Robotic Approach to Laparoscopic Bariatric Surgery: Omega Double Loop Reduction in Internal Herniation

Stacey M. Knowles[1], MS, Hanna Almoaswes[1], BS, Michael Cook[1], MD, FACS, FASMBS
[1]*Louisiana State University Health Sciences Center, New Orleans, LA*

Abstract

The traditional laparoscopic Roux-en-Y gastric bypass(RNY-GB) for morbid obesity is complicated by the development of internal herniation (IH) at a reported incidence of 1-5%. Robotic approaches utilize the omega-double-loop gastric bypass (ODL-GB) method that consists of raising loops of bowel to the gastric pouch and biliopancreatic limb for each respective anastomosis. The aim of this study is to evaluate the incidence of IH after transitioning from the traditional laparoscopic RNY-RB to the laparoscopic ODL-GB approach.

Obesity was declared an epidemic by the world health organization (WHO) in 1997. According to the world obesity atlas 2023 report, 38% of the global population are currently either overweight or obese. Within the United States, 78% of adults are estimated to be overweight or obese. Recent data reflective of the current state of the obesity epidemic has shown obesity rates in adults in high-income populations as well as children and adolescents in economically advanced countries has begun to plateau since the 2000s. However, in low-income countries and globally overall, the trend has been an increase in obesity mostly driven by the steep increase in obesity in low-income populations. Additionally, middle-income countries are also experiencing a rise in rates of severe obesity. Even within those high-income populations, severe obesity is expected to double its prevalence from 10-20% between 2020 and 2035. All this to say, it is still a pertinent, worrisome problem that is afflicting the majority of the US population and only projected to worsen.

In addition to lifestyle modifications, bariatric surgery has been an option for the patient population with either BMI equal to or greater than 40 or a BMI greater than 35 with additional obesity-related comorbidities such as type 2 diabetes mellitus or hypertension. Studies have shown in cases of severe obesity (BMI 40+), weight loss surgery has been shown to not only be effective in keeping the weight off but improving the obesity–related comorbidities as well as a decrease in all-cause mortality at 5 years and up to 10 years following the procedure.

While there are multiple types of bariatric surgery, today we will be focusing on the most commonly performed weight loss procedure in the United States, the Roux En Y Gastric bypass. The Roux en Y Gastric bypass surgery involves creating a small pouch from the stomach and connecting the pouch directly to the small intestines, creating the “roux limb”. This results in 2 anastomoses, the gastrojejunostomy and the jejunojejunostomy. This procedure can be performed laparoscopically or robotically. One of the most common post-op Roux en Y Gastric bypass complications are internal hernias. The incidence rate is highest up to 2 years after surgery. The clinical presentation is variable from mild abdominal pain to life-threatening small bowel strangulation. Initial techniques to decrease the rate of hernias included closing the mesenteric defects created as a result of mobilizing the roux limb and using an antecolic approach. While this did provide significant improvement in the post–operation complication rate, the risk of internal herniation remains high. The aim of this study is to evaluate the

incidence of internal hernias after transitioning from the traditional laparoscopic Roux en Y Gastric bypass to the robotic approach utilizing the omega-double-loop gastric bypass approach.

Supporting Author Information:

Stacey M. Knowles – Surgery PGY1 at LSUHSC New Orleans
Hannah Almoaswes – Current MS4 at LSUHSC New Orleans
Michael Cook, MD – Assistant Professor of Clinical Surgery at LSU Department of Surgery
Medical Director, UMCNO Center for Weight Loss and Bariatric Surgery
Associate Program Director, LSU/Pennington Bariatric Surgery Fellowship