

Diagnostic Performance of Transabdominal Ultrasound to the Right Hepatic Artery and Perineural Invasion in Patients with Extrahepatic Bile Duct Cancer

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Abstract

【Purpose】 The purpose of this study was to estimate the diagnostic value of transabdominal ultrasound (US) in right hepatic artery invasion (Arh) and perineural invasion (pn) by comparison with pathological findings.

【Subjects and Methods】 Between March 2008 and March 2011, 31 extra bile duct carcinoma patients were enrolled in this study (23 men and 8 women; average age 67.4 ± 10.3 years old) who had undergone excision of the right hepatic lobe. According to the B-mode US findings, stenosis of the right hepatic artery (RHA) by the tumor was diagnosed made as Arh positive, and when the RHA was surrounded by the weak low echoic lesion and disappearance of the boundary echo were found, the diagnosis was made as pn positive.

【Results and Discussion】 There were two subjects for which US depiction of RHA was poor (representing 6.5% of the subjects). Pathological diagnoses of Arh and pn were: positive, 7 and 14, negative, 22 and 15. Respective diagnostic values of Arh and pn were: sensitivity, 85.7% and 64.3%; specificity, 90.9% and 93.3%; accuracy, 85.7% and 79.3%; respective positive predictive values were 75.0% and 90.0%; and respective negative predictive values were 95.2% and 73.3%. One false negative and two false positive diagnoses of Arh were obtained. The false negative subject of Arh was a micro invasion of the tunica adventitia of the RHA. The two false positive subjects were the tortuous RHA, which mimicked an invasion. Five false negatives were found in diagnosing pn, in which more than half of each RHA was surrounded by a low echoic lesion. In diagnosing Arh, obvious stenosis of the lumen, and diagnosing pn, more than half of the RHA surrounded by the weak low echoic lesion, would be a sign of positive invasion.

【Conclusion】 The diagnostic performance of US was judged to be good in evaluating RHA invasion and somewhat good in perineural invasion.

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Keywords

ultrasonography, extrahepatic bile duct cancer, right hepatic artery invasion, perineural invasion, diagnostic performance

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