The role of upper gastrointestinal endoscopy in bariatric procedure selection: A case series and literature review

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Abstract

Background: Bariatric surgery leads to a significant improvement in obesity and associated comorbidities. Safe surgical outcomes are especially desirable in bariatric, as most patients perceive it as an aesthetic surgery, while an intestinal/gastric surgery may be associated with morbidity. A detailed pre-operative evaluation is required to avoid surgical surprises and post-operative complications. Besides other routine investigations, pre-surgery upper gastrointestinal (GI) endoscopy has always been a topic of debate. Some surgeons perform it routinely before the surgery, whereas others perform it selectively. It is mostly accepted that pre-operative diagnosis of gastro-oesophageal reflux disease could change the plan of surgery in favour of Roux-en-Y gastric bypass although similar consensus does not exist in favour of Sleeve gastrectomy if a gastric/duodenal pathology is detected pre-operatively in a planned roux-en-y gastric bypass patient.

Aim: Through this case series, we want to highlight the role of routine pre-operative upper GI endoscopy in selecting the bariatric surgery.

Cases: We present four cases, from amongst many others, where endoscopy changed the course of bariatric surgery.

Conclusion: Upper GI endoscopy should be performed before bariatric surgery, even in asymptomatic patients, to avoid post-operative surprise/complication.

Keywords: Bariatric surgery, duodenal ulcer, gastro-oesophageal reflux disease, Helicobacter pylori, oesophagitis, pre-operative bariatric preparation, Roux-en-Y gastric bypass, Sleeve gastrectomy, upper gastrointestinal endoscopy

INTRODUCTION

Obesity has become a major concern globally. Besides routine pre-operative workup, the role of routine pre-operative upper gastrointestinal (GI) endoscopy remains a matter of debate. There are reports of negative impact of Sleeve gastrectomy on gastro-oesophageal reflux disease and the risk of leaving an undiagnosed pre-malignant lesion in the excluded stomach in a gastric bypass.[¹] By doing an analysis of the impact of endoscopic findings on the bariatric surgical management, some authors found that routine pre-operative endoscopy is not required,[²] whereas another study on 212 patients showed...
a high prevalence of GI disease with a significant impact on bariatric surgery management in two-third of cases, and therefore, they recommend routine endoscopy before bariatric surgery.[3]

**CASE REPORTS**

**Case 1**
A 24-year-old female patient with a weight of 114.8 kg, height of 152 cm and body mass index (BMI) of 49.69 kgs/sqm with no comorbidities was scheduled for a laparoscopic Sleeve gastrectomy in the absence of any previous history of acidity or reflux. A routine pre-operative upper GI endoscopy showed Los Angeles Grade A oesophagitis and antral erosions [Figure 1]. Gastro-oesophageal junction was normal, and there was no hiatus hernia. Rapid urease test for *Helicobacter pylori* (*H. pylori*) was negative. In view of these findings, a decision was taken to do laparoscopic Roux-en-Y gastric bypass after obtaining due consent. Our technique of Roux-en-Y gastric bypass is explained in our previous study.[4] Post-operative recovery was uneventful, and the patient was discharged after 48 h.

**Case 2**
A 39-year-old female patient with a weight of 100 kg, height of 165 cm and BMI of 36.7 kgs/sqm had complaints of frequent episodes of heartburn and reflux, and she was on medication for the same. The patient avoided eating late dinners or spicy food to prevent reflux. Based on her symptoms and after discussing with the patient regarding various bariatric options, the patient chose to undergo laparoscopic Roux-en-Y gastric bypass. Routine pre-operative upper GI endoscopy showed pangastritis with a 0.5-cm duodenal ulcer (Forrest Class 111) [Figure 2], and rapid urease test done for *H. pylori* was positive. Lack of objective findings of reflux disease such as hiatus hernia or oesophagitis and findings of active duodenal ulcer which will not be accessible endoscopically after bypass in case of bleeding, a decision was taken to do Sleeve gastrectomy instead of Roux-en-Y gastric bypass. Our technique of Sleeve gastrectomy is explained in our previous study.[4] Complete 2 weeks of *H. pylori*, eradication was done. Post-Sleeve gastrectomy recovery was uneventful, and the patient was discharged in 48 h.

**Case 3**
A 55-year-old female patient with a weight of 123.9 kg, height of 150 cm and BMI of 55.06 kgs/sqm did not give a history of any upper GI symptoms. After discussing various bariatric options, the patient chose laparoscopic Sleeve gastrectomy. Her pre-bariatric routine upper GI endoscopy showed a sessile polyp at the cardia [Figure 3]. Biopsy done was inconclusive. Endoscopic ultrasound followed by endoscopic mucosal resection of the polyp was done. Histopathology showed foveolar hyperplasia. The patient subsequently underwent laparoscopic Sleeve gastrectomy and had an uneventful recovery.
Case 4
A 51-year-old female patient with a weight of 85 kg, height of 155 cm and BMI of 35.41 kg/m² with autoimmune hypothyroidism and hypertension was scheduled for laparoscopic Sleeve gastrectomy. Upper GI endoscopy done showed thickened fundic mucosa with two nodules and a wide-based pedunculated polypoidal growth of about 2 cm × 1 cm in the antrum [Figure 4]. The rapid urease test from the antral biopsy sample was negative. Biopsy from the antral growth was reported as chronic gastritis. The patient underwent endoscopic resection of the polyps and the antral polyp biopsy was reported as papillary adenocarcinoma with the tumour confined to the mucosa, and the cauterized margins were free of tumour. Bariatric surgery was cancelled, and the patient referred to the GI oncology unit for further management.

DISCUSSION

Obesity is an epidemic disease that has become a major concern worldwide. Obesity is known to be associated with hiatus hernia, gastro-oesophageal reflux disease and GI malignancy besides other comorbidities. A review of the epidemiological evidence indicates that there is an association of obesity with gastro-oesophageal reflux disease and some of its complications such as erosive oesophagitis, Barrett’s oesophagus and oesophageal adenocarcinoma. Bariatric surgeries have been shown to reduce comorbidities related to obesity. Although laparoscopic Sleeve gastrectomy is the most common procedure, increased incidence of gastro-oesophageal reflux disease has been explained by many probable mechanisms. These include the destruction of the angle of His during laparoscopic Sleeve gastrectomy or formation of neofundus. The dilatation of neofundus results in a mid-stomach stenosis in Sleeve gastrectomy patients which results in stasis and increased acid production in neofundus. Another study done on volume and pressure assessment in laparoscopic Sleeve gastrectomy demonstrated decreased gastric compliance and increased gastric pressure. Due to this increased gastric pressure, there will be relative hypotension of the lower oesophageal sphincter which may lead to increased reflux. Another study has found that 40.5% of Sleeve conversion to Roux-en-Y gastric bypass was due to the refractory gastro-oesophageal reflux disease. A study of 55 patients with pre-operative reflux disease showed that post Roux-en-Y gastric bypass, none of the patients had aggravation of disease, while 96% showed improvement or complete resolution of the symptoms.

A significant problem of Roux-en-Y gastric bypass is that there is no access to the remnant stomach either by conventional endoscopy or by contrast radiography. There are case reports published on peptic ulcer bleed after Roux-en-Y gastric bypass surgery where an emergency laparotomy was required to identify the bleed and achieve haemostasis. Although only a few cases have been reported, it could be a serious/fatal complication.

Upper GI endoscopy before bariatric surgery can help in identifying a number of conditions such as ulcers, oesophagitis, hiatus hernia and tumours, especially in asymptomatic patients. A prospective study done shows that in severely obese patients, asymptomatic gastro-oesophageal reflux is more common than symptomatic gastro-oesophageal reflux. The literature shows a significant overlap between irritable bowel syndrome and gastro-oesophageal reflux disease, emphasizing the need to do a routine pre-operative upper GI endoscopy. It also helps in identifying patients with H. pylori infection as it can cause gastro-duodenal lesions such as gastric or duodenal ulcer, gastritis, gastric carcinoma and gastric mucosa-associated lymphoid tissue B-cell lymphoma. Studies have shown that abnormalities found in upper GI endoscopy done prior to bariatric surgery were otherwise asymptomatic, and the endoscopic findings resulted in a change in the surgical approach or a delay in the surgery. In a case report, a pre-operative endoscopy revealed focal intestinal metaplasia, a risk factor for gastric cancer, necessitating remnant gastrectomy with a laparoscopic Roux-en-Y gastric bypass. However, few studies report that pre-operative upper GI endoscopy does not change the surgical approach.

Through this article, we want to highlight the importance of routine upper GI endoscopy before surgery even in...
asymptomatic patients, as it may lead to alteration of the surgical approach in few patients. In patients with *H. pylori* infection, eradication is desirable to prevent associated/potential complications.

**CONCLUSION**

We are of the opinion that upper GI endoscopy should be performed before bariatric surgery, even in asymptomatic patients, to avoid post-operative surprise/complication.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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