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## **Application of multimodal image fusion technology in the diagnosis and treatment of intrahepatic cholangiocarcinoma.**

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**Introduction :** To explore the value of multimodal image fusion in preoperative planning and intraoperative navigation of intrahepatic cholangiocarcinoma (ICC).

**Methods :** Clinical data of 11 patients with intrahepatic cholangiocarcinoma who underwent multimodal image fusion technology from January 2018 to September 2018 in the Department of Hepatobiliary, Zhujiang Hospital were retrospectively analyzed. CT enhanced scan and MRI enhanced scan with gadoxetate disodium (Gd-EOB-DTPA) of the upper abdomen were respectively performed, and 3D models of individualized liver, tumor, and intrahepatic vessel were constructed based on CT-MRI fusion images. The ICG molecular fluorescence imaging system and the augmented reality navigation system were used to guide hepatectomy.

**Results :** The display of grade 3 and above branch vessels of the portal vein and hepatic vein system by enhanced CT was clearer than that of MRI (100% vs 36.4%,  $p=0.035$ ); while enhanced MRI showed clearer tumor margin than CT (100% vs 36.4%,  $p=0.004$ ) (Table 1). Eleven liver cancer lesions were detected by enhanced CT and 13 by enhanced MRI (including 2 lesions not demonstrated by enhanced CT with maximum diameter  $\leq 10$ mm). No blood transfusion was found in 11 patients during perioperative period. No liver failure, bile leakage and death occurred after operation.

**Conclusions :** Multimodal image fusion technique is helpful to optimize the preoperative surgical plan, which can assist the recognition of important vessels and real-time navigation of hepatectomy during operation, and improve the safety of operation.

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