

# Perforated Duodenal Ulcer Following Roux-en-Y Gastric Bypass (RYGB): Case Report and Literature Review

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## ABSTRACT

Roux-en-Y gastric bypass (RYGB) is a common bariatric procedure. one of its rare complication seen is a perforated duodenal ulcer. It's a surgical emergency which is often misdiagnosed. The cause of such the complication still unclear. we present one patient with perforated duodenal ulcer and distant history of (RYGB) who was diagnosed initially as a case of acute cholecystitis. The surgical management was discussed literature review as well.

**Key word:** Perforated Duodenal, Ulcer, Case Report.

## INTRODUCTION

A perforated duodenal ulcer disease post (RYGB) is very rare especially after exclusion of the stomach<sup>1</sup> and one of its rare complications seen is a perforated duodenal ulcer<sup>1</sup> and it was found in the literature that over 100,000 cases post (RYGB)<sup>2</sup> only 21 cases were reported as perforated duodenal ulcer, so, diagnosis of perforated duodenal ulcer post (RYGB) is difficult and challenging due to unusual presentation.<sup>3,4</sup> It's a surgical emergency which is often misdiagnosed.<sup>1</sup> We will present a case which was diagnosed as perforated duodenal ulcer post (RYGB) and go through the surgical management for this case.

## CASE PRESENTATION

A 72-year-old male known case of diabetes mellitus, post (RYGB) due to morbid obesity 7 years ago, with a history of duodenal ulcer which been treated 30 years ago. His BMI pre (RYGB), BMI 39. His BMI after surgery 30. H.Pylori negative. The patient presented to the emergency room with 2 days history of acute onset RUQ pain. No history of radiating or shifting and no aggravating and relieving symptoms and associated with nausea but no vomiting. No change in bowel habits. History of NSAID uses due to osteoarthritis.

## Physical Examination

The abdominal showing RUQ tenderness and in admission positive Murphy sign.

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His weight was sixty-seven kilograms, and laboratory tests were significant for WBC was  $28.15 \times 10^3/uL$ , NEU was  $25.13 \times 10^3/uL$ , HGB was 7.0 g/dl, MCV 51.6 fL, MCH 13.7 pg, MCHC 26.5 g/dL, PLT  $957 \times 10^3/uL$ , sodium 128 mmol/L, amylase 32 U/L, lipase 53 U/L, INR 1.16 sec.

## Hospital Course

After admission first day patient developed to tachycardia, fever, low urine output, metabolic acidosis. Patient admitted as a case of acute calculator cholecystitis, patient during the night deteriorated and became acidotic and oliguric with increase urea and creatinine level.

Resuscitation done for him and patient received 2 unite of PRBCs, the patient was taken to OR on the same day. on side the or inpatient initially had a laparoscopic exploration given the preoperative diagnosis of acute cholecystitis but inside the findings were that the gallbladder appears morphologically normal and bile fluid collection found on the right side of the abdomen so conversion to laparotomy done and the findings were perforations in the duodenum in the junction of the first and second part of the duodenum. Repair using omental patch done with PDS sutures 2.0 and drain kept in the surgical field and the gallbladder was removed. Patient shifted after OR to ICU intubated and ventilated and uncompensated metabolic acidosis.

On day three postoperative: Patient extubated.

On day four postoperative: patient developed bile out the pot from the drain more than 500 ml per day.

On day six postoperatively: patient taken for OR for exploratory laparotomy and amount of bile was found inside the abdomen. Kocherization of duodenum was done. There was a perforation in the 2nd part of duodenum at the same site of previous duodenal. Repair with

two-layer PDS done.

On 12-6-2017: Patient extubated. Patient shifted to the floor.

On 14-6-2017: Then patient still desatting and metabolic acidosis. So then patient shifted again to the ICU.

On 19-6-2017: The patient discharged to the floor with ... on 8-7-2017.

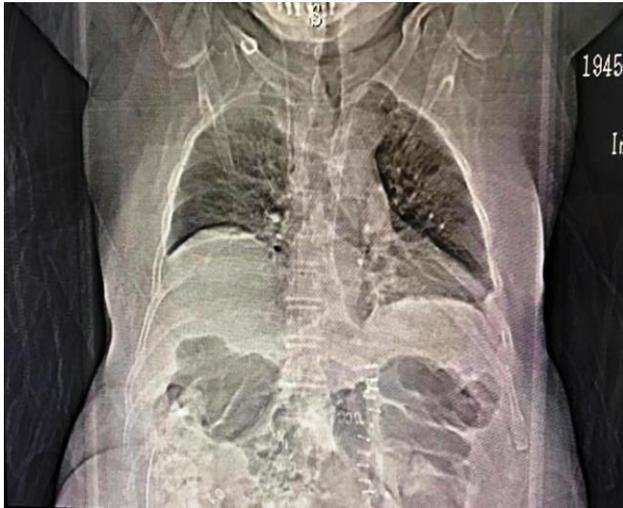


Fig 1: Chest and abdominal radiographs



Fig 2: X-ray shows a loop of bowel located above the liver.

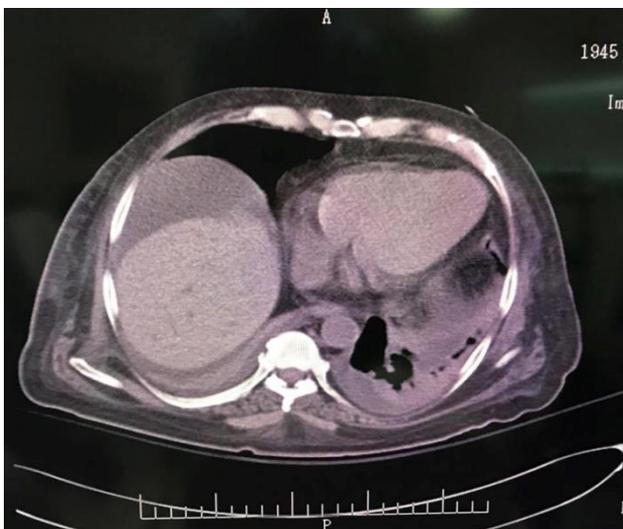


Fig 3: CT showing collection around the liver without pneumoperitoneum.

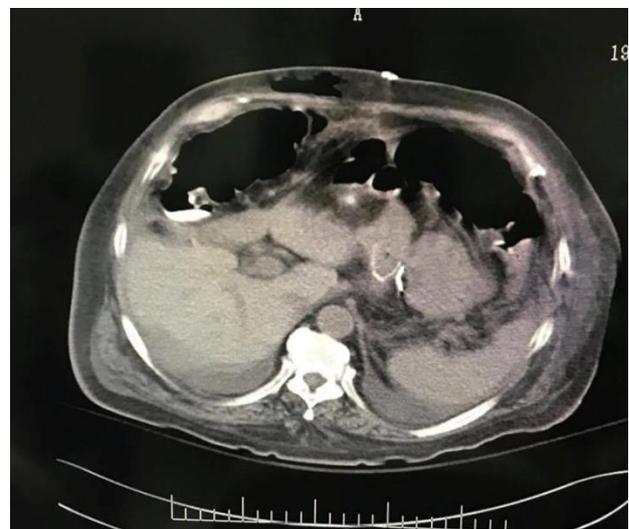


Fig 4: A computed tomography scan showed fluid in Morison pouch.



Fig 5: Duodenal stump secured by omental patch.



Fig 6: Resection at the junction of the pylorus and the 1st part of the duodenum.



**Fig 7: Resection at the junction of the pylorus and the 1st part of the duodenum.**

## DISCUSSION

It is well known that diagnosis of perforated duodenal ulcer post (RYGB) is very difficult because the usual presentation is different and it is not showing the classical symptoms and signs of the perforated duodenum and even the radiological imaging like erect chest X-Ray will not show air under the diaphragm. The computed tomography also is also will not show pneumoperitoneum but it is important to proceed for CT scan to roll out other post gastric bypass complications such as an internal hernia. Acute abdomen post gastric bypass should be taken seriously and if the patient is stable he should be investigated but if the patient unstable or showing any sign of peritonitis laparotomy or diagnostic laparoscopy is needed in those cases.

The pathophysiology of the perforated duodenal post (RYGB) is referred to either H. pylori and NSAIDs or alcohol consumption. The H. pylori as it is known that it weakening the mucosal protective barriers. In our case-patient was on regular NSAIDs for osteoarthritis. Another mechanism of injury has been suggested by Bjorkman<sup>5</sup>, he assumes that acid produced in the excluded stomach is not neutralized by food as would usually happen in normal anatomy. Moreover, the delay in the release of pancreatic bicarbonate will expose the mucosa to gastric acid for a long time; also bile reflux can lead to mucosal injury which leads to not buffering acid.<sup>1</sup>

The general management of perforated duodenal ulcer post (RYGB) is surgical either open or laparoscopic both are well established and known, either starting by the closing of the defect or definitive treatment by resection of the remnant part of the stomach. Resection of the remnant part of the stomach will reduce the acid production. Also, it going to help in the future if the patient develops bleeding gastric ulcer due to the difficulty to treatment except surgically. There are several complications can be expected post-surgery such as wound infection, thromboembolic

manifestations, bleeding plus specific complications like duodenal stump leak and bleeding, vitamin B 12 deficiency and bacterial overgrowth.

## CONCLUSION

Perforated duodenal ulcer post (RYGB) is still difficult and not easy to be diagnosed by imaging since there is no classical signs for duodenal perforated ulcer as in normal anatomy patient So, a high index of suspicion is warranted<sup>1</sup>, radiological imaging can help like CT scan showing free fluid or fat stranding around the area of the perforation, surgical exploration is the mainstay of treatment for acute abdomen post (RYGB). The treatment is either closure of the perforation site or definitive surgery with gastric remnant resection.

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