CASE REPORT

Laparoscopic transgastric resection of a large pedunculated gastric lipoma

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SUMMARY

Large gastric lipomas are a rare condition. They are often asymptomatic but may present with upper gastrointestinal bleeding or gastric outlet obstruction. We describe the case of a 52-year-old woman with a large gastric lipoma presenting with pain due to intermittent prolapse through the pylorus. The patient was treated using a novel approach of laparoscopic transgastric resection and was discharged on postoperative day 3. She suffered no complication and her histology confirmed a gastric lipoma with clear surgical margins.

BACKGROUND

Large gastric lipomas are a rare condition. Owing to the rarity of the condition, it is usually not included as a differential diagnosis of abdominal pain. When they present with symptoms, the treatment involves excision of the tumour. The diagnosis may be made on endoscopy or CT imaging, however, in our case, neither of these investigations led to a confident diagnosis. We chose a novel approach to resection that allowed safe diagnostic excision while still allowing for more definitive surgical treatment if required. The laparoscopic transgastric approach is a safe technique, although only described in one other case report. This procedure avoids the significant morbidity associated with a gastrectomy and yet allows adequate treatment. Our patient was very satisfied with her treatment.

CASE PRESENTATION

A 52-year-old woman presented acutely to our unit, with epigastric pain and nausea. She had suffered with three episodes of similar symptoms in the previous 2 months, which had self-resolved. She had undergone a previous abdominal ultrasound scan, which had been reported as normal. She had no significant comorbidities and no surgical history.

On examination, she had a normal pulse, blood pressure and temperature. Examination of her abdomen revealed minimal epigastric tenderness; Murphy's sign was negative. Blood tests demonstrated a normal haemoglobin count of 116 g/L, white cell count was $14.8 \times 10^9/L$ with neutrophilia of $13.4 \times 10^9/L$. Biochemistry was normal for sodium, potassium, creatinine as well as liver function tests.

INVESTIGATIONS

A repeat abdominal ultrasound was performed, which showed evidence of neither cholelithiasis nor other pathology to account for this patient's

symptoms. A gastroscopy was arranged to further investigate her undifferentiated upper abdominal pain. This demonstrated a large polypoid mass arising from the gastric cardia/body and prolapsing through the pylorus, as shown in figures 1 and 2. This was reduced endoscopically. Biopsies of the lesion were taken.

CT scan confirmed a 70 mm mass arising within the stomach (figure 3). The lesion was predominantly of fat density, however, it did contain vessels and soft tissue septations. There was no evidence of metastatic lesions.

The histology from the biopsies returned showing neither dysplasia nor malignancy, but with features suggestive of a submucosal lipoma.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis included gastric lipoma, gastrointestinal stromal tumour (GIST), leiomyoma/leiomyosarcoma and adenocarcinoma.

TREATMENT

Imaging, endoscopic findings and histology were reviewed at the local upper gastrointestinal multidisciplinary meeting and the consensus decision was to perform a surgical resection. Given the very large size, long stalk and mobile nature of the lesion, we opted for a laparoscopic transgastric approach.

The patient proceeded to surgery for resection. Under general anaesthesia, an open cut-down approach at the umbilicus was used to obtain pneumoperitoneum and place a 10 mm laparoscopic port. The patient was placed in a steep reverse Trendelenburg position to expose the upper

Figure 1 Endoscopic picture showing retroflexed view with stalk from a polypoid mass prolapsing through the gastric pylorus.

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Figure 2 Endoscopic picture following manipulation of the polypoid mass back into the gastric lumen.

abdomen. A Nathanson (Cook Medical) table-mounted liver retractor was placed via an incision inferior to the xiphisternum to lift the left lobe of the liver and visualise the gastro-oesophageal junction. A 5 mm port was placed to the left of the umbilicus, a 12 mm port was placed on the right side in the mid-clavicular line and a further 5 mm port placed lateral to this.

Laparoscopy demonstrated neither peritoneal nor liver nodules. There was no serosal abnormality seen on the stomach. Given our preoperative localisation of the lesion to be arising from the gastric cardia/body we performed a longitudinal gastrotomy along the anterior antrum of the stomach. The polypoid mass was delivered through this gastrotomy, as shown in [figure 4](#). The stalk proved to be very redundant and a single firing of an Endo-GIA 60 mm articulating laparoscopic stapler (Covidien) allowed complete resection of the lesion (shown in [figure 5](#)). The gastrotomy was closed transversely with another firing of the stapler using a reload cartridge. The specimen was retrieved through a retrieval bag from the 12 mm port site.

OUTCOME AND FOLLOW-UP

The patient progressed well following surgery. On postoperative day 1, she was stated on oral fluids and gradually progressed to

Figure 3 Axial CT demonstrating a large mass within the stomach lumen, predominantly of fat density, however, septations can be seen within the lesion.

Figure 4 Intraoperative picture taken at laparoscopy, demonstrating a pedunculated gastric tumour pulled through anterior gastrotomy.

a light diet. She was discharged home on postoperative day 3. The histology from the resection specimen confirmed an 85×60 mm submucosal gastric lipoma; the resection margin was measured as 55 mm.

DISCUSSION

Gastric lipomas are benign, slow-growing lesions in the stomach, composed of mature adipose tissue surrounded by a fibrous capsule.^{1 2} They are rare and account for 2–3% of all benign tumours of the stomach.^{3 4} These lesions are most often asymptomatic and discovered incidentally. However, when they do cause symptoms they may present with bleeding or obstruction. Obstruction may be related to the position of the lesion within the stomach; most gastric lipomas arise from the antrum and lesions closer to the pylorus are more likely to prolapse through.²

A preoperative diagnosis can be difficult to confirm histologically due to the submucosal location of most lipomas, which means that endoscopic biopsies may be non-diagnostic.⁵ Endoscopic features have been described that suggest the possible diagnosis of a lipoma; these include the Cushion sign (indentation of the mass when pressed with biopsy forceps), the tenting sign (grasping the mucosa with forceps and ‘tenting’ it away from the underlying mass) and the naked fat sign (fat protrudes from the mass after multiple biopsies, which removes the overlying mucosa).² CT is very helpful for the diagnosis: a homogenous mass with fat density ranging between –70 and –120 HU is essentially pathognomonic for a gastrointestinal lipoma.⁶

When symptomatic, the treatment involves excision. Different methods have been described utilising endoscopic, open and laparoscopic approaches. Given the rarity of the condition, most of the literature is based on case reports. Endoscopic approaches

Figure 5 Intraoperative picture of an Endo-GIA stapler placed across the stalk of the pedunculated gastric tumour.

include polypectomy⁷ and, more recently, endoscopic submucosal dissection has been described.⁸ These techniques are normally more suitable for smaller lesions. With the open approach, methods of excision vary from enucleation to gastrectomy.^{5–9} With the adoption of minimally invasive surgery, its safety is being increasingly established for treating gastric tumours.¹⁰ The options available via a laparoscopic approach mirror those offered in open surgery.^{11–12}

With the atypical features on the CT of our patient, we felt an enucleation approach was not safe, and, with the morbidity associated with gastrectomy, this may have been overtreatment if the lesion did prove to be benign. Given its large size, an endoscopic approach would not allow retrieval of the specimen unless it was removed piecemeal. With a laparoscopic approach, we felt that adhesion formation would be limited if further surgery was required in the case of incomplete resection or a finding of adenocarcinoma on histology. The laparoscopic approach proved very straightforward. Only one other case report has described an approach similar to that we employed,

this was for a case presenting as gastro-intestinal bleeding.¹² The outcome in that case was also favourable.

Large gastric lipomas are rare. We have described the case of a woman who recurrently presented with gastric outlet obstruction and was safely treated with a laparoscopic transgastric approach avoiding the morbidity of a gastrectomy but still allowing for a complete resection. This case suggests it is a safe approach to the management of these lesions when the diagnosis is not completely certain.

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Contributors AKR assisted with the surgery, sought patient consent, performed the literature review and wrote the draft paper. SB was the lead operating surgeon, provided the clinical photographs and proofread the manuscript.

Competing interests None declared.

Patient consent Obtained.

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Patient's perspective

My only comment is the invisibility of the lesion on x2 ultrasound scans. I am grateful that I did not need a gastrectomy to remove this.

Learning points

- Gastric lipomas are rare and may present with abdominal pain due to gastric outlet obstruction.
- The diagnosis may be difficult to make, and the endoscopic and imaging findings may not be typical.
- A laparoscopic approach to resection is a safe procedure to excise these lesions, and avoids the potential morbidity associated with a gastrectomy.

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