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Gastric Neuroendocrine Tumor Management with Endoscopic Mucosal Resection

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Introduction: Gastric carcinoid tumors are rare lesions that account for 7% of all GI carcinoids and if diagnose in early stage, could be manage completely by endoscopic procedures.
Case report: During evaluation of A 58 y old diabetic woman due to iron deficiency anemia, a localized neuroendocrine tumor found and successfully managed by endoscopic mucosal resection.
Conclusion: successful management of these lesions during early stages by endoscopic procedures, further emphasize on importance of screening and awareness of responsible physicians to keep in mind their possibility.

Key words: gastric neuroendocrine tumor, endoscopic mucosal resection, iron deficiency anemia.

Introduction

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Case report

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Case presentation

A 58 y old diabetic woman has been referred for evaluation of iron deficiency anemia. During the routine laboratory follow up, her Hb reported to be 9.8 with MCV 78. An upper endoscopy requested due to history of epigastric pain which discovered a lesion between greater curvature and fundus with raised boarders and central ulceration 7*7mm (Figure 1). The rest of stomach was normal without any atrophic mucosa and evaluation for H. Pylori infection including serology and stool Antigen were negative. Multiple biopsies obtained and pathologist reported the lesion as a well differentiated low grade neuroendocrine tumor with mitotic rate of <2/10 HPF and positive immunohistochemical study (positive CK7, Synaptophysin, Chromogranin and negative CK20, S-100, TTF1 and CDX2) (Figure 2 a, b, c). The endoscopic ultrasound (EUS) determined the mucosal involvement of the lesion without any further extension (Figure 3) and the patient scheduled for endoscopic mucosal resection (EMR). During EMR, after submucosal injection of diluted methylene blue, the tumor resected en bloc by snare mucosectomy with a safety margin endoscopically (Figure 4) and the patient discharged on the same day. Her 3 months follow up endoscopy was normal without any evidence of tumor recurrence. This case was the first neuroendocrine tumor which managed by EMR in Ahvaz Imam Hospital.

Discussion

Neuroendocrine tumors (NETs) are neoplasms that originate from neuroendocrine cell compartments localized in numerous different organ systems but most frequently found in the gastrointestinal tract and the bronchopulmonary system. All these tumors share common features, including growth pattern and expression of neuroendocrine markers (1). Gastric carcinoid tumors account for 7% of all GI carcinoids and 0.2% of all gastric neoplasms (2). In the stomach, the well-differentiated tumors are mainly of enterochromaffin-like (ECL) cell origin, with a small minority being of other endocrine cell types (3).

The occurrence of gastric NETs has been increasing during the past 50 years, in contrast to

the decrease in gastric adenocarcinomas among western countries (1, 4, 5, 6). Three clinicopathologic subtypes of ECL cell tumors are recognized. The type I ECL tumor is associated with diffuse corpus-restricted chronic atrophic gastritis. Type II is associated with MEN-I, ZES, and hypertrophic gastropathy. Type III tumors are sporadic are not associated with any distinctive gastric pathology (7, 8, 9). Types I and II tumors associated with common hypergastrinemia, whereas type III tumors are independent of any overt hormonal imbalance.

Type I ECL tumors account for the largest fraction of well-differentiated neuroendocrine tumors of the stomach, are especially prevalent in older women. They are frequently multiple and multicentric and generally small and limited to the mucosa or submucosa. Metastases are rare and survival is excellent (10). Type II ECL tumors are rare and account for only 6% of gastric carcinoids. They arise in adult patients of both genders and are also often multiple, multicentric, small in size, and limited to mucosa and submucosa. Despite metastases to local lymph nodes, the survival is excellent and tumor-related death is rare (11). Type III ECL cell tumors are usually single, isolated growths arising in the stomach, without any significant underlying gastric pathology. They are more common in men, usually in their sixth decade, and without hypergastrinemia and gastrin-dependent ECL cell hyperplasia. The tumor size may be significantly larger than in types I and II with invasion of the stomach wall and metastases in more than 50% of patients and the median survival for patients with advanced NET is 33 months (11, 12, 13).

The risk of nodal metastases is dependent on tumor size and depth, and some have suggested that endoscopic resection alone may represent adequate therapy for intraepithelial tumors <2 cm and perhaps for tumors <1 cm invading the lamina propria or submucosa (14). However, this is not a standard approach. For type 1 and 2 solitary gastric carcinoids smaller than 1 to 2 cm, endoscopic resection represents adequate therapy (9, 15).

Subsequent endoscopic surveillance is needed every 6 to 12 months since these patients continue to exhibit mucosal changes and hyperplasia of ECL due to sustained hypergastrinemia. Progression to a malignant phenotype or disease-related death is rare with small tumors (16). More aggressive surgical therapy is rarely needed for type 1 gastric carcinoids unless there is extensive tumor involvement of the gastric wall, tumor size >2 cm, poorly-differentiated histology or emergent bleeding (17, 18, 19).

In this case, the procedure completely removed the lesion and the patient discharged on the same day. Her 3 months follow up endoscopy was normal without any evidence of tumor recurrence.

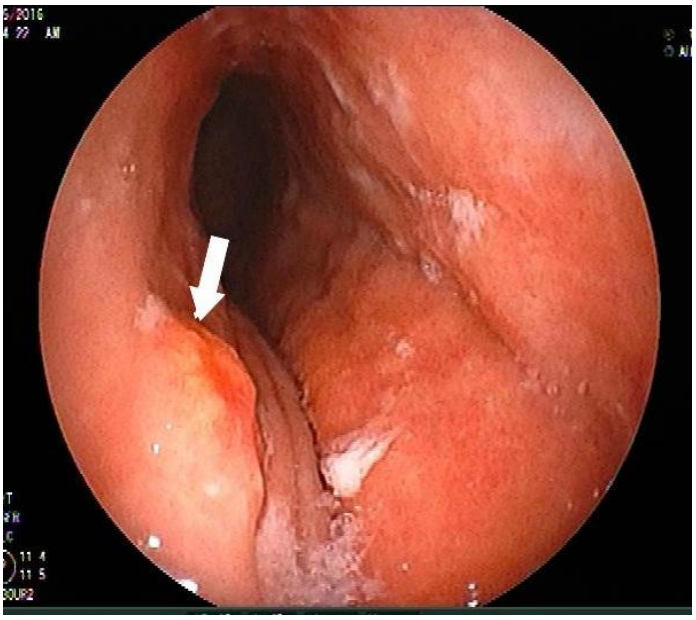

Figure 1: Endoscopic view of tumoral lesion with raised boarders and central ulceration.

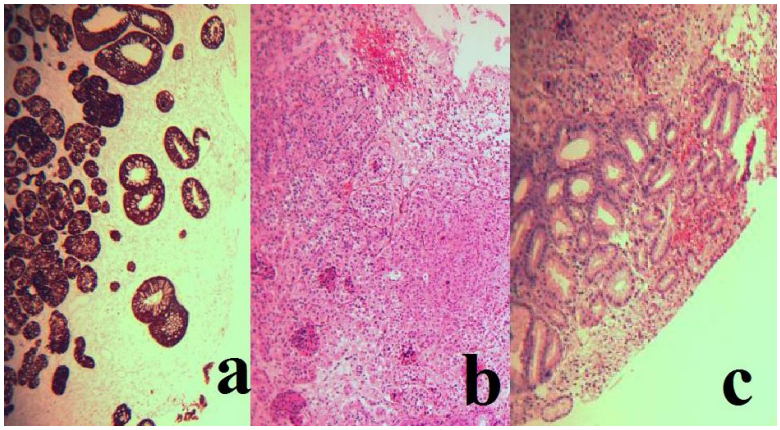

Figure 2: Microscopic view of the lesion as a well differentiated low grade neuroendocrine tumor with mitotic rate of <2/10 HPF and positive CK7, Synaptophysin, Chromogranin and negative CK20, S-100, TTF1 and CDX2 on immunohistochemical study (HIS).

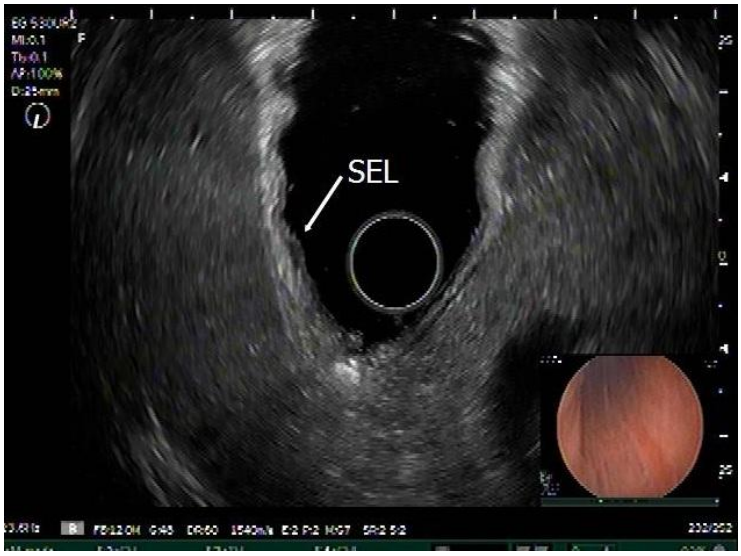

Figure 3: EUS determined the mucosal involvement of the lesion without any further extension.

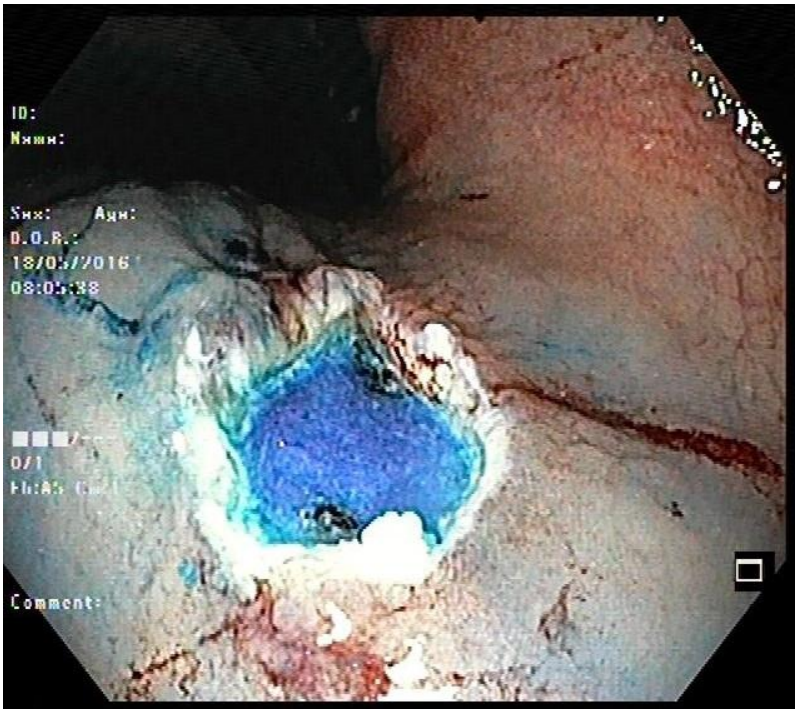

Figure 4: The tumor excised with endoscopic mucosal resection (EMR).

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