CASE REPORT

Gastric lipoma: an unusual cause of dyspeptic symptoms

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SUMMARY

Gastric lipomas are rare tumours accounting for 2–3% of all benign gastric tumours. These are usually submucosal in origin but in rare cases may be subserosal in origin. Although a majority of gastric lipomas are asymptomatic and usually detected incidentally, occasionally these can cause abdominal pain, dyspeptic disorders, obstruction, invagination and haemorrhages. In the literature, only 200 cases of gastric lipomas have been reported so far. We report a case of a 56-year-old female with a submucosal symptomatic gastric lipoma presenting with disabling dyspeptic symptoms.

BACKGROUND

Lipomas are slow growing benign tumours composed of mature adipose tissue and the gastrointestinal tract is a rare site of occurrence. Within the gastrointestinal tract, the colon is a common site of involvement followed by the ileum and jejunum.¹

Stomach is a rare site of involvement by lipoma and only 200 cases of gastric lipoma have been reported until now. Gastric lipoma accounts for 2–3% of all benign gastric tumours.^{2,3} These are usually submucosal in origin but in extremely rare cases may be subserosal in origin. Within the stomach, a majority of lipomas are localised to the antrum.^{4–7}

The majority of gastric lipomas are asymptomatic and symptoms are most likely to occur when they are larger than 2.0 cm in size. Symptomatic gastric lipomas may present with abdominal pain, intussusception, diarrhoea, constipation or gastrointestinal haemorrhage.²

With newer endoscopic and imaging modalities, a greater number of asymptomatic gastric lipomas are being diagnosed.^{8–10} We report the case of a 56-year-old female presenting with disabling dyspeptic symptoms.

CASE PRESENTATION

A 56-year-old female was referred to the gastroenterology outpatient clinic for dyspeptic symptoms since the past 1 year. She had recurrent epigastric pain associated with a few instances of vomiting after meals. There was no weight loss, haematemesis or melaena throughout this period. She denied any recent change in bowel habits, fever and weight loss. She had no associated comorbidities. Her physical examination was normal except for mild epigastric tenderness.

INVESTIGATIONS

On upper gastrointestinal endoscopy, there was a smooth bulge in the gastric antrum with an

approximate diameter of 5 cm with normal appearing overlying mucosa (figure 1).

Multiple gastric mucosal biopsies were taken. A cushion like indentation was produced with a closed biopsy forceps over the antral bulge. The rapid urease test for *Helicobacter pylori* was positive. Histological examination of the mucosal biopsies revealed chronic active gastritis.

The patient underwent endoscopic ultrasound (EUS) evaluation which demonstrated a homogeneous, hyperechoic lesion arising from the third layer of the gastric wall suggestive of a lipoma.

A CT of the abdomen was performed that showed a homogeneous, well defined oval mass around 6 cm in diameter with negative densitometry (–50 and –60 HU that correspond to fatty tissue) values also suggestive of a lipoma in the antropyloric part of the stomach (figure 2).

DIFFERENTIAL DIAGNOSIS

On endoscopy, there was an oval mass in the antrum with normal overlying mucosa. Differential diagnosis included a gastric lipoma, carcinoid, neural tumour and metastatic deposit. EUS and a subsequent CT abdomen clinched the diagnosis of gastric lipoma that was further confirmed on histopathological examination of the surgical specimen.

TREATMENT

The patient had incapacitating symptoms of postprandial bloating and occasional vomiting despite treatment with proton-pump inhibitors, prokinetics and *H. pylori* eradication. She underwent surgical excision of the gastric lesion with midline supraumbilical laparotomy and a gastrotomy. A soft tumour with well defined margins was found along the

Figure 1 Endoscopic image showing a bulge along the lesser curvature in the antropyloric region with overlying normal mucosa.

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Figure 2 CT image showing a homogeneous, well-defined oval mass in the stomach with a density of -60 H U suggestive of lipoma.

lesser curvature of the stomach. The tumour was dissected and totally removed without any technical difficulty. The excised tumour was sent for histopathological examination which showed mature, well-differentiated adipocytes, thus confirming the diagnosis of lipoma (figure 3).

OUTCOME AND FOLLOW-UP

The patient had an uneventful postoperative course. On follow-up after 6 months, the patient was asymptomatic.

DISCUSSION

Gastric lipomas are rare, accounting for $<3\%$ of all benign tumours of the stomach. These are usually solitary, but sometimes can be multiple.¹¹ Gastrointestinal lipomas are typically found in patients who are in their fifth or sixth decade of life. The vast majority of gastric lipomas are asymptomatic and are discovered incidentally. Symptomatic gastric lipomas commonly present with abdominal pain and dyspepsia but may rarely present with haemorrhage, intussusceptions and obstruction. Our patient was a 56-year-old female with dyspeptic symptoms. She had a solitary large antral mass which had a smooth surface.

Gastric lipomas are solitary, smooth, discrete soft masses which are similar in pathological and gross appearance to lipomas found elsewhere. Within the stomach, lipomas can arise

from all parts except for the cardia and pylorus. Seventy-five per cent of these are located in the antrum. Gastric lipomas >2.0 cm in size are more likely to produce symptoms that include intussusception, diarrhoea, constipation or gastrointestinal haemorrhage.¹² Lipomas that are close to the pylorus can cause obstructive symptoms, frequently by obstructing the pylorus or prolapsing through the pylorus into the duodenum.¹³ Our patient had symptoms of dyspepsia with occasional vomiting but no symptoms of bleeding. Haemorrhage is thought to occur secondary to the lipoma's contact with the opposing wall, which can result in ulceration and necrosis of central areas. Although there are no malignant transformations of a gastric lipoma, coincidental malignant lesions have been reported.¹⁴

Endoscopically, gastric lipomas typically appear as smooth submucosal masses with a yellowish hue when compared with surrounding tissue, occasionally with areas of discrete ulceration. Typically, there are two clues that help in identifying these lesions as lipomas on endoscopic examination. A 'tenting sign' occurs when the normal mucosa overlying the lipoma is retracted easily away from the mass with a biopsy forceps, and a 'cushion sign' occurs when the forceps produces a soft, cushioning indentation when applied to the lipoma.¹⁵ Our patient had both these signs during the upper gastrointestinal endoscopy. Since lipomas are usually submucosal, standard endoscopic mucosal biopsies are inadequate. Another diagnostic sign is the 'naked fat' sign, which refers to exposed adipose tissue on the surface of the lipoma that protrudes through the normal overlying mucosa after multiple biopsies of the normal mucosa are performed. Yoshida *et al*¹⁶ have reported using electrocautery to produce a small overlying area of ulceration that can be biopsied to reveal the lipoma on repeat endoscopic examination a few days later. Usually, on barium studies, extra mucosal tumours including lipomas reveal a smooth filling defect with a 'bull's eye' appearance that is indistinguishable from other mesenchymal tumours.³ CT is a highly specific imaging diagnostic tool for lipoma.¹⁷ It appears as a homogeneous polypoidal mass with a low attenuation signal similar to that of fat. In our case, the CT scan showed an antral mass 6 cm in diameter with attenuation similar to fat.

EUS is another important diagnostic modality to confirm the diagnosis of gastric lipomas. On EUS, gastric lipoma appears as a homogeneous, hyperechoic lesion from the third layer of the gastric wall.¹⁸ The choice of treatment for gastric lipomas is still controversial. Various surgical and endoscopic procedures have been used in treatment of submucosal lipomas. Although the standard treatment for gastric submucosal tumours is surgical excision, lesion <2 cm can be removed endoscopically by endoscopic submucosal dissection, snare polypectomy, band ligation or unroofing. Endoscopic unroofing technique for endoscopic resection of submucosal lipomas has been described.¹⁹ Endoscopic submucosal tumour resection with ligation device is contraindicated for tumours more than 1 cm in diameter and endoscopic submucosal tumour resection with cap should not be carried out for tumours more than 2 cm in diameter.^{20–22}

An accurate diagnosis preoperatively may enable the replacement of surgical resection techniques by limited procedures such as tumour enucleation, partial resection or other endoscopic and minimally invasive procedures. Combined endoscopic and laparoscopic techniques for resection of gastric submucosal tumours have been reported as less invasive compared to the traditional surgical approach.²³ In a study by Kang *et al*,²⁴ laparoscopic–endoscopic cooperative surgery was found to be safe and effective for removal of gastric submucosal tumours. Our female patient was diagnosed on a CT scan and confirmed with EUS. She was subjected to surgery as the size of the lesion was

Figure 3 Microscopy image of a resected specimen showing mature adipocytes.

too large for endoscopic removal and facility for combined laparoscopic endoscopic resection was not available. The patient is doing well on 6-month follow-up.

In summary, we report a rare case of submucosal symptomatic gastric lipoma successfully treated with surgical enucleation. Gastric lipomas, although extremely rare, can be the cause of abdominal pain and dyspeptic symptoms that may need surgical treatment. Accurate diagnosis of gastric lipoma can be reached with a combination of endoscopic and imaging diagnostic techniques, and can be treated endoscopically or surgically depending on the size and availability of treatment modality.

Learning points

- ▶ Gastric lipomas, although extremely rare, can be the cause of abdominal pain and dyspeptic symptoms that may need surgical treatment.
- ▶ Accurate diagnosis of gastric lipoma can be reached with a combination of endoscopic and imaging diagnostic techniques, and can be treated endoscopically or surgically.
- ▶ Endoscopic unroofing may be used if adequate facilities for endoscopic technique are available and the size of the lesion is <2 cm.

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