CASE REPORT

Case of gastric intestinal metaplasia in an old patient with previous gastric surgery

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SUMMARY

An 87-year-old woman with multiple medical disorders presented with dyspeptic symptoms of long duration. She has a history of peptic ulcer disease for which she has partial gastrectomy (Billroth I) in the past. Oesophagogastroduodenoscopy (OGD) was performed which revealed erythematous mucosa in the lower part of the gastric remnant with areas of whitish mucosal patches in the distal stomach close to the gastroduodenal anastomosis. Biopsies were taken from the whitish mucosal patches and sent for histopathological examination. The result of the biopsy confirmed the presence of marked intestinal metaplasia. This case report summarises the presentation, diagnoses and treatment of gastric intestinal metaplasia (GIM).

BACKGROUND

Gastric intestinal metaplasia (GIM) is an intermediate precancerous gastric lesion. The risk of gastric cancer is increased as compared to those with normal mucosa.¹ Clinically, there are no specific symptoms but they can present sometimes with dyspepsia. It is often found incidentally on biopsy of the stomach in patients undergoing oesophagogastroduodenoscopy (OGD). This case was written as a review for the topic and for educational purposes to help summarise the presentation, diagnostic modalities and management of GIM.

CASE PRESENTATION

An 87-year-old woman presented to the outpatient clinic with epigastric discomfort and abdominal bloating specially after meals of 2 weeks duration. She is known to have multiple medical problems including hypertension, bronchial asthma, dyslipidemia, ischaemic heart disease, history of cerebrovascular event, breast cancer and on hormonal therapy and history of peptic ulcer disease that was treated with partial gastrectomy and gastroduodenal anastomosis (Billroth I operation) 20 years ago. She was also receiving proton-pump inhibitors (PPIs) for long-standing dyspepsia that was stopped 1 week before presentation because PPIs were not improving her dyspepsia. She has no history of smoking or alcohol consumption.

INVESTIGATIONS

The patient was referred for OGD as a part of investigation for dyspepsia. OGD showed evidence of previous partial gastrectomy and gastroduodenal anastomosis (Billroth I operation) as well as erythematous gastric mucosa involving the lower part of the gastric remnant with areas of

whitish mucosal patches, which was more obvious with narrow band imaging close to the gastroduodenal anastomosis suggestive of intestinal metaplasia (IM) (figures 1 and 2). Biopsies were taken from the whitish area, the surrounding inflamed mucosa as well as mapping biopsies from the remnant of the stomach and sent for histopathological examination. The patient had normocytic normochromic anaemia in which the blood work up showed iron deficiency, vitamin B12 deficiency and negative serology for gastric parietal cell antibodies.

OUTCOME AND FOLLOW-UP

Biopsy A labelled 'Distal part of the gastric remnant, whitish patch' showed mild chronic inflammatory

Figure 1 Whitish mucosal patches in parts of the gastric remnant.

Figure 2 Narrow band imaging.

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Figure 3 Biopsy A (H&E, ×50) showing mild chronic inflammatory cell infiltrate with extensive intestinal metaplasia.

cell infiltrate with extensive IM and was negative for *Helicobacter pylori* (figures 3 and 4). Biopsy B labelled 'Distal part of the gastric remnant, inflamed mucosa' showed mild chronic inflammatory cell infiltrate, positive for *H. pylori* and no IM (figures 5 and 6). According to the Sydney System for the classification and grading of gastritis, this case was referred to as chronic gastritis with inflammatory infiltrate and severe IM secondary to *H. pylori*. It is also referred to as incomplete IM. After obtaining the biopsy results, management was initiated. This included *H. pylori* eradication therapy (amoxicillin, clarithromycin and omeprazole for 14 days) and confirmation of *H. pylori* eradication by urea breath test at least 4 weeks after therapy. In addition, an OGD follow-up appointment was scheduled after 2 years for surveillance purposes.

DISCUSSION

GIM is a precancerous gastric lesion with increased risk of gastric cancer; however, the absolute risk is low. It is defined as the replacement of the surface, foveolar and glandular epithelium in the oxyntic or antral mucosa by intestinal epithelium.² Atrophic gastritis and IM are the main precursor lesions of gastric cancer. The incidence of gastric cancer increases in the gastric mucosa involved with atrophic gastritis and IM. The

Figure 4 Biopsy A (H&E, ×100).

Figure 5 Biopsy B (H&E, ×50) showing mild chronic inflammatory cell infiltrate; positive for *Helicobacter pylori* and no intestinal metaplasia.

prevalence of GIM in the general population is difficult to establish due to the asymptomatic nature of the lesion. There is a wide variation in the prevalence of GIM depending on the different methods used in studies and particularly the prevalence of *H. pylori* infection in the region.^{3 4} In cases of IM, reports on incidence are rare in asymptomatic general population, because OGD with histological examination is needed to estimate the prevalence of IM. Sonnenberg *et al*⁵ conducted a large retrospective study of 78 985 patients undergoing OGD with biopsy across the USA and found that the prevalence of gastric IM was 7%. In a study done in the Netherlands, IM was found more often in *H. pylori* positive patients than in *H. pylori* negative ones (33.9% vs 15.2%, $p < 0.001$).⁶ IM is not rare with regards to patients with remnant stomach following partial gastrectomy.⁷ Gastric cancer is the second most frequent cause of cancer-related deaths and ranks fourth in cancer incidence worldwide.⁸ There is an increased risk of gastric cancer after partial gastric resection for benign ulcer disease that is limited to the period at least 30 years after the surgery. The average adjusted risk increased 28% for each successive 5-year interval after operation.⁹ It is important to classify the presenting gastritis in order to determine the risk of gastric adenocarcinoma and guide surveillance. The most widely used is the Sydney System for the classification and grading of gastritis by linking the aetiology, topography and morphology. These components are used

Figure 6 Biopsy B (H&E, ×100).

to help formulate the type of gastritis and monitor its process. The aetiology is to be determined along with possible pathogenic associations. Then, it is categorised as acute gastritis, chronic gastritis or special forms. Finally, the biopsy is further graded based on the presence of inflammation, activity, atrophy, IM and *H. pylori*.¹⁰ Another classification system used is the Operative Link for Gastritis Assessment (OLGA). OLGA has proposed a staging system for reporting gastritis, which arranges the histological phenotypes of gastritis along a scale of progressively increasing gastric cancer risk, from the lowest (OLGA stage 0) to the highest (OLGA stage IV).¹¹ Risk factors for IM are similar to those for gastric cancer, and include chronic infection with *H. pylori*, high salt intake, smoking, alcohol consumption and chronic bile reflux.^{12 13}

Clinically, GIM does not cause symptoms; however it can present with non-specific symptoms of dyspepsia due to gastric achlorhydria which results in small intestinal bacterial overgrowth. GIM is often found incidentally on biopsy of the stomach in patients undergoing upper endoscopy. On OGD, IM has a non-specific appearance and the involved mucosa may have rough or villous appearance or may be seen as thin, white mucosal deposits.¹⁴ Eradication of *H. pylori* and OGD with biopsy mapping are the mainstay in the management of GIM. In patients with increased risk of gastric cancer (eg, family history of gastric cancer, various ethnicities), gastric biopsy mapping (5 non-targeted biopsies) is performed during the initial endoscopy. If not done initially, a repeat OGD with biopsy mapping can be carried out in 2 years to determine the subtype and extent of IM.¹⁵ In average risk patients where the finding

was incidental, repeat OGD for biopsy mapping is individualised based on accompanying risk factors. Individuals with extensive IM require surveillance OGD with biopsy mapping every 2 years.

Contributors FK is the corresponding author and he wrote the case report along with collecting the data and images as provided in the case. MA helped review the case report and supervised as it was being written. Both doctors played a role in investigating and managing the patient mentioned in the case report.

Competing interests None declared.

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Learning points

- Intestinal metaplasia can present without any symptoms and so many are diagnosed incidentally.
- Gastric intestinal metaplasia (GIM) is associated with increased risk of developing gastric cancer.
- The Sydney System and the Operative Link for Gastritis Assessment staging system are helpful in classifying GIM.
- Eradication of *Helicobacter pylori* and upper endoscopy with biopsy mapping are the mainstay in the management of GIM.

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