Endoscopic Submucosal Dissection with Sentinel Node Navigation Surgery (ESN) for Early Gastric Cancer

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Purpose: The risk of nodal metastasis is low in EGCs that meet the criteria for ESD. However, the only definite diagnostic method for nodal metastasis is pathologic examination. We combined ESD and Sentinel node navigation surgery (SNN) with the purpose of achieving complete resection of the tumor while preserving the organ and assessing pathological nodal status.

Materials and Methods: 26 patients with cT1N0M0 EGC who met the expanded indication criteria for ESD underwent ESN. ESN was performed separately in 20 patients, and simultaneously in 6. SNN was performed by endoscopically injecting ICG in all four quadrants of the submucosa around the tumor site. All suspected SNs were removed using the pick-up biopsy method and intra-operatively examined by frozen section, with HE staining. If the number of SNs harvested was less than 5, additional basin dissection was performed at the site of SNs. Patients were scheduled to convert to a gastrectomy with D2 dissection if there was evidence of metastasis found on frozen section during the procedure.

Results: In 10 cases, cancer was confined to the mucosal layer, and in 16 cases cancer extended into the submucosal layer or deeper (14 submucosal cancers, 1 proper muscle cancer). There was 13 case of differentiated cancer and 13 case of undifferentiated cancer. All cases were resected with free lateral margins (range, 1-8 mm). The median number of total obtained lymph nodes including SNs was 10.9 (range, 5-31). Lymph node metastasis (LNM) was not found in 0 lymph nodes obtained from SNN and basin dissection. ESN was conducted without intraoperative or postoperative adverse events in all cases. The final diagnosis of 1 patient with proper muscle invasion was pT2N1M0. LNM was found in 1 of 32 (station No. 9) nodes following total gastrectomy and D2 dissection, indicating skip metastasis.

Conclusion: ESN is a feasible minimally invasive procedure that can achieve en-bloc tumor resection while assessing the pathologic status of the lymph nodes.

Key Words: EGC; ESN