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Gastric Neuroendocrine Tumor, A Rare Tumor Of Gastrointestinal Tract

Case Report

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ABSTRACT

Carcinoid tumors, or carcinoids, originate in hormone-producing cells of the gastrointestinal (GI) tract (i.e., esophagus, stomach, small intestine, colon), the respiratory tract (i.e., lungs, trachea, bronchi), the hepatobiliary system (i.e., pancreas, gallbladder, liver), and the reproductive glands (i.e., testes, ovaries).

Carcinoids are classified as neuroendocrine tumors. They develop in peptide- and amine-producing cells, which release hormones in response to signals from the nervous system. Gastric neuroendocrine carcinoma (NEC) is an uncommon cancer of the stomach with agressive behavior and poor prognosis. They rarely cause signs and symptoms until advanced stages of the disease. Frequently, the diagnosis is made after they become symptomatic; as carcinoid syndrome. We report a case of a patient with autoimmune gastritis and a well differentiated neuroendocrine tumor of the stomach, early diagnosed and received early surgical treatment.

Keywords: *Neuroendocrine tumor, Stomach*

ÖZET

Karsinoid tümörler gastrointestinal (özofagus, mide, ince bağırsak, kolon), solunum (akciğerler, trake, bronkus), hepatobilier (pankreas, safra kesesi, karaciğer) ve üreme sisteminin (testis ve overler) hormon salgılayan hücrelerinden kaynak alan tümörlerdir.

Nöroendokrin tümör olarak sınıflandırılırlar. Gastrik nöroendokrin tümörler geç döneme kadar nadiren belirti ve bulgu veren agresif ve kötü prognozlu tümörleridir. Sıklıkla karsinoid sendrom olarak semptomatik hale gelince tanınırlar. Biz bu yazımızda erken evrede tanı konulan otoimmun gastrit ve iyi diferansiye mide nöroendokrin tümörü birlikteliği tanımladık.

Anahtar kelimeler: *Nöroendokrin tümör,Mide*

INTRODUCTION

The neuroendocrine cells diffusely spread throughout body surfaces along with epithelial cells Neuroendocrine tumors are uncommon neoplasms with a predominant manifestation in the gastrointestinal tract (1) The presence of neuroendocrine cells in normal gastric mucosa and tumors arising from these cells; carcinoids, neuroendocrine carcinomas (NEC) or small cell undifferentiated carcinomas have been known for many decades (2). They are commonly classified into three different types.

Gastric neuroendocrine tumors consist of a heterogeneous group of neoplasms comprising tumor types of varying pathogenesis, histomorphologic characteristics, and biological behavior, frequently require surgical theraphy. Adenocarcinoma and these carcinomas (NEC) are each well known to occur in the background of atrophic gastritis, but the concurrence of both adenocarcinoma and NEC together in the gastrointestinal tract is extremely rare (3).

In this report we present multifocal gastric neuroendocrine tumor based adenocarcinoma diagnosed early by an upper endoscopy.

CASE REPORT

43 years male patient admitted to the clinic with a complaint of heartburn and abdominal bloating for 2 months. In his physical examination abdominal tenderness, without rebound and defence was detected. His past medical history was insignificant. Upper endoscopy revealed, multiple solid tumors slightly elevated from mucosal surface of the fundus and corpus, with the biggest size of 2cm showing a noduler pattern (Fig 1). Multiple biopsies were taken. The biopsies were interpreted as carcinoma with endocrine features, chronic gastritis and intestinal metaplasia. The patient was referred to the general surgery clinic. A total gastrectomy and roux-n-y esophagojejunostomy was performed. 12 lymph nodes dissected intraoperatively. His intraoperative exploration did not reveal liver metastases or peritoneal carcinomatosis. Histological examination of the operative specimen showed intestinal adenocarcinoma (T1N0M0) (Fig 2) and a neuroendocrine tumor (moderately differentiated), located mainly in the submucosa of gastric corpus and greater curvature. There was no muscular or perineural invasion. Histology revealed absence of any tumor metastases in all twelve of the lymph nodes dissected. The patient's course did not present complications, and he was discharged on the seventh postoperative day.

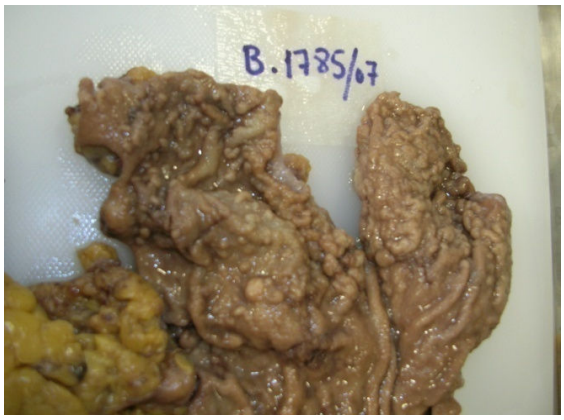

Figure-1: *Gastric carcinoid lesion in the gastric body*

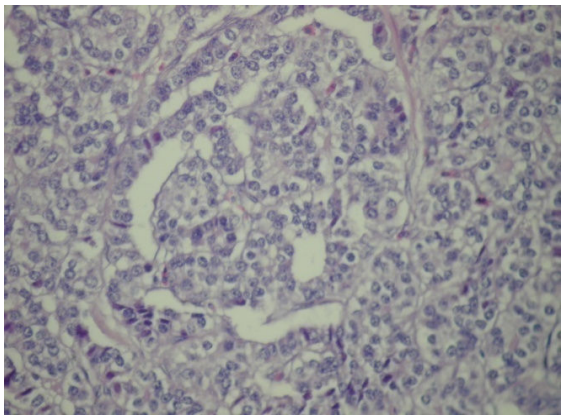

Figure-2: *Gastric adenocarcinoma (H&Ex400)*

DISCUSSION

The term carcinoid was first employed by Oberndorfer in 1907 to describe a group of tumours of the gastrointestinal tract and they were considered to be intermediate between adenoma and carcinoma in malignant potential (4). Carcinoid term is now used to describe a subset of tumours demonstrating features of neuroendocrine differentiation. These tumors are derived from the diffuse neuroendocrine system of the gastrointestinal tract and localized along the gastrointestinal mucosa. These are specialized mucosal cells that expresses chromogranin A, neuron spesific enolase, synaptophsin and as they called neuroendocrine tumors. The incidense of tumors originating from these cells is 1-2/100.000'dir (5), but prevalance estimated to be much higher because most of these tumors

are asymptomatic and under diagnosed (6). Many carcinoid tumors arise within gastrointestinal tract although they can occur elsewhere, such as in the lung (4). These tumors may secrete higher-than-normal amounts of hormones, which can cause many different symptoms such as abdominal pain, nausea, vomiting, loss of weight and gastrointestinal bleeding, watery diarrhae, flushing and bronchospazm (5).

Gastric neuroendocrine tumors have recently been classified into 3 types that differ in biological behavior and prognosis (4). Type 1, associated autoimmune chronic atrophic gastritis; Type 2, associated with multiple endocrine neoplasia type 1 (MEN 1) and Zollinger-Ellison syndrome; Type 3, sporadic. Type I is the most common, occurring in 70–80% of women cases. They are composed of enterochromaffin like cells, the main endocrine cell type of gastric corpus-fundus mucosa, which is highly sensitive to gastrin trophic stimulus. These tumors mostly commonly occur in the background of autoimmune gastritis or type I gastritis and have a good prognosis (4,6, 7). Type 2 gastric neuroendocrine tumors, occurring as a result of a gastrin-secreting neoplastic tissue in Zollinger Elison Syndrome, behave similarly to the former type. Hypertrophic, hypersecretory gastropathy and high levels of circulating gastrin are critical diagnostic findings (8). Although type 1 lesions are limited to the mucosa of the gastric body and fundus, microscopic type 2 lesions have also occasionally been described in antrum and the majority of these tumors have good prognosis (4). In contrast to the former types, type 3 gastric neuroendocrine tumors consist of different mucosal endocrine cells, growing sporadically without the evidence of surrounding mucosal pathologic characteristics or hypergastrinemia. The biology of type III tumours which are not associated with hypergastrinaemia is still poorly understood. This type of tumor behaves more aggressively (6). These lesions are not associated with hypergastinaemia or autoimmune chronic atrophic gastritis. They are generally solitary growths, and arise in the setting of gastric mucosa and rare multiple tumors have been observed (8).

These tumors usually look like mucosal polyps (Fig 1). The clinical presentation of gastric carcinoids is often non-specific and they often detect at routine endoscopy. Because they grow slowly and don't produce symptoms in the early stages, it becomes challenging to diagnose carcinoid tumors. In later stages, the tumors sometimes produce hormones that can cause carcinoid syndrome. The syndrome causes flushing of the face and upper chest, diarrhea, and trouble breathing (4,9). In such patients, careful search for associated pancreatic, duodenal, parathyroid, or other tumours and family investigation for the MEN-1 gene mutation are needed (10).

Patients with vasoactive symptoms measurement of 5-HIAA in urine(better to check 24 hour period), chromogranin A level , a unique group of acidic, soluble secretory proteins secreted from neuroendocrine cells, in serum recommended (11) (Fig 3). Ideally, functional assessment of neuropeptide secretory tumors would be performed by measuring the secreted hormones. Unfortunately most gastric carcinoids are not functionally secretory and hence alternative serological markers have been considered (4). CT scanning allows the assessment of the extent of tumor spread to the mesentery and bowel wall and metastases to the lymph nodes and liver. MRI offers same diagnostic advantages with CT. Endosonography is also another diagnostic choice (12).

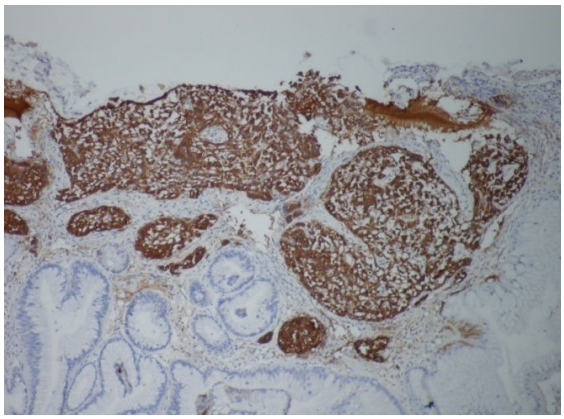

Figure-3: *Carcinoid tumor is showing immunoexpression of chromogranin A. (Chromograninx40)*

Treatment strategies for gastric carcinoid tumors can be determined according to the type and stage of the disease. In additionally tumor type is important to hormonal control. Because those lesions that remain gastrin responsive may be treated by gastrin reduction/exclusion (4). Endoscopic polypectomy or open surgery with tumor excision by gastrotomy is the treatment of choice in small, solitary type 1 tumors. In type

II carcinoids the clinical evolution depends on the behaviour of associated pancreatic and duodenal gastrinomas more than on the behaviour of gastric tumours, although some aggressive carcinomas may be fatal. With type III gastric carcinoids excision and regional lymph node clearance are recommended (10)

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