

Clinical significance of endoscopic ultrasonography in diagnosing of invasion depth of early gastric cancer prior to endoscopic submucosal dissection

Kazutaka Kuroki¹, Shiro Oka¹, Shinji Tanaka², Naoki Yorita¹, Kosaku Hata¹, Takahiro Kotachi², Tomoyuki Boda², Koji Arihiro³, Kazuaki Chayama¹

1 Department of Gastroenterology and Metabolism, Hiroshima University Hospital

2 Department of Endoscopy, Hiroshima University Hospital

3 Department of Pathology, Hiroshima University Hospital

Abstract

Background and Aim: Endoscopic ultrasonography is a reliable diagnostic modality for determining indications of endoscopic submucosal dissection for early gastric cancer. We aimed to clarify the clinical significance of endoscopic ultrasonography in the invasion depth diagnosis of early gastric cancer.

Methods: We retrospectively assessed 1598 consecutive patients with 2001 early gastric cancers who underwent EUS before ESD or surgery between October 2010 and April 2019 at our institution. Lesions were classified according to endoscopic ultrasonography-determined invasion depth as EUS-M/SM1 (lesions confined to sonographic layers 1 and 2 or lesions with changes in sonographic layer 3; depth, <1 mm) and EUS-SM2 (lesions with changes in sonographic layer 3; depth, ≥ 1 mm). We evaluated the invasion depth determination accuracy of endoscopic ultrasonography and analyzed the clinicopathological features of misdiagnosed early gastric cancer cases.

Results: The invasion depth determination accuracy was as follows: EUS-M/SM1: pathological T1a/T1b1 early gastric cancer, 97%; EUS-SM2: pathological T1b2 early gastric cancer, 79%. The accuracy, sensitivity, specificity, positive predictive value, and negative predictive value were 95%, 98%, 69%, 97%, and 79%, respectively. In EUS-M/SM1 early gastric cancer, tumor size of ≥ 15 mm, presence of ulceration, and undifferentiated histological type were significantly associated with endoscopic ultrasonography accuracy. In EUS-SM2 early gastric cancer, tumor size of ≥ 30 mm was significantly associated with endoscopic ultrasonography accuracy.

Conclusions: Endoscopic ultrasonography is a useful modality in accurately determining the invasion depth of early gastric cancer before endoscopic submucosal dissection.