

## Acute Abdominal Pain after Laparoscopic Roux-en-Y Gastric Bypass, What Are We Missing?

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### Abstract

Unintentional ingestion of foreign bodies like fish bones is a common condition in medical practice. Fortunately, most of the fish bones pass through the gastrointestinal tract without causing any complications. However, intestinal perforations by these sharp or pointed fish bones can lead to high morbidity and mortality. Accidental ingestion of fish bones after gastric bypass is rarer, mostly due to patient adjustment in how they manage their food and their eating behavior.

Intestinal perforations by foreign bodies should be managed promptly by a surgeon, however preoperative diagnose is usually difficult since most of the clinical symptoms are usually nonspecific and can mimic other surgical conditions, this is particularly important after gastric bypass when serious complications could potentially occur in a misdiagnosis.

We report a case of a 30-year-old patient with past medical history of gastric bypass, who visited the emergency room with abdominal pain and tenderness. Even though laboratory exams and images were normal, the pain persisted so an exploratory laparoscopy was performed and it revealed a small bowel perforation at the biliary digestive junction due to a fish bone.

The fish bone was successfully extracted during laparoscopy, and the patient completely recovered.

**Keywords:** Fish Bone, Intestinal Perforation, Gastric Bypass

### Introduction

The management of abdominal pain after LRYGP is difficult because of the diverse pathologies that may cause it. It's estimated that anywhere from 15 to 30% of patients will visit the emergency room within 3 years after gastric bypass [1].

Ingestion of foreign bodies like fish bones is a common condition in medical practice [1] however patients with gastric bypass, tend to form new strategies and modify their food selection, during their postoperative period, making them more cautious about what food they eat [2].

Abdominal pain as a result of an unintentional swallowed sharp foreign objects is rare, [3] most of them are eliminated with the stools without causing any problems [1]. However, bowel perforation, abdominal abscess, fistulas and gastrointestinal bleeding have been described [3]. Persons with LRYGP, are especially at risk since the presence of angulations at the biliary-digestive anastomosis can increase the risk of perforation by sharp objects [4]. Diagnosis may be difficult and delayed, even in a detailed history since the ingestion of fish bones may not be mentioned in the history of the patient [3].

We present a case of a 30-year-old female with a history of LRYGP, she presented to the emergency room with abdominal pain and tenderness. CT was not conclusive so laparoscopy was decided. A fish bone penetrating the bowel wall was discovered and was successfully resolved.

Patient underwent full recovery and on follow up controls, patient is doing well.

### Case report

Patient is a 30-year-old female with past medical history of hysterectomy and a gastric bypass reconstructed with a Roux-en-Y, she was on follow up control with the

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bariatric surgery team and she reported satisfactory weight loss with no significant problems during her six months postoperative course until this admission.

She presented to the emergency department with nausea and lower intermittent abdominal pain. There were no accompanying symptoms such as fever or diarrhea. Clinical examination showed an otherwise healthy young patient with diffuse abdominal tenderness. Her vitals and blood work were normal. A contrast-enhanced abdominal computed tomography (CT) (Figure 1A and 1B) was performed and didn't reveal any pneumoperitoneum or free fluid. Our differential diagnosis included; an internal hernia, bowel perforation, gastric ulcer, and gastroenteritis. Since pain continued to persist and muscle guarding appeared, surgery was decided.

At laparoscopy, inspection of the abdomen showed multiples adhesions near the biliary digestive junction, after lysis of these adhesions, (Figure 2A and supplementary video) we discovered a penetrating fish bone, measuring 4 x 0.3 cm at the biliary-digestive junction (Figure 2B), the fish bone punctured out of the biliary loop and caused the adhesions between these 2 limbs. No internal hernias were discovered and the intestine was normal except for the perforation, also there was no stenosis or necrosis at the site of perforation. With these findings, intraoperative decision making was straightforward, the fish bone was successfully extracted without any damage to the rest of the bowel, and the exit point on the bowel wall was closed with intracorporeal suture (Figure 2C) with a polypropylene suture.

With this surgical findings, a retrospective history was taken



Figure 1A: Contrast-CT, without any hernias, collections or liquids.



Figure 1B: Contrast-CT, apparently normal without any pneumoperitoneum.



Figure 2A: Laparoscopy, showing multiples adhesions.



Figure 2B: Fish bone perforating the bowel wall.

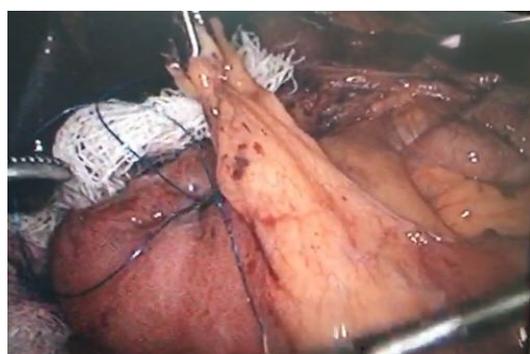


Figure 2C: Suture on the exit point on the bowel wall.

and she revealed to us, that she ate home cooked fish 2 days before the onset of symptoms.

After surgery patient fully recovered, tolerating full diet on the second postoperative day. Without any pain, she was discharged a day after.

One month after surgery, on follow up controls she was completely asymptomatic and could tolerate full diet.

## Discussion

In recent years bariatric surgery has gained acceptance as a primary treatment for morbid obesity, and, with it, associated complications have risen [5], LRYGB is one of the most commonly performed bariatric procedures [6], and it's not free of risks

[5-7]. Leaks, obstruction, stricture, ulcers and internal hernias are among the most common complications. Internal hernias are particularly dangerous because of its high morbidity and mortality, not only because of its difficult diagnosis but because the symptoms can be quite vague. They also tend to occur more frequently between 6 and 24 months postoperative [5] and can happen even with the closure of the potential hernia sites mostly due to the reduction of intraabdominal fat after bariatric surgery [6]. In our patient clinical examination revealed abdominal tenderness, laboratory exams and images were normal, and internal hernia was our most likely preoperative presumption, which decided surgery.

CT is usually diagnostic however radiologic signs of internal herniation may be missed, as up to 26% of patients with internal hernias don't show any abnormalities [6]. The magnitudes of intestinal strangulations from delayed diagnosis can lead to possible fatal consequences [5].

In our case, the risks of suspected strangulation outweighed surgery and laparoscopy was decided even with non-conclusive CT.

After LRYGB, previous dietary practices are immediately abandoned to accommodate surgery, [2] bariatric patients usually must make dramatic dietary changes and are more concerned about what they eat [8]. Yet, foreign bodies ingestion can occur, as it was demonstrated in our case.

Inadvertent ingestions of foreign bodies occur quite frequently, it is often noted in children and elderly individuals [3,9]. While these individuals could be at a higher risk for foreign bodies ingestion, most of the cases occur in otherwise healthy patients, and many of these patients don't recall eating foreign bodies or fish before surgery [3,9]. As it happened in our case and various reports.

Fish bones, chicken bones, and toothpicks are responsible for up to 85% of intestinal perforation [9,10], yet other materials like pens, nails, clippers, and stents have been reported [3], and if unrecognized, can cause significant morbidity and mortality [4]. Clinically unsuspected accidental foreign object bodies ingestion can be difficult to diagnose based solely on clinical signs [9]. Plain abdominal films could help locating free air or metallic objects [4,10]. CT is usually the most used tool, however, it's not always accurate, since only 19% of diagnoses can be made preoperatively [9] as it depends on the radiographic density of the foreign body [11]. In our case images were not conclusive, and didn't reveal the fish bone.

Most of the foreign bodies as fish bones migrate through the digestive tract and usually pass within a week [10], without causing any damage [4], as the intestine has a remarkable ability to protect itself against perforation [12]. However, one percent of these bodies cause bowel perforation [13].

When fish bones penetrate the bowel mucosa, they erode it, causing bacterial dissemination, perforation, extramural abscesses, peritonitis and even death [4,9].

Symptoms of abdominal perforation by foreign objects are usually vague and can mimic other causes of abdominal pain [13]. Ureteric colic, inflammatory masses, fistulas, acute and chronic intestinal obstruction, and gastroenteritis [4,3,10,12], are among

the most common differential diagnosis, yet some patients may remain asymptomatic [3]. In our patient, abdominal pain was present from the beginning.

Perforation can occur in any segment of the gastrointestinal tract [3], and the most common sites are the distal ileum, cecum, and left colon due to their angulation. LRYGB patients are at greater risk since the presence of two anastomoses and angulations increase the risk of perforation [4]. In our case, at laparoscopy, the fish bone punctured out of the biliary loop. Management of fish perforation may be endoscopic, laparoscopic [13,14] or by open surgery. Suture of the defect and resection are among the surgical options [4,9]. Although intestinal perforation may occur infrequently after foreign bodies ingestion, this complication must always be considered [13].

## Conclusions

Bariatric patients have other surgical diseases that must be considered when faced with acute abdominal pain. An appropriate history, a physical examination, and complementary tests will identify the underlying process of the disease, and define the proper treatment.

As the bariatric population increases, the rare causes of intestinal perforation in this group of patients, such as ingestion of fishbone, will also increase.

## Abbreviations

LRYGP: Laparoscopic Roux-en-Y gastric bypass

CT: Computed tomography

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## Disclosures

None

## Conflicts of interest

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