



Experience of Early Gastric Cancer at Dual Energy CT with Iodine Map

Manabu Watanabe*

Department of Gastroenterology and Hepatology, Toho University Medical Center, Ohashi Hospital Address: 2-17-6 Ohashi Meguro-ku Tokyo 153-8515, Japan

Short Communication

The patient was a 77-year-old man in whom posterior wall thickening of the lower gastric body was shown in abdominal CT. In the arterial phase of iodine map obtained with dual energy CT (DECT), the lesion showed the mucosal enhancement compared to the adjacent mucosal layer (Figure 1). There was no enhancement in the submucosal low-density-stripe layer, including in the portal and equilibrium phases. The type 0-IIa lesion that bled easily was found by gastroscopy (Figure 2) and was diagnosed as a well-differentiated adenocarcinoma (tub1/pap, SM1). DECT is based on the simultaneous acquisition of two data sets of the body area under study using different voltage (80 kVp and 140 kVp) [1,2]. At low-energy (80 kVp), the contrast of the agent is strong despite a high noise level, while at high-energy (140kVp) the contrast and noise level are low. With a tube voltage of 120 kVp, which is equivalent to the synthesized voltage of these two levels, images with characteristics of both voltages can be obtained. Furthermore, iodine map, which is one of DECT applications, can be superimposed on morphologic imaging to show contrast enhancement.

Among the types of gastric cancer, well-differentiated adenocarcinoma has developed atypical ducts and a large number of capillaries, and thus well-enhancing mucosal thickening can be detected by dynamic CT in the early phase. In contrast, poorly-differentiated adenocarcinoma is characterized by a desquamated epithelium due to ducts with poor differentiation or development of signet ring cells in the interstitium, and thus mucosal enhancement is not observed in the early phase. Based on these pathological characteristics, the invasion depth of gastric cancer has been diagnosed by

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***Correspondence:**

Manabu Watanabe, Department of Gastroenterology and Hepatology, Toho University Medical Center, Ohashi Hospital, 2-17-6 Ohashi Meguro-ku, Tokyo 153-8515, Japan, Tel:+81-3-3468-1251; Fax:+81-3-3468-1269; E-mail: manabu62@med.toho-u.ac.jp

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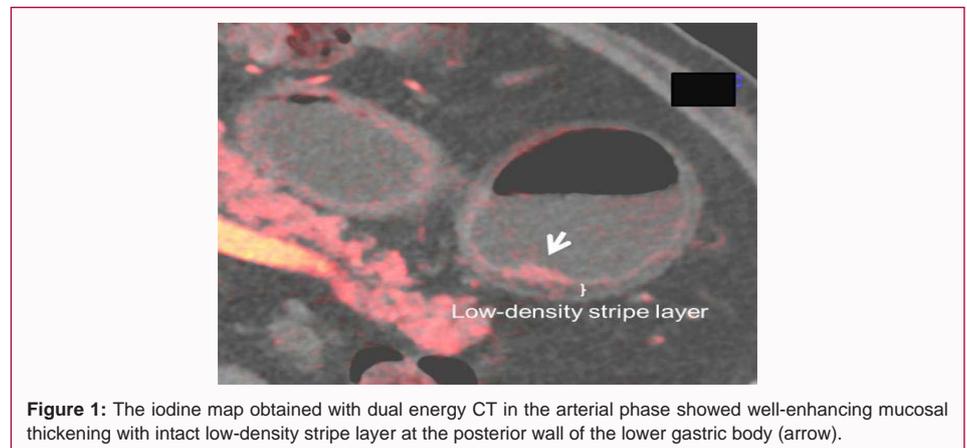


Figure 1: The iodine map obtained with dual energy CT in the arterial phase showed well-enhancing mucosal thickening with intact low-density stripe layer at the posterior wall of the lower gastric body (arrow).



Figure 2: The early gastric cancer (type 0-IIa) was revealed by gastroscopy.

MDCT in some cases, but the accuracy is still debatable³. However, DECT may be useful both for diagnosis of gastric cancer and other gastrointestinal cancers, and for accurate evaluation of the invasion depth.

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