

Isoattenuating pancreatic adenocarcinoma on dual-phase enhanced CT: effect of CT review using a narrow window on diagnosis

Jin Hee Kim, Seong Ho Park

Asan Medical Center, Korea.

parksh.radiology@gmail.com

PURPOSE: To investigate whether CT review using a narrow window setting is helpful for diagnosing isoattenuating pancreatic cancers (i.e., unperceivable attenuation difference at standard abdominal window between tumor and pancreatic parenchyma) on dual-phase CT.

MATERIALS AND METHODS: Dual (arterial and portal)-phase contrast-enhanced CT scans, obtained from 30 patients with surgically proven isoattenuating pancreatic cancer (the case group) and 30 randomly chosen patients with benign pancreatic ductal stricture (the control group), were randomized and reviewed by three independent blinded readers. A narrow window setting (width/level, 100 HU/100 HU) in addition to a standard abdominal window was used for the review. Sensitivity, specificity, and inter-reader agreement for diagnosing pancreatic tumors were determined on a per-examination basis. Pancreatic parenchyma-to-tumor contrast-to-noise ratio (CNR) was analyzed.

RESULTS: The sensitivity of individual readers ranged from 40% (12/30) to 46.7% (14/30) and the specificity ranged from 70% (21/30) to 93.3% (28/30). Due to the low inter-reader agreement (kappa, 0.28–0.405), only 16.7% (5/30) of isoattenuating pancreatic cancers were identified by all three readers although a total of 70% (21/30) could be detected by at least one reader. False-positive diagnoses were made by all three readers and by at least one reader in 3.3% (1/30) and 33.3% (10/30) of control subjects, respectively. Mean \pm SD pancreatic parenchyma-to-tumor CNRs on arterial and portal phases were 0.9 ± 0.3 and 0.9 ± 0.5 , respectively.

CONCLUSION: CT review using a narrow window setting is helpful for detecting a modest fraction of isoattenuating pancreatic cancers despite a small risk of false diagnosis in patients with benign pancreatic ductal stricture.