

Preoperative & Intraoperative Localization of CRLM

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The liver is the most common site of distant metastasis from colorectal cancer, in which metastasis occurred up to 70% of all patients. Since surgical treatment of resectable colorectal liver metastasis (CRLM) is a gold standard, accurate preoperative detection & intraoperative localization of metastasis using various imaging modalities are crucial for optimal management.

Although ultrasonography (US) has been widely used to screen the focal hepatic lesions, it has been surpassed by computed tomography (CT), magnetic resonance (MR) imaging, fluorine 18 fluorodeoxyglucose (FDG) positron emission tomography (PET), and FDG PET/CT in the detection of CRLM. According to a recent meta-analysis, the sensitivity estimates of CT, MR imaging, and FDG PET of CRLM on a per-lesion basis were 74.4%, 80.3%, and 81.4%, respectively (1). On a per-patient basis, the sensitivities of CT, MR imaging, and FDG PET were 83.6%, 88.2%, and 94.1%, respectively (1). For lesions smaller than 10 mm, the sensitivity estimates for MR imaging were higher than those for CT (1). Recently, the sensitivity of MR imaging increased significantly after the use of advanced MR techniques such as liver-specific contrast agent or diffusion-weighted image (2). In addition, preoperative MR images also contain the information regarding the vascular and biliary mapping, volumetry and the presence of chemotherapy-induced hepatopathy (3).

Even though US is rarely used for the preoperative assessment of CRLM currently, it plays an important role in intraoperative localization. In the era of the advanced imaging techniques which help to detect the small-sized metastasis and laparoscopic liver surgery, intraoperative localization solely relied on tactile sense

would not be sufficient. Intraoperative US enables to localize the metastasis found on the preoperative images as well as to understand the relationship of the metastasis to the adjacent vascular structure or bile duct (4).

It is necessary for radiologists and surgeons to be familiar with various imaging modalities with recently developed techniques for accurate diagnosis and localization of CRLM.

References

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