A case of gastric neuroendocrine tumor treated by endoscopic submucosal dissection

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CASE DESCRIPTION

A 53-year-old man was referred for the evaluation of small gastric tumor on routine cancer screening endoscopy. The patient denied any systemic symptom. He had a history of hypertension for 30 years. He denied history of alcohol or smoking. Physical examination revealed no marked features. The patient’s laboratory data showed no abnormalities. Outside endoscopy revealed atrophic change of whole gastric mucosa and a 10mm-sized protruded hyperemic tumor in the greater curvature side of high body of the stomach (Fig.1a). The outside biopsy specimens demonstrated proliferation of enterochromaffin-like (ECL) cells (Fig.1b) and immunohistochemical staining showed that the tumor was positive for chromogranin A (Fig. 1c). However, endoscopy at our hospital revealed two lesions of 10mm-sized protruded hyperemic tumor in the greater curvature side of high body (Fig. 2a) and 7mm-sized tumor in the greater curvature side of fundus (Fig. 2b) of the stomach. The biopsies of two lesions revealed proliferation of ECL cells (Fig. 3a & b) and immunohistochemical staining showed that the tumor was positive for chromogranin A (Fig. 3c) and negative for CD56 and synaptophysin. Therefore, a diagnosis of gastric well differentiated neuroendocrine tumor (NET) was made. Endoscopic ultrasonography showed hypoechoic lesions, which were located in the deep mucosal and submucosal layers (Fig. 4a). Abdominal computed tomography showed slightly elevated enhancing focal lesions in the greater curvature side of high body and fundus of the stomach (Fig. 4b) without metastatic lesions. Thus, endoscopic submucosal dissection (ESD) was planned for therapeutic intent for these lesions.
Two weeks after diagnosis, the patient was admitted to hospital for ESD. Endoscopy during ESD revealed hyperemic scar like lesion in the greater curvature side of high body (Fig. 5a). However, there was no scar or mass in the greater curvature side of fundus (Fig. 5b). Thus, ESD was performed for the lesion in the high body and close observation was planned for the lesion in the fundus. En bloc resection was done without complications (Fig. 6). The resected specimen measured 28×24 mm in diameter (Fig. 7). A histological examination revealed 7mm-sized well differentiated neuroendocrine tumor, grade 1 without involvement of resection margins and lymphatic invasion (Fig. 8a). The Ki-67 labeling index was less than 2% and mitotic count was none in 10 HPF. Immunohistochemical staining showed that the tumor was positive for chromogranin A (Fig. 8b) and negative for CD56 and synaptophysin. The patient was considered to be at a low risk for recurrence, close observation with surveillance endoscopy and computed tomography was planned. The patient followed up 3 months after ESD. At follow-up endoscopy, there was no local recurrence at post ESD scar in the high body and biopsy site in the fundus (Fig. 9a & b). Eighteen months since ESD, there has been no clinical evidence of recurrence.
Figure 6  ESD finding.

Figure 7  Gross specimen of ESD.

Figure 8  Microscopic and immunohistochemical (chromogranin A) findings.

Figure 9  Follow up endoscopic findings.
Although serum gastrin level or chromogranin A was not evaluated, this case might be type 1 gastric NETs since the tumors were multiple, small sized well differentiated neuroendocrine tumors located in corpus and fundus on a background of atrophic gastritis. The treatment of type 1 gastric NETs depends on the size, number, and invasiveness of the tumor. Since most type 1 gastric NETs are WHO group G1 or G2 and disease-specific survival approaches 100%, simple surveillance or endoscopic resection can be employed for tumors less than 2 cm (up to 6 lesions): tumors <1 cm surveillance can be recommended; tumors between 1 and 2 cm confined to mucosa/submucosa endoscopic resection is recommended; surgical resection is generally recommended for patients with tumors measuring more than 2 cm, recurrent tumors, poorly differentiated tumors, or with more than 6 lesions.

For endoscopic resection with lesions ≥1 cm, endoscopic mucosal resection (EMR) or ESD can be used. Gastric NETs invade the submucosal layer even at an early stage. Therefore, endoscopic resection of these tumors with polypectomy or strip biopsy using grasping forceps is sometimes associated with margin involvement. In recent studies, ESD has been shown to be safe for larger lesions and those not amenable to EMR, with high en bloc complete resection rates in experienced centers. However, surgery should be performed in case of involvement beyond submucosa, or positive margins following endoscopic resection.

Since type 1 gastric NETs are usually small (size 5-8 mm) and multicentric (68%), careful inspection of the mucosa for multiple small lesions is advised. Biopsies should be taken from the suspected NET lesions plus two non-lesion biopsies from antrum and four biopsies from the body/fundus to help identify the NET type by assessing for the presence of atrophic gastritis and intestinal metaplasia.