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CASE REPORT

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Computed Tomography Findings in Gastric Intestinal Metaplasia

Arzu Turan*, Seyma Tafrali and Fatma Beyazal Celiker

Department of Radiology, Medicine Faculty, Recep Tayyip Erdogan University, Rize, Turkey

Abstract

Because the prevalence of gastric cancer is high and its prognosis is poor in the general population, early diagnosis is important. For gastric cancer, risk factors and precancerous lesions are well known. For gastric cancer, computed tomography has an important role in diagnosis, staging and treatment planning. When we look at the literature for the diagnosis of precancerous lesion, which will be an early diagnosis guide, we did not find any information about imaging findings. Gastric intestinal metaplasia was a precancerous lesion and we retrospectively analyzed the computed tomography sections of three patients who underwent endoscopic examination. In the pathological specimen, we noticed that the intestinal metaplasia, gastric mucosal rachas, lasagna-like, lace-style, parallel to each other showed a rough coincidence.

We believe that large-scale, prospective studies will increase the incidence of gastric intestinal metaplasia, a precancerous lesion, and contribute to the early diagnosis of gastric cancer.

Keywords: *gastric cancer, gastric intestinal metaplasia, imaging findings, computed tomography*

Introduction

Insulinoma is the most common functioning neuroendocrine tumor of the pancreas and occurs with an incidence of 4 per million patients per year. It may be associated with other endocrine gland tumors in type I multiple endocrine neoplasia (MEN I). Although rare, is the main cause of endogenous hyperinsulinemic hypoglycemia. The male-to-female ratio for insulinomas is 2:3. No racial predilection appears to exist. The median age at diagnosis is 47 years old, except in patients with MEN 1, in whom the median age is the mid-20's. The most common clinical manifestations are neurovegetative and neuroglycopenic symptoms secondary to hypoglycemia. Progressive weight gain is also an important clinical feature, due to the anabolic action of insulin and the need to feed periodically in an attempt to reduce hypoglycemia. The presence of neuroglycopenic symptoms, that sometimes may be confounded with psychiatric symptoms, may lead to delay or misdiagnosis. In our country, there are few publications about the early diagnosis and treatment of this neoplasm. Surgery still seems to be the best treatment option but, in selected case in which there are high surgical risk, the minimally invasive procedures, such as endoscopic ultrasound (EUS) guided ethanol ablation can be a good choice of treatment. We report a case of an insulinoma in a patient with extreme obesity that was submitted to a less invasive treatment due to surgical risks.

Case reports

Case 1

The first case was a 79-year-old woman with Alzheimer's disease who presented to our hospital with abdominal pain for the first time 7 years ago. He had many medical problems, including primary hypertension, hyperlipidemia, asthma, cellulite, gastric ulcer, gastro-esophageal reflux, and liver diseases. The tumor markers (CEA 125, CA19-9, CA15-3, AFP) and biochemical data were within normal limits at 6-month intervals. She was referred to our emergency department with the latest abdominal pain and was referred to the radiology department for abdominal CT. In an emergency setting, abdominal thickening of the stomach, anterior to the corpus-antrum junction of the stomach, in the form of lasagna-like lace, and rugal thickening were visualized. The patient was referred to endoscopic examination by the clinical unit, and a single localization biopsy was performed and no H. pylori and atrophy were observed in the endoscopic examination. Pathologic examination revealed chronic active gastritis, lymphoid aggregate presence, focal intestinal metaplasia in the epithelium and inflammation (Figure 1).

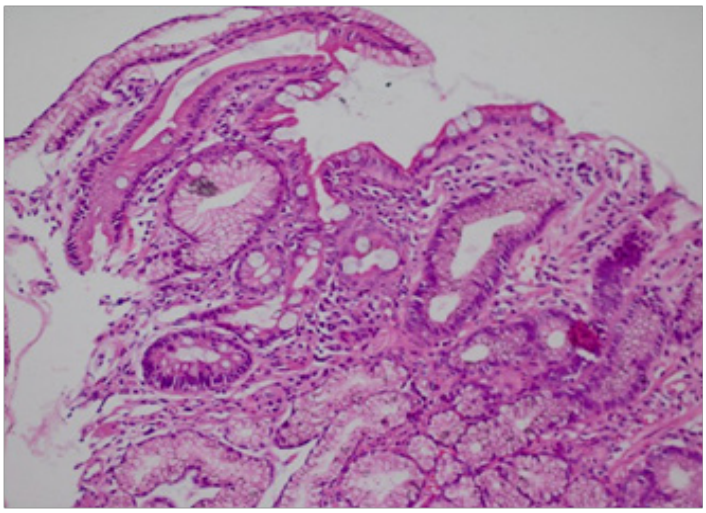

Figure 1. Focal intestinal metaplasia is distinguished in the epithelium in the pathological specimen.

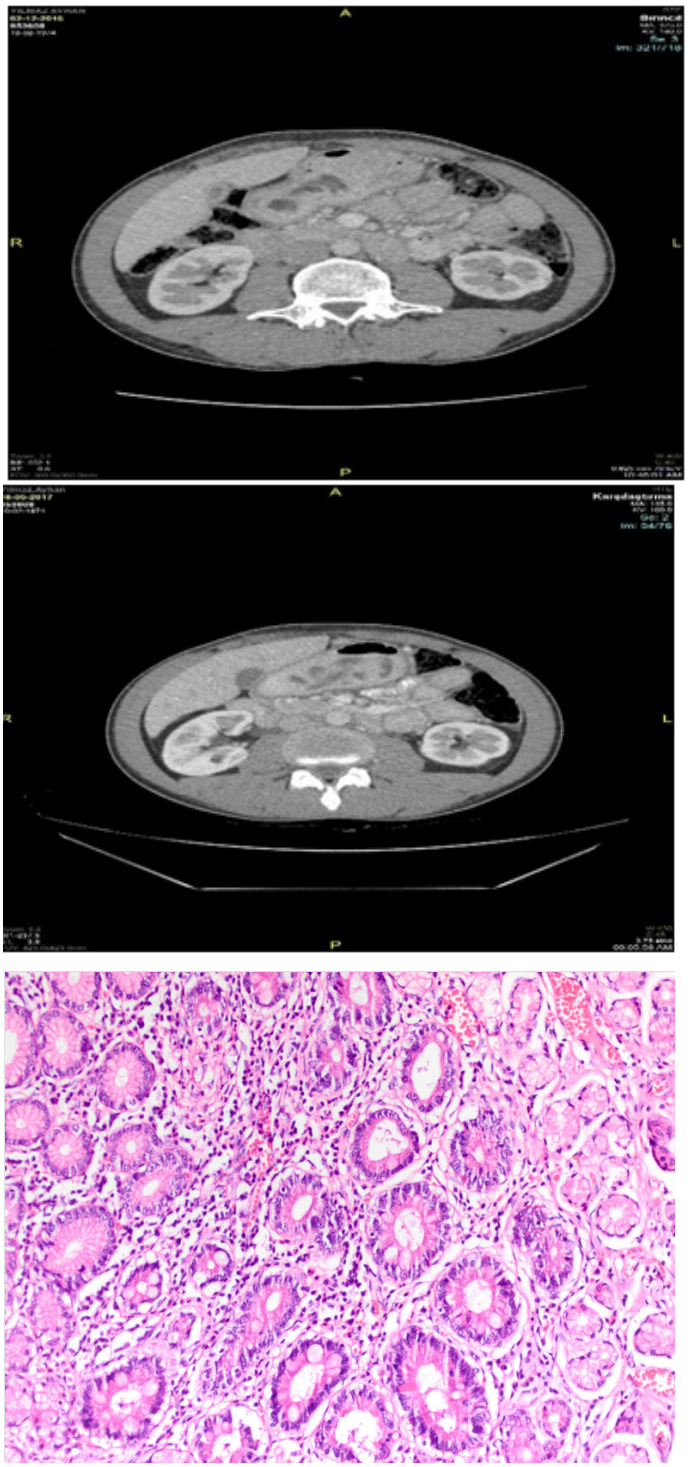

Figure 2. (a, b), Axial abdominal CT, gastric mucosal rugalarda, such as lasagna, parallel to each other, which creates a distinct mass effect, coarse is determined. (c) In the pathological specimen are distinguishedlymphoid follicles, active-chronic gastritis and multifocal intestinal metaplasia in the gastric mucosa.

Case 2

The second case was a 44-year-old male patient who was admitted to our hospital gastroenterology clinic with complaints of heartburn and abdominal pain 2 years ago.The patient's clinical follow-up, biochemical results and markers; evaluated in normal limits.The patient with type 2 diabetes was referred to the radiology clinic for abdominal CT examination. In abdominal CT evaluation; stomach corpus anterior; In ruchas, lasers such as lasagna-like lace are observed to form a mass effect (Figure 2a and 2b).CT was compared with pre-CT of 6 months. mild progression was observed. In the patient's gastric endoscopic biopsy; Chronic gastritis findings were observed and H. pylori infection was detected.The patient was operated on for 2 months after the patient's complaints persisted, and the foci identified in CT were identified.Subtotal gastrectomy was performed and in pathological examination; gastric mucosa with active-chronic gastritis and lymphoid follicles; multifocal intestinal metaplasia was detected (Figure 2c).

Case 3

In our third case, a 63-year-old male patient presented to our hospital with dyspepsia complaints 7 years ago and was followed-up with the diagnosis of gastroesophageal reflux. She had primary hypertension, benign prostatic hyperplasia, and chronic renal failure. He was referred to the radiology department for abdominal CT examination as he presented with abdominal pain and diarrhea. Abdominal CT examination showed a focal roughing of the corpus level at the level of gastric corpus, forming a mass with a parallel mass in lasagne-like lace style (Figure 3a and 3b). In the endoscopic examination; inflammation and H.pylori were positive. Pathological examination revealed focal intestinal metaplasia with chronic gastritis and grade II neuroendocrine tumor in one focus (Figure 3c).

Discussion and conclusion

GC predisposing lesion; We discussed the imaging findings of GIM, which are not defined in the literature. Changes in early diagnosis and surgical treatment strategies in the fight against GC lead to significant improvements in prognosis. Endoscopic examination; In all patients with premalignant pathology, it is potentially the most important modality in detecting lesions that develop early and improving survival [6]. Three of our patients, who were diagnosed early, were discharged with cure and their follow-up continued.

In the etiology of GC, GIM is ranked first among many accused factors such as H. pylori, partial gastrectomy and GIM (3,4). The etiology of GIM is multifactorial, including H.pylori infection, smoking, high salt intake, and chronic bile reflux [7]. The main risk factors for GIM to gastric carcinoma are common or incomplete intestinal metaplasia, over 40 years of age, male sex, H. pylori infection, smoking history and presence of CC in first-degree relatives [2]. Our cases; The patients were over 40 years old and 2 cases were H. pylori positive. Today, although advanced endoscopic imaging methods are applied, GC is missed by 20-25% in the early stage [8]. Application of serial endoscopic controls to each patient diagnosed with GIM causes misuse of limited resources and economic damage. Patients with GIM; if the incomplete type and coverage is more than 20%, it has one or more of the conditions such as smoking and stomach cancer in first-

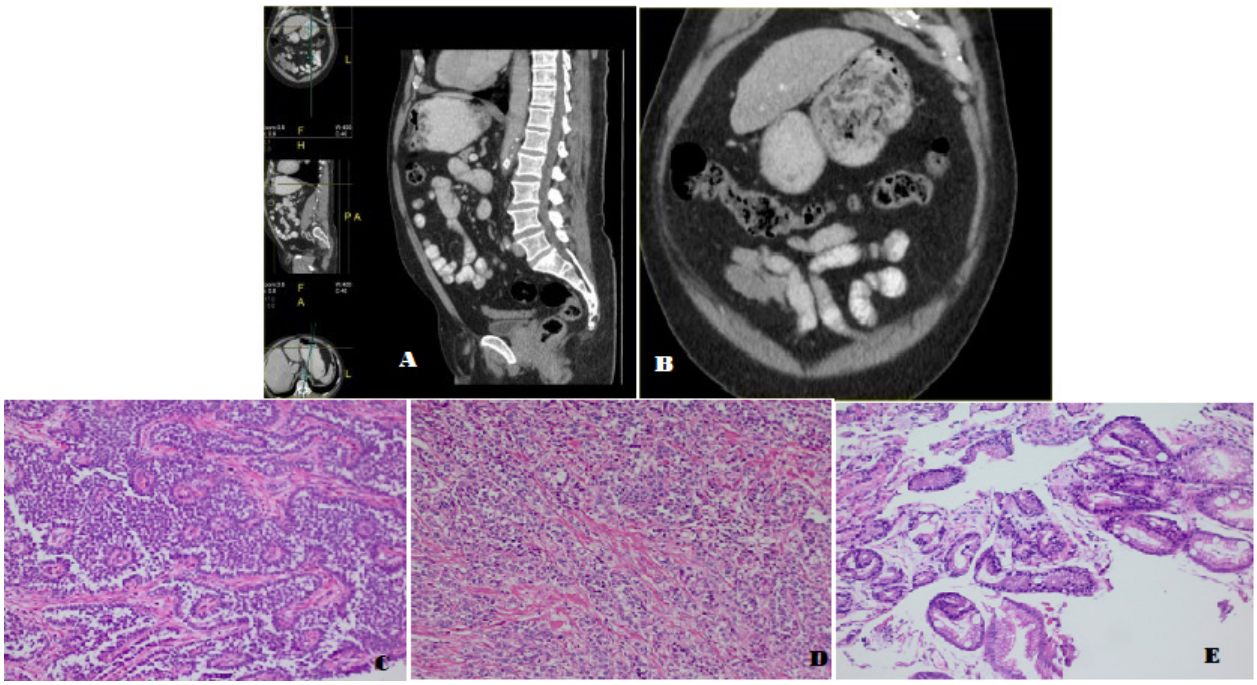

Figure 3. (a) Sagittal - (b) coronal abdominal CT examination, gastric corpus-antral junction, lasagna-like, parallel to each other, focal coarse areas, (c,d,e), pathological specimen, intestinal metaplasia ground II neuroendocrine tumor is observed .

degree relatives; annual endoscopic control is recommended [9]. In our cases, there was no information about the rate of extension in the pathology specimen interpretation, or in the endoscopic reports.

GIM is seen as hyperemic, irregular areas endoscopically with respect to normal mucosa. It is very difficult to distinguish this appearance from the endoscopic view of gastritis. Therefore, from suspicious areas, biopsy should be taken. However, most of the biopsies taken are not targeted, but do not contain metaplasic tissue because they are taken at random. In our one case, preop endoscopic biopsy; while GIM was not observed, multifocal GIM foci were observed in the surgical material 2 months later. The biopsy, which has a moderate success rate, also has a high cost. The 5-year survival rate of the GC diagnosed at advanced stage is 25% [1]. GIM is defined in three stages as Type I, II and III [10]. Type II or Type III GIM is associated with intestinal type GC at a rate of 80% [4]. The appearance of the GIM is not macroscopically specific and may have a gastric mucosa, a coarse or villous appearance, or may appear as thin, white mucosal deposits [11]. GIM shows patching in the stomach in cases where it is incomplete. In our 3 cases, metaplasia was observed in endoscopic observation in favor of gastritis and was recognized in the pathological specimen.

Despite this classification for the detection of predisposing GIM patients for GC; the demand for endoscopic follow-up for every patient presenting with dyspepsia causes problems in resource management. Thus, endoscopic biopsy will not be possible for each patient. In order to increase the frequency of the diagnosis and to use a cross-sectional modality that can be used in the follow-up, the confirmation of the association of GC with GIM in large series studies will contribute to the early diagnosis of GC. In order to increase the frequency of the diagnosis and to use a cross-sectional modality that can be used in follow-up, What we observed on CT, the mass effect of spaghetti-like interlocking lace rugal thickening relation with GIM, validation in large series studies will contribute to the early diagnosis of GC.

Because of high prevalence of GC and poor prognosis in the general population, early diagnosis and treatment was important [1]. In the diagnosis and treatment of GC, abdominal CT examination is very important. In particular, multislice CT scans are used to detect malignant naturality thickness increases [12]. In the literature; although there are many studies on the contribution of CT imaging to GC detection and staging, we have not found any research about GIM-CT findings. In three of our cases, we obtained data that the GIM stage in the stomach might be CT findings.

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Correspondence: Arzu Turan, Department of Radiology, Medicine Faculty, Recep Tayyip Erdogan University, Rize, Turkey, Tel: +905057891801, Fax: +904642170364; E-mail: rztrn72@gmail.com

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