in the accurate diagnosis and qualitative evaluation of HCC. Along with morphological features, such as tumor location and size, satellite nodules, portal vein embolus, and invasion of adjacent tissues can be evaluated using CT or MRI, which are also of prognostic significance for patients with HCC after treatment.

Apart from the abovementioned perioperative and postoperative indicators for selecting treatment option, preoperative evaluation can be performed using noninvasive medical imaging with high sensitivity and repeatability. In a study by Cha *et al*[3], pretreatment imaging was utilized to compare the outcomes of RFA and LR for HCC  $\leq 30$  mm, and a high positive predictive value was achieved. Burgeoning functional imaging technologies, such as gadoteric acid-enhanced MRI, intravoxel incoherent motion, T1 mapping, have enabled insightful assessment of microvascular invasion, hepatocyte membrane function, hepatocyte density changes, tissue microcirculation, and liver reserve function. Meanwhile, artificial intelligence-imaging combining radiomics has been empowering deep data mining of CT or MRI images of HCC from diagnosis to prognosis. In prior studies, we found that preoperative CT imaging combined with clinical features could predict the rate of liver regeneration after right hepatectomy for HCCs with an accuracy of 0.78 and an area under the curve (AUC) of 0.84 [4]. Gadoteric acid-enhanced MRI-derived features showed great potential for preoperative prediction of early recurrence of LR for HCCs, with the related model demonstrating a significant AUC of 0.841 (95%CI: 0.769-0.919)[5]. Taken together, medical imaging is closely related to optimal treatment decision-making and survival quality for patients. In future clinical practice, it is necessary to take full advantage of medical imaging to comprehensively evaluate tumor and liver conditions preoperatively as a treatment plan trade-off, so as to maximize the benefits for patients with HCC and meet the demands of precision medicine.

## FOOTNOTES

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