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How to Evaluate Tumor Extent: ECCM-MRI vs. EOB-MRI

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Potential curative treatment of bile duct cancer can only be achieved with complete surgical resection using histologically negative resection margins. Therefore, accurate preoperative assessment of tumor staging and resectability is important in treatment planning. In clinical practice, tumor resectability and the optimal type of surgery are usually determined by tumor extent within the biliary tree, vascular invasion, lymph node metastasis, metastatic disease, and liver volume.

MDCT and MRI with MR cholangiography are widely used for noninvasive evaluation for the preoperative staging of bile duct cancers. MRI with MR cholangiography has become more widely used at many medical centers as a comprehensive imaging modality allowing evaluation of the bile duct and liver parenchyma in patients with the bile duct cancers. Regarding the recommendations on the type of MR contrast agent, there are insufficient data indicating diagnostic superiority of MRI with ECCM over the MRI with EOB for evaluation of bile duct cancer. Only few publications have evaluated the clinical applications for EOB-MRI for the assessment of bile duct cancer.

There are several drawbacks of EOB-MRI in preoperative evaluation of bile duct cancer. First, there have been concerns on the acquisition of ideal vascular-phase imaging of gadoxetic acid-enhanced MRI. Second, the uptake of EOB into the hepatocytes and its excretion into the biliary tree can be hindered by high bilirubin related to biliary obstruction. Therefore, ECCM-MRI would be preferable in patients with severely deteriorated hepatic function or significant bile duct obstruction. Third, other drawbacks of EOB-MRI are a high cost of contrast agent and a long examination time due to HBP imaging. Meanwhile, when using Gd-EOB-DTPA, it is particularly helpful for the detection and the differentiation of hepatic metastasis from microabscess. Therefore, it may be necessary to understand the advantages and disadvantages of EOB-MRI in evaluating bile duct cancer, and to select a MRI contrast agent based on the clinical setting of each patient.

Keywords: Bile duct cancer, MRI, Contrast agent, Staging