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## Journal of the Medical Association of Thailand, Vol 96, No 7

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### Sonographic Findings of Hepatocellular Carcinoma Detected in Ultrasound Surveillance of Cirrhotic Patients

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#### Abstract

**Background:** Hepatocellular carcinoma (HCC) is associated with high mortality. Patients with hepatitis B or C viral cirrhosis have an increased risk of developing HCC. Ultrasound is the most widely used screening method, and is recommended by many guidelines.

**Objective:** To study the sonographic findings of HCC detected in ultrasound surveillance of cirrhotic patients.

**Material and Method:** Retrospective assessment of ultrasound findings of all nodules that were diagnosed HCC by either dynamic imaging (CT or MRI) or biopsy between October 2008 and July 2011. Nodules were classified based on echogenicity and other sonographic characteristics.

**Results:** Of 92 nodules, 42 (45.7%) were hyperechoic, 29 (31.5%) hypoechoic, 20 (21.7%) heterogeneous echoic and 1 (1.1%) isoechoic. Heteroechoic nodules were more common among nodules over 3.0 cm ( $p = 0.0037$ ) while hypoechoic nodules tended to be the smaller ones. About half (48/92) of the nodules had a hypoechoic halo and occurred significantly more commonly among hyperechoic and heteroechoic nodules ( $p < 0.001$ ). Posterior enhancement was found in 54 nodules (58.7%), also more common in nodules  $> 3.0$  cm ( $p = 0.18$ ). Lateral shadowing occurred in 40 nodules (43.5%).

**Conclusion:** The sonographic findings of HCC nodules in the present studies varied, but the prevalence of hyperechoic nodules was higher than in most of other studies. The authors emphasize the necessity of performing dynamic imaging for any nodule detected in a cirrhotic liver in order to exclude their neoplastic nature, no matter what it may look like.

**Keywords:** Sonographic finding, HCC surveillance

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