

Gastritis cystica profunda: Endoscopic ultrasound findings and review of the literature

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ABSTRACT

Gastritis cystica profunda (GCP) is a rare pseudotumor of the stomach characterized by benign growths of deep gastric glands through the muscularis mucosae into the submucosa. We review a case of GCP in a 61-year-old patient with GCP, with emphasis on endoscopic ultrasound findings and present review of the current literature.

Key words: Gastric polyp, gastritis cystica polyposa, gastritis cystica profunda

INTRODUCTION

Gastritis cystica profunda (GCP) is a rare hyperplastic lesion with unclear pathogenesis. Clinical symptoms related to GCP are variable and ranges from nonspecific abdominal pain to symptoms related to gastric outlet obstruction. In this report, we present a case of 61-year-old female with GCP who underwent endoscopic ultrasonography (EUS). EUS features of this rare condition are not widely reported in the literature.

CASE REPORT

The case we present here is about a 61-year-old African American woman presented with 1 year history of dull epigastric pain. Her past medical history was remarkable for chronic hepatitis C and tobacco consumption.

She did not have any previous surgeries. Physical examination was only significant for mild epigastric tenderness and laboratory tests were unremarkable. An esophagogastroduodenoscopy showed a large submucosal mass in the antrum along the lesser curvature, with overlying nipple like cystic projection [Figure 1]. Routine endoscopic biopsies showed mild chronic inactive gastritis without evidence of *Helicobacter pylori*. An upper EUS showed a 3 cm submucosal antral mass with heterogeneous echogenicity, irregular shape, and cystic spaces [Figure 2]. The mass appeared to be involving the muscularis propria layer [Figure 3]. EUS guided fine-needle aspiration using 22 gauge needle (FNA) was insufficient. Patient preferred to undergo surgical resection as opposed to repeat EUS-FNA to confirm the diagnosis. Partial gastrectomy was performed and macroscopic examination of the specimen revealed a pink-tan soft 4.5 cm × 3 cm × 2 cm lesion with a 0.6 cm polypoid lesion on its mucosal aspect. The tissue was sectioned through the polypoid lesion revealing a tan homogenous cut surface with a cystically dilated area in the subepithelial region. Microscopically, there was pseudo-invasion of benign gastric glands into the muscularis propria, with cystically dilated appearing

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glands and no dysplastic changes [Figure 4]. These features were consistent with GCP. She was followed-up for 36 months, with no recurrence of disease or development of malignancy.

DISCUSSION

Chronic inflammation and ischemia are the most important factors involved in the pathogenesis of GCP.^[1] It is been reported in patients who have undergone gastroenterostomy^[2] and is rarely found in unoperated stomachs.^[2-4] The migration of epithelial cells into the submucosa with subsequent cystic dilation is thought to be the pathogenesis, especially in cases of prior gastric surgery. However, the pathogenesis in patients with an otherwise normal stomach remains unknown.^[2]

Clinical manifestations of GCP are variable and include abdominal pain, gastrointestinal bleeding,

anemia, abdominal mass and occasionally gastric outlet obstruction. Diagnosis by endoscopy is difficult because standard biopsy specimen is usually limited to the mucosa and seldom offers information about submucosa.^[1] Computed tomography scan and EUS have a complementary role in delineating additional characteristics of the lesions such as size, surface contour, depth of invasion, and cystic changes.^[4,5]

We found additional 15 cases of GCP in published literature that underwent EUS examination.^[2-4,6-16] Table 1 summarizes details regarding demographics, endoscopic and EUS findings and subsequent clinical course of all these cases, including our case. The most frequent EUS feature of GCP was multiple anechoic cystic spaces/cysts in the submucosal in these cases. Heterogeneously enhancing polypoid lesions with cystic components should raise the suspicion for GCP.^[5] In many cases, preoperative diagnosis of GCP remains challenging despite the current

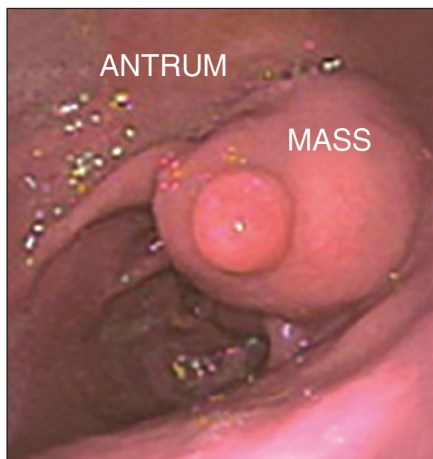


Figure 1. Submucosal mass in the antrum with overlying nipple like cystic projection

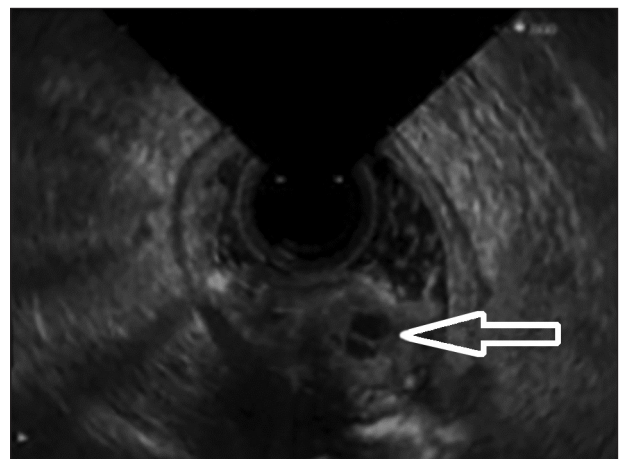


Figure 2. Heterogenous submucosal mass with internal cystic space (Black arrow)

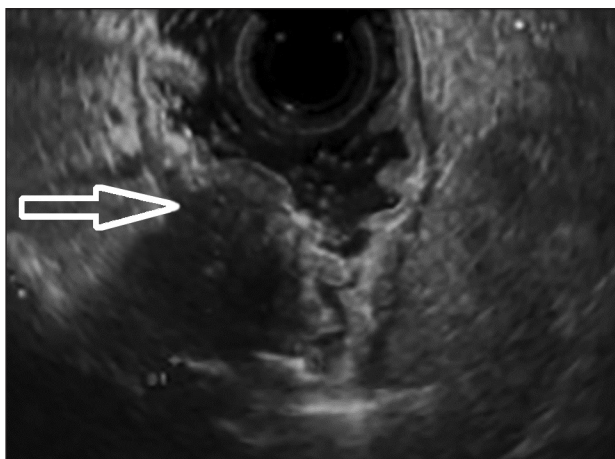


Figure 3. Involvement of muscularis propria layer by the heterogeneous mass (White arrow)

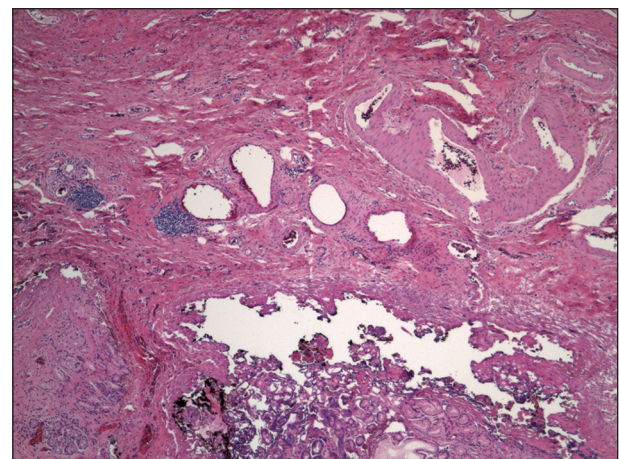


Figure 4. Cystically dilated gastric glands without dysplastic changes into submucosal and muscularis propria

Table 1. Endoscopic and endosonographic features of published cases with GCP

Authors	Year	Age (years)	EGD findings	EUS findings	Location	EUS intervention	Pathology	Final diagnosis made by	Associated diagnosis	Recurrence
Mochizuki et al. ^[6]	1989	38	Giant folds	Thickening of the third layer, with round and anechoic areas	Body	Jumbo forceps biopsy	GCP	EUS forceps biopsy	None	No follow-up described
Niizawa et al. ^[7]	1992	70	Irregular, broad base and white surface tumor	Polypoid tumor, thickened submucosa, multiple small submucosal cysts	Body	Jumbo forceps biopsy	Gastric carcinoma	Partial gastrectomy	Adenocarcinoma	No follow-up described
Okada et al. ^[4]	1994	51	Giant folds	Multiple anechoic areas in the third layer	Corpus and antrum	Mucosectomy	GCP	EUS-mucosectomy	None	No at 6 months
Okada et al. ^[4]	1994	63	Giant folds	Multiple anechoic areas in the third layer	Corpus and antrum	Mucosectomy	GCP	EUS-mucosectomy	None	No at 9 months
Park et al. ^[3]	2001	44	4-cm pedunculated polyp with lobulated contour	Homogeneous, hypoechoic, and multilobular cystic mass with a stalk	Fundus	Snare biopsy	Chronic gastritis	Polypectomy	None	No at 6 months
Tuncer et al. ^[8]	2003	47	2.5-cm broad based, smooth polypoid mass	Homogeneous, hypoechoic, and polypoid mass in submucosa	Corpus	Polypectomy	GCP	EUS-polypectomy	None	No at 6 months
Hirasaki et al. ^[9]	2005	61	2-cm protruding lesion covered with normal mucosa	Hypoechoic mass covered with a hyperchoic lesion with anechoic areas in submucosa	Greater curvature of lower stomach	None	—	ESD	Inflammatory fibroid polyp	No at 29 months
Kurland et al. ^[10]	2006	75	4-cm submucosal mass with normal mucosa	4 × 2 cm area of multiple anechoic areas in the submucosa	Cardias	No	—	Partial gastrectomy	Chronic gastritis with <i>H. pylori</i>	No follow-up described
Béchéde et al. ^[11]	2007	79	Giant folds	Thickened submucosal layer containing multiple cysts	Fundus	Mucosectomy	GCP	EUS-mucosectomy	None	No at 3 months
Moon et al. ^[12]	2010	77	Small smoothly elevated mucosal lesions	Hypoechoic mass originating from third layer suggesting submucosal cyst	Lower body	No	—	ESD	Adenocarcinoma	No at 24 months
Xu et al. ^[13]	2011	48	Submucosal mass with irregular mucosa	Anechoic cystic structures in submucosal with irregularly thickened wall	Greater curvature of body	No	—	Partial gastrectomy	None	No at 27 months

(continued)

Table 1. (Continued)

Authors	Year	Age (years)	EGD findings	EUS findings	Location	EUS intervention	Pathology	Final diagnosis made by	Associated diagnosis	Recurrence
Laratta et al. ^[2]	2012	39	3-cm subepithelial mass with lobulated contour	2.4 × 2 cm homogeneous, hypoechoic mass arising from submucosa	Proximal to pylorus	FNA	Nondiagnostic	Partial gastrectomy	None	No follow-up described
Soares et al. ^[14]	2012	46	Giant polypoid folds and polyps with erosion	Thickened mucosa, multiple anechoic areas in mucosa and submucosa	Antrum	Snare biopsy	Menetrier disease and GCP	EUS snare biopsy	Menetrier disease	No follow-up described
Matsumoto et al. ^[19]	2012	51	7-cm submucosal tumor	Multicystic mass in submucosa	Prepyloric region	FNA	—	Partial gastrectomy	Adenocarcinoma	No follow-up described
Lee et al. ^[16]	2013	48	1.5-cm polyp with long pedicle	Anechoic septated lesion superficially to muscularis mucosa	No described	Polypectomy	GCP	EUS-polypectomy	None	No follow-up described
Current case	2013	61	Large submucosal mass	3-cm cystic, irregular, heterogeneous mass in submucosa	Antrum	Jumbo forceps biopsy	Normal mucosa	Partial gastrectomy	None	No at 36 months

H. pylori: *Helicobacter pylori*, EUS: Endoscopic ultrasonography, ESD: Endoscopic submucosal dissection, GCP: Gastritis cystica profunda, FNA: Fine-needle aspiration, EGD: Esophagogastroduodenoscopy

advanced in endoscopic technique and patients might have to undergo gastric resection surgery for final diagnosis and treatment.^[2] A current debate exists about its biological behavior and malignant potential.^[2,17] Recent advances in the endoscopic techniques like development of EUS guided FNA biopsy with 19 gauge biopsy needle and endoscopic submucosal dissection might prove useful in arriving at correct preoperative diagnosis and avoiding unnecessary surgery.

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