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Case Report

An Inverted Gastric Diverticulum – A Case Report

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SUMMARY

Inverted gastric diverticula (IGD) are caused by a diverticulum inverting and protruding into the gastric lumen due to changes in gastric pressure. Here, we report a 57-year-old woman with an inverted gastric diverticulum incidentally found during a survey of the origin of upper GI bleeding. Initially, it presented as a flat, hyperemic lesion on the cardiac region, but it was transformed into a polypoid lesion when biopsy forceps was used to grasp the edge. IGD are usually asymptomatic and found incidentally during upper gastrointestinal endoscopic examinations. There is a risk of perforation if a polypectomy or biopsy is performed near the weakened muscle layer. Since the prevalence of diverticular diseases and polyps both increases with age, it may be more common to encounter IGD and polyps during endoscopy in the elderly.

1. Introduction

Gastric diverticula (GD) are characterized by an outpouching of the gastric wall with similar features to the diverticula in the small intestine or colon.[1] Due to the relatively larger thickness of the gastric wall muscle, GD are the least common diverticula of the gastrointestinal tract, with a prevalence range of 0.01–0.11% in esophagogastroduodenoscopy (EGD), 0.03–0.1% in upper gastrointestinal contrast studies, and 0.03–0.3% in autopsies.[1] They were found in patients between 50 and 70 years of age and those with increasing age. GD are equally distributed among men and women.[2] GD are usually discovered incidentally during routine diagnostic testing, such as EGD. Occasionally, GD present with a vague sensation of fullness or discomfort in the upper abdomen, but complications such as hemorrhage, perforation, or pyloric obstruction are uncommon.[3]

2. Case report

A 57-year-old woman with a medical history of right breast cancer and multiple metastases was hospitalized for treatment of CMV retinitis with intravenous antibiotics. She underwent EGD owing to intermittent tarry stool during hospitalization and had a drop in hemoglobin level from 9.1 to 7.8 g/dL in three days. No hematemesis, nausea, vomiting, or abdominal pain was observed. Physical examination revealed a soft abdomen without distension, normoactive bowel sounds, dullness on percussion, and no obvious tenderness.

EGD revealed two 0.5 cm well-circumscribed and mildly hyperemic elevated round lesions with a central depression on the anterior wall of the cardiac region (Figure 1A). Adequate observation with air insufflation was conducted, and no active bleeding or change in the appearance of the lesion was observed. Biopsy forceps were used to grasp the edge on one of the lesions to obtain the specimen, but it was transformed into a polypoid lesion after the extraction of the biopsy forceps (Figure 1B). It was considered an inverted gastric diverticulum. Biopsy specimens showed hyperplastic changes and chronic inflammation. The patient did not have abdominal pain, and no free air was noted on a standing abdominal radiograph. Further evaluation of the origin of the gastrointestinal tract bleeding was performed because no active bleeding was found during EGD.

3. Discussion

Recent articles have commended that the most reliable diagnostic tool for detecting GD is EGD or upper gastrointestinal contrast radiography.[1,6] Computed tomography also plays a role in detecting gastric diverticula with a narrow neck that precludes entry of the scope or contrast.[4] In pathophysiology, GD are classified into two

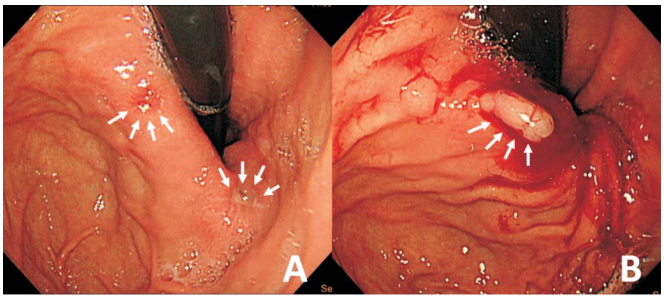

Figure 1. (A) Two 0.5 cm well-circumscribed and mildly hyperemic elevated round lesions with central depression on the anterior wall of cardia region in retroversion (arrow). (B) Transformation from the elevated lesion to the polypoid lesion after the extraction using biopsy forceps (arrow). The lesion was considered an inverted gastric diverticulum.

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types: congenital (true) and acquired (false) type. Congenital diverticula are more common, comprising 70–75% of all gastric diverticula, and are usually located at the posterior wall of the cardia region, approximately 2 cm below the esophagogastric junction, and 3 cm from the lesser curvature of the stomach. In most cases, they are solitary lesions that vary in size from 1 to 5 cm in diameter, with infrequent reports describing diverticula as large as 10–15 cm.[1] Congenital diverticulum consists of all layers of the stomach, whose pathophysiology is an area of weakness in the gastric wall, caused by the splitting of the longitudinal smooth muscle fibers, and an absence of peritoneal membrane and perforating arterioles.[7] In contrast, acquired diverticula are usually found near the gastric antrum and considered to be pseudodiverticula because they lack muscular layers and are associated with other conditions, such as peptic ulcer disease, pancreatitis, or prior surgery.[6]

Gastric diverticula with a size greater than 4 cm are more likely to cause complications, such as hemorrhage, perforation, pyloric obstruction, or even malignant transformation, which may require surgical intervention.[7,8] While the GD invert and even protrude into the lumen of the stomach, they become elevated lesions or pseudopolyps, called inverted GD, which are extremely uncommon.

In our case, the inverted gastric diverticulum (IGD) in the cardia region of the stomach was more likely to be a congenital diverticulum with inversion due to the common location of the congenital diverticula. We hypothesized that the mechanism of inversion of the gastric diverticulum is similar to that of the inverted colonic diverticulum. The lesion might begin as a typical diverticulum with outpouching of the gastric wall and then invert into the gastric lumen under the circumstances of changes in intra-abdominal or intraluminal pressure,[9] such as coughing and aspiration of gastric content through the nasogastric tube, which are common in the elderly, or being extracted by biopsy forceps in our case.

The wall of the stomach is much thicker than the wall of the colon; therefore, the inversion of diverticula in the stomach caused by changes in intraluminal pressure is more difficult than that of the colonic diverticula, which is why inverted gastric diverticulum is much less reported in the literature. We may apply endoscopic observations or maneuvers, described for the diagnosis of inverted intestinal diverticula,[10] to help differentiate inverted gastric diverticula from other gastric lesions. An IGD can be sessile or polypoid with a normal mucosal appearance and auroral rings around the base. When the tip of a closed biopsy forceps is probed gently on the inverted gastric diverticulum, it is usually indented or easily mobilized due to soft textures. Furthermore, an inverted gastric diverticulum might also be deformed or everted when the endoscopist sprays a water jet or insufflates excessive air.[11] Conversely, gastric polyps are firm in texture and can never be deformed.

With suspicion, biopsy should be considered for atypical or suspicious lesions in or around the GD because neoplastic changes in GD have ever been described in some reports.[3,4] In our opinion, the potential for perforation after a biopsy of the gastric diverticula is low because of the thick gastric wall, especially in congenital gastric diverticula with full layers of the stomach muscle. Since the prevalence of diverticular diseases and polyps both increases with age, it may be more common to encounter IGD and polyps during endoscopy in the elderly. It is important to recognize these two conditions before endoscopists take further steps to the invasive procedures.

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Conflict of interests statement

The authors declare no conflict of interest for this article.

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