

## Internal Hernia after Roux-En –Y Gastric Bypass Surgery

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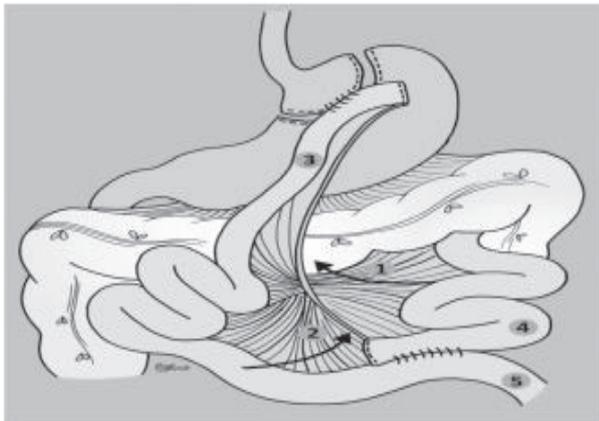
**An internal hernia is one well-known complication post-Roux-en-y gastric bypass surgery because a mesenteric defect is created after the bypass and marked reduction in the omental fat; the latter contribute further to the defect formation. Therefore, it is preventable if the defect is closed at the time of the initial surgery primarily to avoid such complication.**

**We present a forty-five-year-old female not known to have any chronic medical illness presented 24 months after laparoscopic Roux-en-Y gastric bypass in 2015 with abdominal pain for two months duration. A CT Scan with Intravenous and oral contrast revealed small bowel obstruction secondary to an internal hernia. Emergency laparoscopy was performed. The internal hernia was reduced and the mesenteric defect was closed with continuous endoscopic suturing. The patient had an uneventful recovery.**

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Roux and Y gastric-bypass is a bariatric procedure. Like any other surgical procedure associated with many complications including bleeding, rupture of the bypassed stomach, and an internal hernia, intermittent internal hernia, intussusceptions, adhesion and anastomotic stricture.

An internal hernia is a rare complication after laparoscopic Roux-en Y gastric bypass surgery. The underlying cause could be the mesenteric defects created after the bypass procedure, including space between the mesentery of the alimentary limb and the mesocolon (called Petersen space), space between the pancreaticobiliary limb and the common limb of the anastomotic limb, located behind the EEA-EnteroEnetric anastomosis and the third defect is present through the mesocolon when the alimentary limb passes retro-colically, see figure 1<sup>1</sup>.



**Figure 1: (1) Petersen's Space (2) The Mesojejunal Space (3) Alimentary Limb (4) Biliary Limb (5) Common Limb**

Because the defect is the main underlying cause for the development of the herniated bowel loops through these spaces, one possible preventive measures are the primary closure of the mesenteric defects at the time of the initial bypass procedure.

The aim of this report is to present a case of an internal hernia after laparoscopic Roux-en Y gastric bypass surgery.

### THE CASE

A forty-five-year-old female not known to have any chronic medical illness presented 24 months after laparoscopic Roux-en-Y gastric bypass in 2015 with abdominal pain for two months duration, maximum in the upper abdomen. The pain was on and off, dull in nature and no aggravating or relieving factors. Throughout the two months, several times, the patient was given intravenous fluids for hydration and analgesia with the impression of gastritis and being discharged home. On presentation, the pain was associated with vomiting (yellowish watery content) because the patient cannot tolerate food. The patient did not pass stool for 48 hours, only flatus on the day of the admission and associated fever. On physical examination, the patient was vitally stable, afebrile, pale and not jaundiced. The abdomen was soft, lax, with tenderness over the entire abdomen, maximum in the epigastric and the periumbilical region. Active bowel sounds, per-rectal examination revealed empty rectum.

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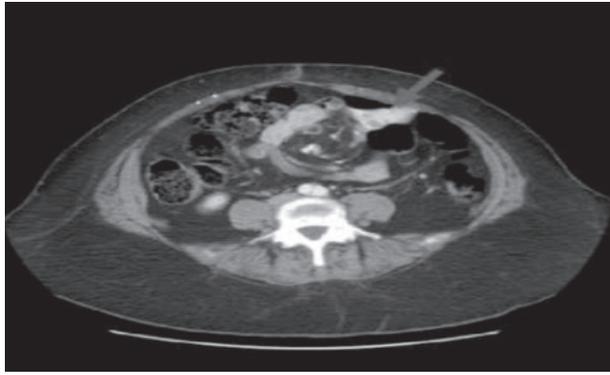


Figure 2: Swirl Sign of Internal Hernia

The patient had a history of laparoscopic cholecystectomy in 2008, laparoscopic gastric bypass in 2015, cesarean section and tubal ligation.

The investigation was within normal limits with no leukocytosis, normal serum and urinary amylase and midstream urinalysis. Abdominal X-ray did not reveal dilatation in the bowel or air-fluid level. A CT Scan with intravenous and oral contrast revealed small bowel obstruction secondary to an internal hernia.

Emergency diagnostic laparoscopy revealed an internal hernia with a mesenteric defect and big pouch behind the jejunojejunal anastomosis. Part of the viable small bowel loops was trapped inside this pouch. An internal hernia was reduced and the bowel was inspected from the jejunojejunal anastomosis to the terminal ileum revealing totally viable healthy looking bowel. Closure of the mesenteric defect was performed with continuous endoscopic suturing.

The patient had an uneventful recovery and was discharged two days postoperatively in stable condition. The patient was symptom-free during the follow-up after few weeks.

## DISCUSSION

Internal hernia is a rare cause of small bowel obstruction; it is defined as the protrusion of small bowel through mesenteric defect inside the peritoneal cavity. The cause could be traumatic, iatrogenic or a congenital mesenteric defect.

Internal hernia post gastric bypass surgery is a rare complication. During the procedure, the stomach is bypassed and jejunojejunal anastomosis is performed resulting in multiple mesenteric openings which may act as potential space for the development of internal hernia.

Internal hernia might present at different intervals one or more months post the bypass surgery because of the marked reduction in weight and the mesenteric defect. CT scan of the abdomen with IV and oral contrast could reveal Swirl sign. CT will not show abnormalities in 26% of the patients with an internal herniation; therefore, the threshold of performing a laparoscopy should be very low<sup>2</sup>.

Recently, the usual practice is to close all potential defects which will reduce the incidence of developing an internal hernia. Despite this, the risk would remain because of the reduction of the omental fat which might contribute to the defect recreation<sup>3</sup>.

Primary closure of the mesenteric defects seems to reduce the incidence of internal hernia<sup>4,5</sup>. Suturing the mesentery could result in hematomas causing circulation impairment to the intestine. Closure of the mesenteric defects could result in increased rate of obstruction at the entero-anastomosis caused by adhesion or rotation of the anastomosis<sup>6</sup>.

## CONCLUSION

**Early recognition and repair of internal hernia after laparoscopic Roux-en-Y gastric bypass is of paramount importance.**

**Our cases presented 24 months after laparoscopic Roux-en-Y gastric bypass. A CT Scan with intravenous and oral contrast revealed small bowel obstruction secondary to an internal hernia. The internal hernia was reduced and the mesenteric defect was closed with continuous endoscopic suturing. The patient had an uneventful recovery.**

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