The Usefulness of a Novel Fixation Device for ESD Specimen Evaluation

Nark-Soon Park, Hoon Jai Chun, Hong Myong Jung, Young Jin Kim, Jin Yong Jung, Chang Ha Kim, Hyuk Soon Choi, Eun Sun Kim, Bora Keum, Yong Sik Kim, Yoon Tae Jeen, Hong Sik Lee, Soon Ho Um, Chang Duck Kim and Ho Sang Ryu

Department of Internal Medicine, Institute of Digestive Disease and Nutrition, Korea University Medical College, Seoul, Korea

Background: Endoscopic resection is now accepted as curative treatment modality for early gastric cancer without lymph node metastasis. The risk of lymphatic metastasis is mainly related to the depth of submucosal invasion. Tumor not deeper than sm 1 was generally accepted as safe for absence of lymphatic metastasis. However, the invasion depth of tumor can be severely influenced by stretching length of resected tissue in the process of fixation (pinning manually on cork board). We devised a tissue fixation device for objective and standardized submucosa measurement. And we compared the thickness of submucosa measured by using fixation device with that by manual pinning on cork board.

Methods: Two circular tissues were resected in the body of porcine stomachs with 2.0 cm diameter. One piece was inserted in a fixation device and the other was manually pinned on cork board. After fixation for 24 hrs, we examined the diameter, thickness of mucosa and submucosa. Totally 10 pairs of procine tissue were examined.

Results: The diameter was 2.3 mm in fixation device group and 2.1 mm in manual pinning group, respectively. The mean thickness of submucosa using fixation device was 104.4±19.2 μm and that by pinning manually was 129.9±52.9 μm. And the mucosa was 730.6±179.7 μm thickened in fixation device, while it was 772.2±229.3 μm thickened in pinning group. In considering standard deviation, thickness in manual pinning group was much more dispersed than that in fixation device group.

Conclusions: The thickness of submucosa was relatively consistent in fixation device group, while it was much more variable in conventional fixation group. This fixation device is appeared to be objective and useful for evaluation of ESD specimen.

Key Words: ESD; Submucosa; Thickness; Stretching; Fixation device