

# Gastric lipoma presenting as obstruction: Role of intraoperative frozen section in diagnosis

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## ABSTRACT

Lipomas are benign tumors of adipose tissue. Lipomas are rare in the gastrointestinal tract, located mostly in the colon. Gastric lipomas are very rare constituting 5% of all gastrointestinal lipomas. We report a case of a large submucosal gastric lipoma presenting with features of gastric obstruction. The frequency of gastric lipoma, its differential diagnosis, means of diagnosis, and treatment are discussed.

**Key words:** Adipose tissue, CT scan, enucleation, frozen section, gastric lipoma, obstruction, oesophagogastrroduodenoscopy, submucosal tumor

## INTRODUCTION

Lipomas are rare in the gastrointestinal tract, where they form 6% of all gastrointestinal tumors.<sup>[1]</sup> Most gastrointestinal lipomas are located in the colon, ileum and jejunum and are rarely symptomatic.<sup>[2,3]</sup> Gastric lipomas constitute 5% of all gastrointestinal lipomas.<sup>[4,5]</sup> We present a case of a large submucosal gastric lipoma, which presented with features of gastric obstruction.

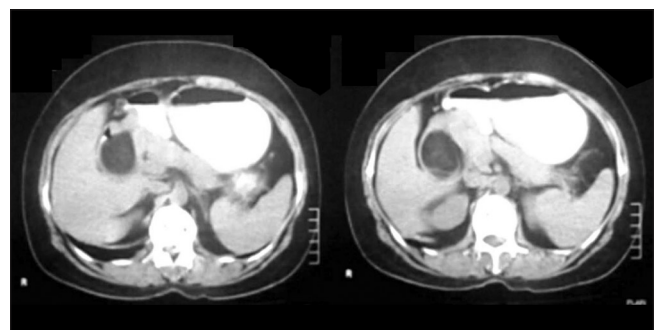
## CASE REPORT

A 50-year-old female was admitted with a history of severe vomiting since 15 days, intermittent epigastric pain and nausea since one and half years. Ultrasound examination of the abdomen was normal.

On oesophagogastrroduodenoscopy, a sessile gastric polyp was seen in the pylorus at the gastric outlet. CT scan showed hypodense lesion in the pyloric region with density

corresponding to that of fatty tissue [Figure 1]. On surgery, a bulge was seen in the posteroinferior wall of stomach with normal overlying mucosa. Frozen section examination revealed mature adipose tissue diagnostic of lipoma; hence it was decided to only enucleate the lesion. The excised mass was then sent for histopathological examination.

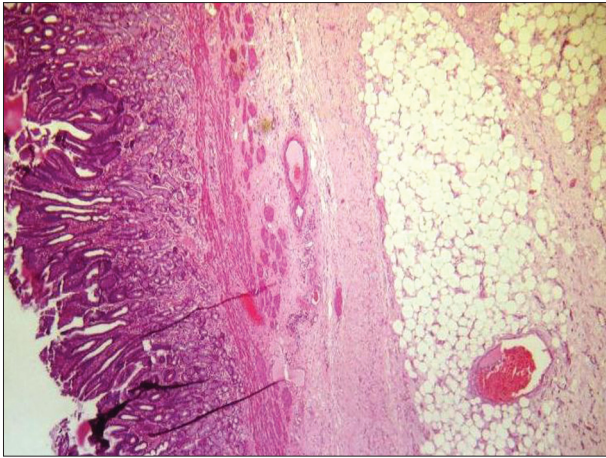
Grossly, the tumor was a single, well-circumscribed submucosal nodule measuring 6.5×4.5×4 cm in size. External surface was smooth and partially covered by mucosa. Cut surface of the tumor had the characteristic yellow cross sectional appearance of a lipoma. Microscopically, the submucosa showed a sharply circumscribed mass of mature adipose tissue with normal overlying antral gastric mucosa [Figure 2].



**Figure 1:** CT scan image showing a well-defined hypodense lesion in the pyloric region with density corresponding to that of fatty tissue

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**Figure 2:** Histological section showing well circumscribed collection of adipose tissue in the submucosal region covered by gastric mucosa (H and E,  $\times 100$ )

## DISCUSSION

Lipomas are rare in the gastrointestinal tract, where they form 6% of all gastrointestinal tumors.<sup>[1]</sup> Gastric lipoma constitute 5% of all gastrointestinal lipomas.<sup>[4,5]</sup> About three quarters of gastric lipomas are antral in location. It is often difficult to diagnose due to its rarity. Almost all gastric lipomas are solitary, but rare cases of multiple lipomas have been reported.<sup>[6,7]</sup>

The etiology of gastric lipomas is unknown.<sup>[1]</sup> The incidence is equal in both sexes.<sup>[1,3]</sup> Gastric lipomas are usually submucosal in origin.<sup>[1,3,8]</sup> Less than 5% are subserosal in location. Gastric lipomas are usually asymptomatic and tumor size dictates the occurrence of symptoms.<sup>[9,10]</sup> They usually present with hemorrhage (53%), abdominal pain (37%), pyloric obstruction (33%) or dyspepsia (26%).<sup>[3]</sup>

Lipomas closest to the pylorus can cause obstructive symptoms frequently by obstructing the pylorus or prolapsing through the pylorus in to the duodenum.

Endoscopically, gastric lipomas typically appear as smooth submucosal masses with a yellowish hue when compared with the surrounding tissue, occasionally with areas of discrete ulceration.<sup>[4]</sup> On endoscopic examination there are some diagnostic signs which help in identifying these lesions as lipomas. These are "tenting", "cushion sign" and the "naked fat" sign. "Tenting" indicates that the normal mucosa overlying the lipoma is retracted easily away from the mass with a biopsy forceps. "Cushion sign" indicates a soft, cushioning indentation produced when a forceps is applied to the lipoma.<sup>[4]</sup> The "naked fat" sign, refers to the exposed adipose tissue on the surface of the lipoma that pokes through the normal overlying mucosa after multiple biopsies of the normal mucosa are performed.<sup>[11]</sup>

As lipomas are generally submucosal, standard biopsies are usually inadequate.<sup>[12]</sup> Yashida and colleagues 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.<sup>[13]</sup>

On computerized tomography, lipomas appear as well circumscribed submucosal masses with a uniform fat density. Nevertheless, when a lipoma becomes ulcerated, the inflammation and scar from base of the ulcer may extend for a considerable distance into the tumor making it firmer and denser, so that both endoscopy and CT exams may not detect its lipomatous character. Diagnosis is made after surgical resection.<sup>[9]</sup> A frozen section during surgery, as was done in our case is diagnostic in such cases.

Histologically, lipomas consist of sharply circumscribed submucosal masses of mature adipose tissue with an overlying intact or eroded mucosa. Usually, a thick fibrous capsule surrounds the tumor. Secondary changes including nuclear hypertrophy, hyperchromasia, fat necrosis, fatty cysts, and foamy macrophages may be present. If extensive, these changes may mimic a liposarcoma. However, lipoblasts are absent.<sup>[14]</sup>

Gastric lipomas have never been shown to have potential for malignant transformation. Due to benign nature of this lesion an extensive surgical procedure such as an extended gastrectomy is not necessary.<sup>[15,16]</sup> Simple local enucleation or partial gastric resection is sufficient to remove the lipoma without fear of relapse or malignant degeneration.<sup>[8]</sup>

In conclusion, we have elucidated a case of gastric lipoma, which, although rare must be included in the differential diagnosis of cases with gastric outlet obstruction. Frozen section examination as in this case, helps to clinch the diagnosis and avert the need for extensive surgery.

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