

LETTER TO THE EDITOR

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Abdominal surgery as a possible cause of gastric diverticula: Single center one year experience**Abdurrahman Sahin, Mubin Abdullah Ozercan, Ulvi Demirel, Mehmet Yalniz, Ibrahim Halil Bahcecioglu***Firat University, Faculty of Medicine, Department of Gastroenterology, Elazig, Turkey*

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Dear Editor,

Gastric diverticulum is the out-pouching from the gastric wall and is one of the rare forms of gastrointestinal diverticula. As reported previously, gastric diverticula were seen with an estimated prevalence of 0.04% in contrast radiographs and 0.02% using autopsy studies [1,2]. They are mainly present between the fifth and sixth decade of life and its incidence is equal in men and in women. Gastric diverticula is usually less than 4 cm in diameter and can be divided into congenital (true) diverticula and acquired (false) diverticula. Congenital diverticula are more common type that comprising all gastrointestinal layers. About 70% of true diverticula located in the posterior wall of the fundus, 2 cm below the esophagogastric junction. Acquired gastric diverticula are less common, but most commonly occur near the greater curvature or antrum. Acquired diverticula contain the muscular or serosal layer and classified as pulsation and traction diverticula. Traction diverticula arise from perigastric adhesions from concurrent diseases, such as peptic ulcer disease, gastric outlet obstruction, pancreatitis, malignancy, gastroesophageal reflux, cholecystitis or malignancy. On the other hand pulsation diverticula are thought the result of increase in the intraluminal pressure due to chronic cough, obesity pregnancy or bezoar [3].

The diagnosis of gastric diverticulum may be difficult, because most of the patients are asymptomatic or have vague abdominal symptoms that may be explained with other more common gastrointestinal disorders. Symptomatic patients present with upper abdominal pain, nausea, vomiting, dyspepsia, weight loss, bloating and iron deficiency anemia [1]. Occasionally, patients with gastric diverticula present with diverticular complications including diverticulitis, bleeding, perforation and even malignancy. We aimed

in this study to determine the prevalence of gastric diverticula, presentations and the causal relationship with several disorders.

After the approval of institutional board review, upper gastrointestinal endoscopy (UGIE) records were screened for one year retrospectively. Demographics, risk factors, and endoscopic findings were gathered from patient's records. Among 3394 subjects who underwent UGIE in the last year, seven cases (0.2%) described as to have gastric diverticulum. Clinical data and endoscopic findings of 7 cases were given in Table 1. Five of them were male and median age was 70 years (39-89 years). Three of our cases had previous upper abdominal surgical procedure. Two of them had undergone gastric surgery (Figure 1), the other one splenectomy (Figure 2). In another patient, gastric diverticulum emerged at the ulcer location. An interesting finding was that 2 of 7 cases had portal hypertension.

Gastric diverticulum is a rare finding in gastrointestinal tract. In the present study, we found an incidence of gastric diverticulum as 0.2% among subjects undergoing UGIE. Schramm et al. reported gastric diverticula as 0.12% according to the computed tomography (CT) findings of 14428 patients [4]. In the mentioned study 72% of patients were women and median age was 64 years. Though the incidence of gastric diverticulum is equally distributed between males and females in the literature, we found a male dominance among our patients [1]. As expected, the median age of our patients was compatible with the literature.

Congenital gastric diverticulum, which is more common form of gastric diverticulum, can be found in conjunction with other gastrointestinal tract abnormalities, including other diverticula, peptic ulcer disease, malignancy, cirrhosis, gastroesophageal reflux disease, pancreatitis, hepatitis, and cholecystitis [5]. In our series, four of seven patients had diverticula in fundus. It is thought that these patients had congenital diverticula. Moreover, two of them had portal hypertension. Our results suggest that portal hypertension might cause to become apparent of congenital diverticulum.

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Although gestational herniation of fundus is claimed hypothetically as the cause of true diverticula, development of false diverticula remains unclear [1]. Gastric traction diverticula have been reported after gastric surgery [3]. Intraabdominal manipulation and postsurgical adhesions may be the leading causes of gastric diverticula for upper abdominal surgeries other than gastric surgery like splenectomy or pancreatic surgery. Increased intragastric pressure related with partial gastric resection and even vagotomy may also cause to development of acquired pulsation diverticulum like the development of diverticula in other parts of gastrointestinal tract. In our series one patient had vagotomy and pyloroplasty and the other had subtotal gastrectomy. Thus, beside the development of traction diverticula, gastric surgical procedures may also cause to the development of pulsation type gastric diverticula.

The management of gastric diverticula is challenging.

Asymptomatic diverticula need no therapy. On the other hand, several treatment options have been described for symptomatic patients according to the symptom pattern and diverticulum size. Medical management is the first option for the treatment, which includes antacids and proton pump inhibitors. If patients are not responding to medical treatment surgical methods including endoscopic resection and laparoscopic resection or open resection should be kept in mind for the treatment of symptomatic cases.

In conclusion, development of gastric diverticulum is different from development of diverticula in other parts of gastrointestinal tract because most of them are congenital. Clinicians should have a high clinical index of suspicion to diagnose this rare disorder. The diverticula located at antrum or corpus are usually acquired and the underlying cause should be investigated. Previous upper abdominal surgery and gastric ulcer may play role in the development of gastric diverticulum in antrum and corpus.

Table 1. Demographic and clinical features and endoscopic findings of cases with gastric diverticula

Patient	Age	Sex	UGIE indication	Location	Size (mm)	Risk factor	Comorbidities
1	82	M	Anemia	Fundus	21	Vagotomy and pyloroplasty	BPH, OP
2	65	M	Varix screening	Fundus	8	Splenectomy	NCPHT
3	70	M	Anemia	Corpus	9		HTN, BPH
4	77	M	Dyspepsia	Remnant corpus	16	Billroth II	CAD
5	39	M	Varix screening	Fundus	11		PVT
6	43	F	Control endoscopy for antral ulcer	Antrum	7	Gastric ulcer	
7	89	F	Hematemesis	Fundus	6		Heart failure, CAD, asthma

BPH: benign prostate hypertrophy, CAD: coronary arterial disease, F: female, HTN: hypertension, M: male, NCPHT: non-cirrhotic portal hypertension, OP: osteoporosis, PVT: portal vein thrombosis

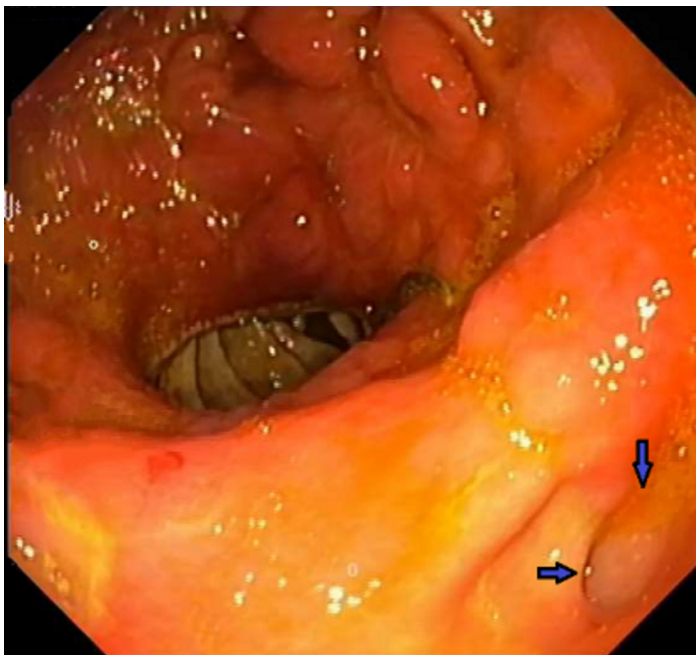


Figure 1. Endoscopic view of gastric diverticula (arrows) at remnant corpus (Patient 4)

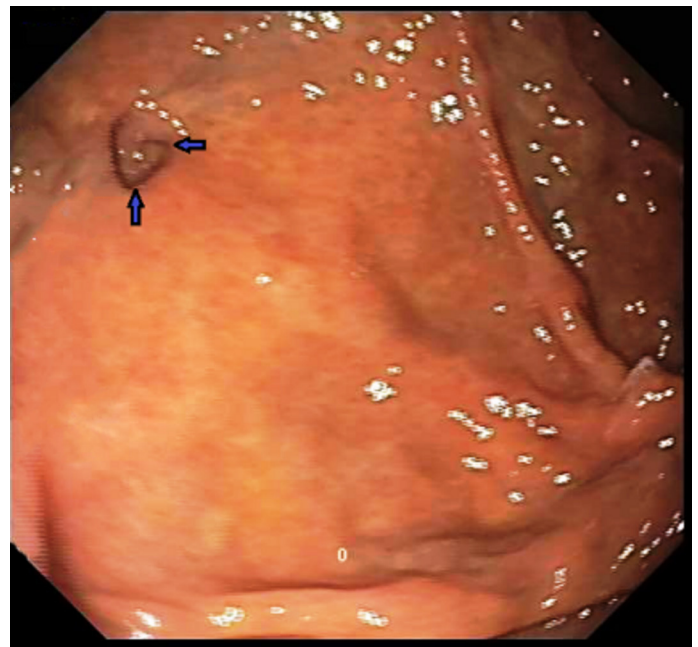


Figure 2. Endoscopic view of gastric diverticula (arrows) at fundus in a patient with splenectomy and portal hypertension (Patient 2)

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Competing interests

The authors declare that they have no competing interest

Ethical approval

Local Institutional Board Review approved this study.

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