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Case Report

Prolapsing Gastric Polyp Causing Intermittent Gastric Outlet Obstruction

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Gastric polyps are often an incidental finding on upper gastrointestinal endoscopy, with an incidence up to 5%. The majority of gastric polyps are asymptomatic, occurring secondary to inflammation. Prior reviews discussed *Helicobacter pylori* (*H pylori*)–associated singular gastric polyposis; however, we present a rare and unusual case of recurrent multiple benign gastric polyposis post *H pylori* eradication resulting in intermittent gastric outlet obstruction. A 70-year-old independent male, Chinese in ethnicity, with a background of diabetes mellitus, hypertension, and a simple renal cyst presented with a combination of melena, anemia, and intermittent vomiting of partially digested food after meals. Initial gastroscopy was positive for *H pylori*; thus he was treated with *H pylori* eradication and proton pump inhibitors. Serial gastroscopy demonstrated multiple sessile gastric antral polyps, the largest measuring 4 cm. Histopathologic examination confirmed a benign hyperplastic lesion. Computed tomography identified a pyloric mass with absent surrounding infiltration or metastasis. A distal gastrectomy was performed, whereby multiple small pyloric polyps were found, the largest prolapsing into the pyloric opening, thus explaining the intermittent nature of gastric outlet obstruction. Such polyps often develop from gastric ulcers and, if left untreated, may undergo neoplasia to form malignant cells. A distal gastrectomy was an effective choice of treatment, taking into account the polyp size, quantity, and potential for malignancy as opposed to an endoscopic approach, which may not guarantee a complete removal of safer margins and depth. Therefore, surgical excision is favorable for multiple large gastric polyps with risk of malignancy.

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The detection of gastric polyps at upper gastrointestinal endoscopy is usually an incidental occurrence, with an incidence of up to 5%.[1] Research reports showed that the polyps occurred equally in males and females and that two-thirds occurred in the age group above 60 years.[2] The majority of gastric polyps are asymptomatic, but clinical features may include gastrointestinal bleeding or, rarely, obstruction.[3] Of interest, these symptoms are usually intermittent because the polyp moves about on its stalk.[4] Prior reviews have discussed in depth *H pylori*–associated gastric polyposis and the endoscopic treatment approach for singular polyposis. Here, we present a rare and unusual case of recurrent multiple benign gastric polyposis post *H pylori* eradication resulting in intermittent gastric outlet obstruction. We also review the histopathologic nature and considerations for either an endoscopic or surgical management of gastric polyps, taking into account its recurrent and multiple nature.

Case Report

A 70-year-old Southeast Asian male, Chinese in ethnicity, independent and abled bodied in the community with a background of diabetes mellitus, hypertension, and a simple Bosniak I renal cyst initially presented as an elective referral to the surgical outpatient clinic with malena. Gastroscopy at this time showed a benign Forrest 2C gastric ulcer with positive *H pylori* testing. Four months later, and following treatment with proton pump inhibitors (PPIs) and *H pylori* eradication therapy, he presented again with asymptomatic anemia and intermittent vomiting post meals. Gastroscopy demonstrated a fungating mass at the antrum with satellite nodules in the second part of duodenum. Histopathologic assessment of biopsies taken at this time revealed granulation tissue with a healing gastric antral ulcer, and chronic duodenitis. A repeat gastroscopy after 1 month showed a polypoidal lesion at the antrum, partially obstructing the pylorus (Fig. 1). Again, biopsy revealed no evidence of malignancy. At this time, the patient was otherwise well and was not keen to consider any intervention including endoscopic treatment despite adequate counseling.

After 4 months, a further gastroscopy was performed following the development of early satiety and weight loss of 5 kg. Endoscopy again showed the same 4-cm polypoidal mass at the antrum and multiple smaller satellite polyps, histopathologic analysis of which was consistent with hyperplastic polyps. Keeping in line with the progression of symptoms, computed tomography (CT) was performed, which demonstrated a lesion at the pylorus with no evidence of local infiltration or metastases (Fig. 2). In view of the size, multiplicity, and nature of these polyps, a distal gastrectomy with Billroth 2 reconstruction was performed via a midline laparotomy. Upon opening the specimen, multiple small pyloric polyps were found, the largest of which was mobile and prolapsing into the pyloric opening, thus explaining the intermittent nature of the patient's symptoms of gastric outlet obstruction (Fig. 3). Final histopathologic examination was consistent with a giant hyperplastic gastric polyp. The patient made a good recovery from surgery and remained symptom free at 2-year postoperative follow-up with resolved anemia.

Discussion

Whilst normally asymptomatic, gastric polyps may present with symptoms such as epigastric discomfort, anorexia, vomiting, and anemia secondary to occult blood loss. Gastric polyps causing intermittent gastric outlet obstruction are a rare entity.[5] Gastric polyps causing gastric outlet obstruction are commonly seen in elderly females.[6,7] These polyps can be classified based upon their cell of origin (*i.e.*, epithelial, mesenchymal, lymphoid, or inflammatory). The majority of gastric polyps are of the hyperplastic type.[8]

Several risk factors are implicated in the pathogenesis of hyperplastic polyps, including *H pylori* infection, bile reflux, and autoimmune gastritis.[5] These hyperplastic polyps have also been spotted in patients with portal hypertension, but they tend to exhibit a larger blood vessel diameter.[9,10] Multiple hyperplastic polyps are typically observed in the antrum.[5] Macroscopically, they are smooth and dome-shaped and usually range in size from 0.5 to 1.5 cm, although rarely may exceed 2 cm.[11] Larger lesions prone to surface erosion can result in chronic blood loss and gastric outlet obstruction.[12] Although hyperplastic polyps uncommonly undergo neoplastic progression, their presence denotes an increased risk of neoplasia in the surrounding abnormal gastric mucosa.[13] Hizawa *et al*[14] studied 263 cases of hyperplastic polyps and found 5 (2%) to contain adenocarcinoma, whilst Daibo *et al*[15] studied 477

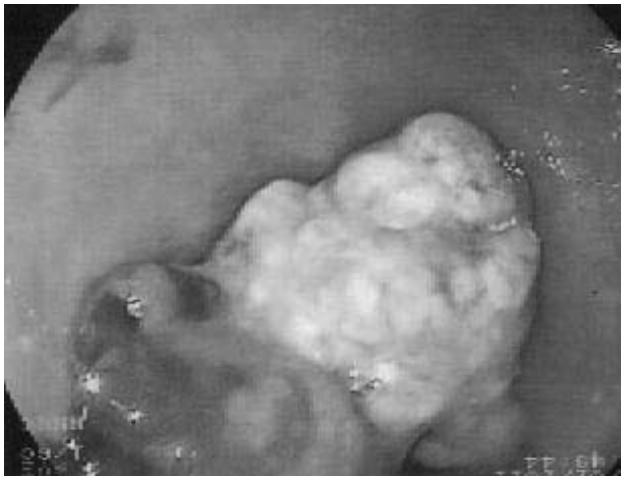

Fig. 1 Endoscopic appearance of the antral polyp covering the pylorus.

cases and identified 10 (2.1%). Conway *et al*[12] reported a case of an inflammatory gastric polyp causing gastrointestinal bleeding and obstruction; however, following endoscopic polypectomy, the patient's symptoms resolved.

Alqutub *et al*[16] in 2010 reported a case of antral gastric polyposis that attained complete regression after 4 months of terminating the use of PPIs. Although this may suggest PPIs may have a contributory in role in antral gastric ulcers as in the case of our patient, there is still a lack of evidence in reported cases. However, the prolonged use of PPIs have shown to result in the formation of fundic gland polyps.[17]

Development of a hyperplastic polyp following the healing of a gastric ulcer is thought to be a result of extensive mucosal injury, particularly if the ulcer is greater than 10 mm in size. These acquired hyperplastic polyps usually develop 3 to 4 months following the initial endoscopic diagnosis of a gastric ulcer.[18] Some authors hypothesize that loose connective tissue from the deeper muscularis propria serves as a reservoir for resting fibroblasts or myofibroblasts, which following stimulation from a mucosal insult, differentiate and proliferate thus encouraging mucosal repair.[11,19] Haque and Raju[11] report a case of a patient with an antral ulcer who subsequently developed a 2-cm hyperplastic polyp at the ulcer edge. Whilst this was initially treated by means of a snared polypectomy, the polyp reoccurred, requiring further treatment with argon plasma coagulation.

Gastroduodenal intussusception caused by a prolapsed gastric polyp is rarely documented. Nakagawa *et al*[13] reported a case of gastroduodenal

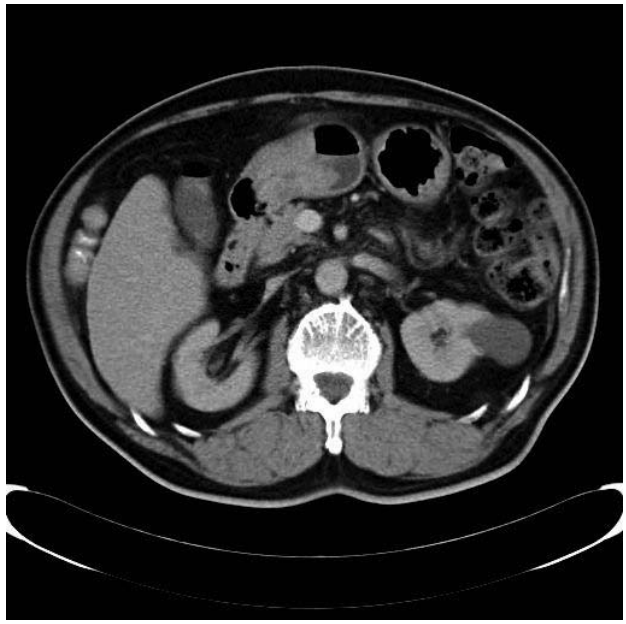

Fig. 2 Axial view CT scan revealing the pyloric lesion.

intussusception secondary to a giant solitary gastric heterotopia which was successfully treated with endoscopic polypectomy. Hobbs and Cohen[20] used the term "ball-valve syndrome" in describing this phenomenon.

Large antral hyperplastic polyps can be removed endoscopically especially for solitary lesions.[21] However, in our patient, the presence of multiple surrounding small polyps would not ensure a complete and accurate removal of affected or dysplastic tissue, which may have resulted in a recurrence. Therefore, a distal gastrectomy was opted for and felt to be the best therapeutic option as endoscopic management in our case was not felt to be appropriate, given the size of the polyp, proximity to the pylorus, and the presence of multiple smaller polyps in the surrounding gastric mucosa. Moreover, surgical resection should also be considered if submucosa infiltration is present, especially where histopathologic studies suggest malignancy. The endoscopic removal of polyp is only recommended for polyps less than 15 mm in diameter, whilst patients with larger and suspicious polyps should have a staging work-up and polyps removed surgically to achieve safer margins and depth.[22]

Conclusion

In summary, our case discussion should apply to general surgeons with a special interest in upper

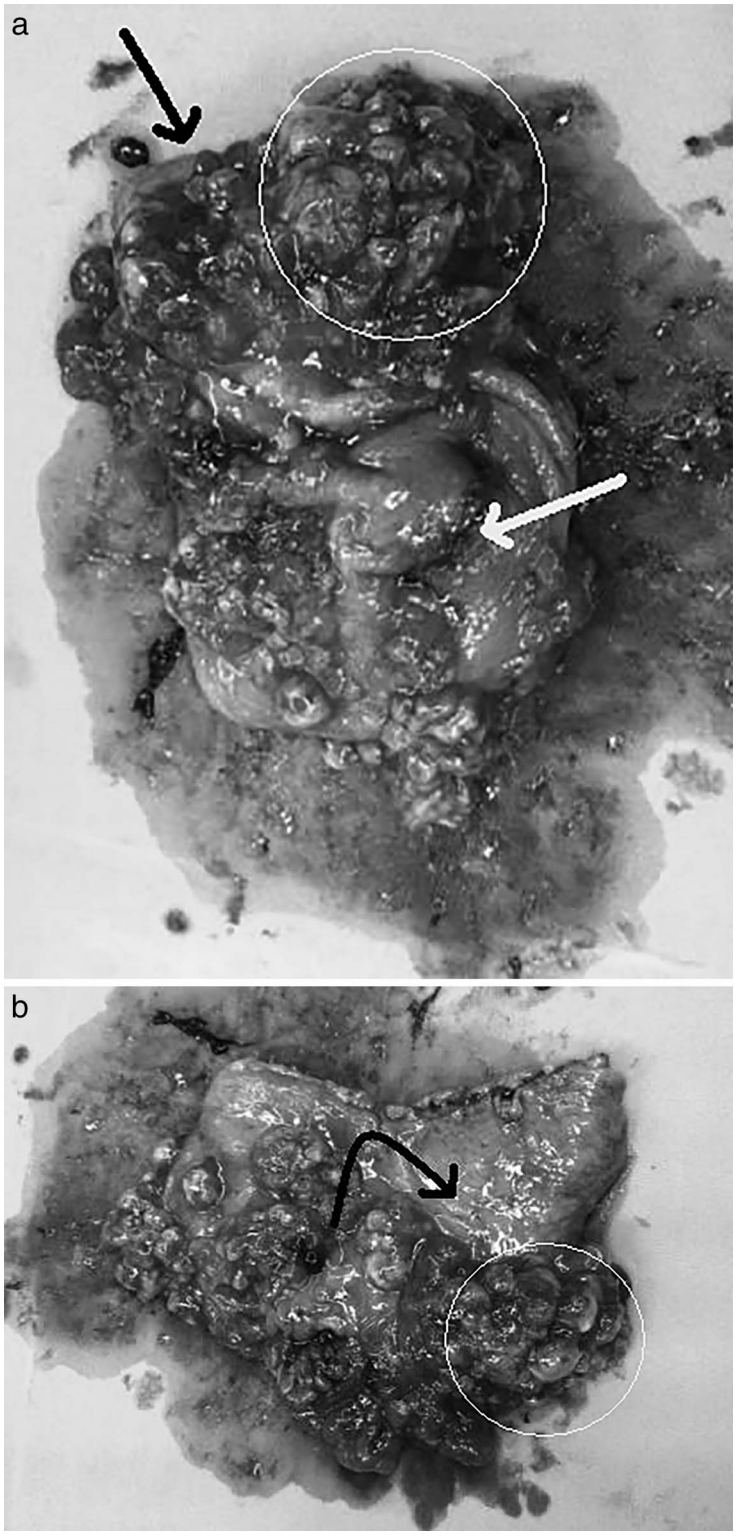

Fig. 3 Specimen showing the polypoidal lesion (circle) at the antrum following distal gastrectomy. (a) The black arrow represents the proximal resection margin, and the white arrow the pylorus. (b) The polyp prolapsed into the pylorus, causing symptoms of intermittent gastric outlet obstruction (shown with rounded arrow).

gastrointestinal surgery whereby gastric polyps are predominantly an incidental finding with low malignant potential, with the vast majority being asymptomatic. Our case report highlights the rare presentation of a sessile polyp prolapsing to form a pedunculated polyp, rapidly progressing within months, its large dimensions and multiple natures carries the risk of potential malignancy. Moreover, on rarer occasions, larger polyps may prolapse into the pylorus, presenting with symptoms of intermittent gastric outlet obstruction. Therefore, a thorough history of symptoms, appropriate staging, and timely follow-up should be carried out to aid decision making. In conclusion, endoscopic excision should be considered primarily; however, should this not be feasible, then surgical excision can be employed with good result.

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