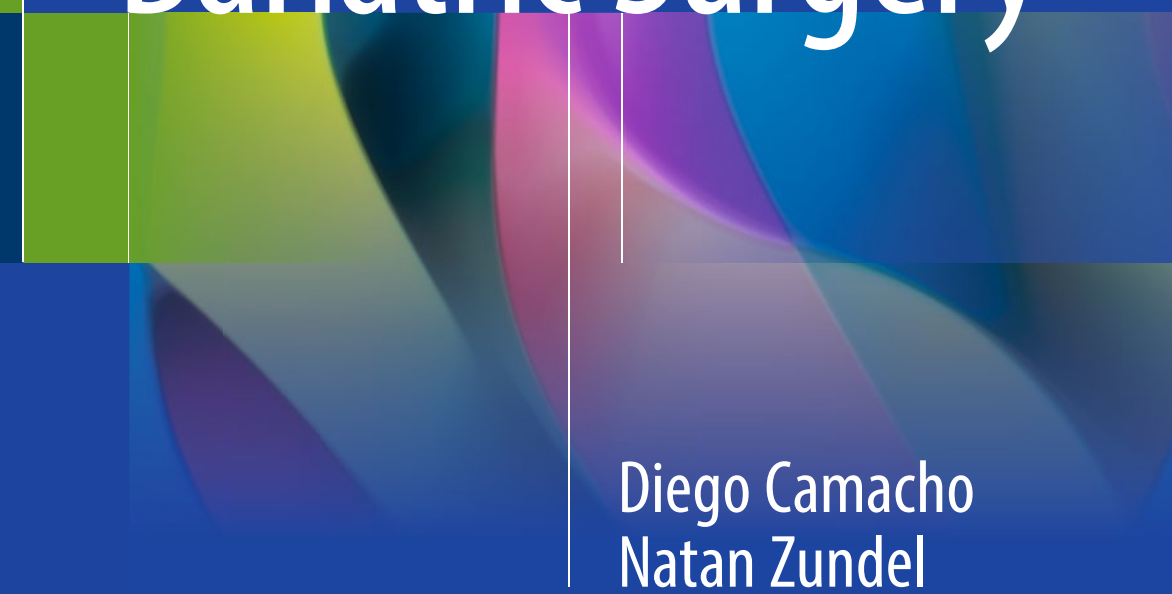
Complications in Bariatric Surgery



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Introduction

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Diego Camacho and Dina Podolsky

Introduction

Over the past 60 years, the field of bariatric surgery has experienced an unprecedented growth in popularity as it has proven to be the most effective treatment of obesity and its associated comorbidities. It is estimated that nearly 200,000 bariatric procedures are performed annually in this country, a volume that may be satisfying less than 1% of the population's need [1, 2]. As weight loss surgery is being offered to increasingly complex patients with ever-rising BMIs, the impetus remains on the surgical community to provide this service in a safe and responsible manner. This textbook aims to define frequently encountered postoperative complications following weight loss surgery (WLS), as well as the current standards of care for treating them.

Over the past several decades, multiple factors have come together to decrease morbidity and mortality following WLS. From a technical standpoint, the widespread adoption of laparoscopy has greatly increased the safety profile of WLS; currently, over 90% of all bariatric surgery procedures are completed using minimally invasive techniques [3]. As the popularity of WLS increased, both the American College of Surgeons (ACS) and the American Society Metabolic and Bariatric Surgery (ASMBS) helped define standards and benchmarks for safe practice at high-volume, accredited hospitals, known as Centers of Excellence (COE) [4, 5]. The majority of bariatric surgery procedures are now being done at COEs, with various studies confirming that rates of postoperative complications are lower at accredited centers as compared to community hospitals [1, 6, 7]. Furthermore,

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bariatric surgery outcomes are now being monitored via the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP), which grants accreditation to these centers and tracks outcomes on a national level [1].

According to the most recent ASBMS data, sleeve gastrectomy is the most frequently performed bariatric procedure (54%), followed by gastric bypass (23%), revisional surgery (14%), and gastric banding (6%) [8]. All-cause mortality following bariatric surgery, regardless of procedure, has been estimated to be between 0.05% and 2% [9]. Postoperative complications can be divided by both pathophysiology and temporality. Short-term complications, defined as occurring within 30 days of the index procedure, have been estimated to occur at a rate of 4.8–10% [1, 10]. Early complications include, but are not limited to, leaks, bleeding, dvt/pe, cardiovascular and respiratory complications, and death [4]. Maintaining a high degree of suspicion in the postoperative period is imperative, as the majority of these complications can be managed effectively when diagnosed early. In less stable patients, frequently surgical re-exploration is required, a fact that any surgeon engaging in WLS should be prepared for.

Late postoperative complications, or those occurring after 30 days following the index procedure, include anastomotic stenosis, gallstone formation, bowel obstruction, intussusception, marginal ulcers, and fistula formation [4]. Some of these issues, such as stenosis or biliary disease, can be worked up in an outpatient setting and treated with either medication or endoscopic techniques. Others, such as complications from marginal ulcers and bowel obstructions, may present as surgical emergencies. Internal hernias, the most feared complication following RYGB, occur between 2.5% and 11.7% of the time, depending on technique used [11]. The use of advanced imaging techniques such as CT scan combined with a high index of suspicion can help turn these once deadly events into manageable complications. In many instances, surgical re-exploration remains the standard of care.

The purpose of this textbook is to provide a comprehensive and up-to-date reference for the management of complications stemming from bariatric surgery procedures, written by and for bariatric surgeons. Each chapter delves into common problems associated with the most frequently performed bariatric procedures, spanning the spectrum from acute to chronic presentations with a focus on both diagnosis and treatment. Our hope is that the words written in this book will provide guidance to those taking care of patients in need, as well as the tools necessary for the next generation of bariatric surgeons to continue this great public service in a safe and effective manner.

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2 Metabolic Complications, Nutritional Deficiencies, and Medication Management Following Metabolic Surgery

Christopher D. Still, Peter Benotti, Daniela Hangan, and Fahad Zubair

Introduction

Surgical procedures for weight management have been a part of the standard of care for patients with severe obesity since 1991. The rise in the prevalence of severe obesity and significant improvements in surgical quality and outcomes have enhanced patient and physician awareness of the health-protective and health-restorative benefits of surgical treatment for obesity and a rapid increase in the number of surgical weight loss procedures performed. The emergence of multidisciplinary care for patients with severe obesity in collaboration with metabolic surgeons has led to improved perioperative patient management and has contributed to the discovery of metabolic and nutritional complications which will be discussed in detail in this chapter.

Current Operative Procedures

The laparoscopic Roux-en-Y gastric bypass (Fig. 2.1) involves the creation of a small (15–20 ml) gastric reservoir, which is separated from the remaining stomach. The gastric reservoir is connected by a small, calibrated anastomosis to a

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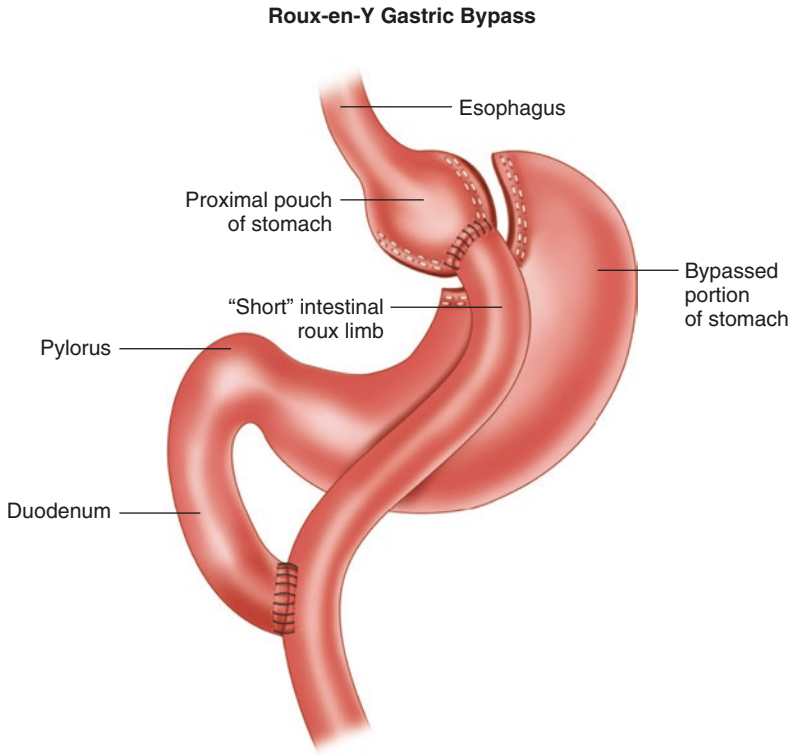

Fig. 2.1 Roux-en-Y gastric bypass

Roux-en-Y limb of jejunum, thus bypassing the duodenum and proximal jejunum. Until this past year, this has been the most popular procedure performed in the USA.

The sleeve gastrectomy (Fig. 2.2) is the most recent surgical procedure to be introduced and consists of a 70% vertical resection of the stomach which leaves a longitudinal narrow tubular gastric reservoir. The flow of nutrients via the duodenum and small intestine remains intact. This is now the most commonly performed procedure for surgical weight management in the USA.

The biliopancreatic diversion with duodenal switch (Fig. 2.3) is a more complex procedure involving a reduction in gastric capacity and a more extreme duodenal and small intestinal bypass leaving a relatively short common small intestinal channel for food absorption.

The simplest and safest procedure is the laparoscopic placement of an adjustable gastric band (Fig. 2.4). The adjustable band is a silicone collar with an inflatable component, which encircles the upper stomach and is connected to a subcutaneous port for adjustment of band size. Because of suboptimal results in long-term follow-up, this procedure has declined in popularity (Fig. 2.5).

In general, as the complexity of the surgical foregut anatomic alterations increase, the weight loss efficacy and durability increase, as does the potential for long-term

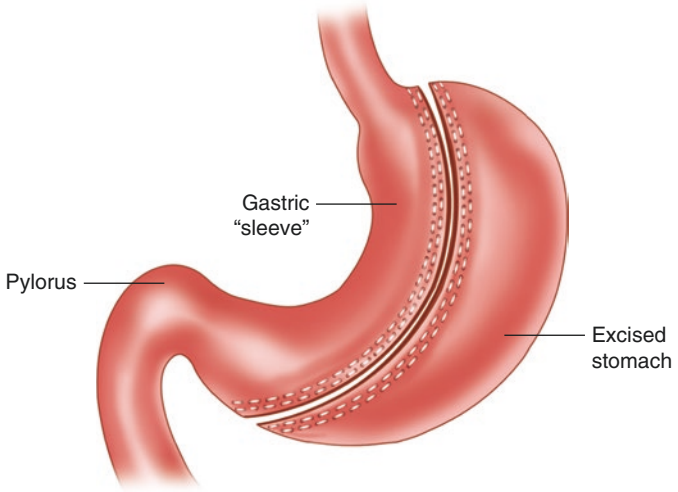

Fig. 2.2 Sleeve gastrectomy

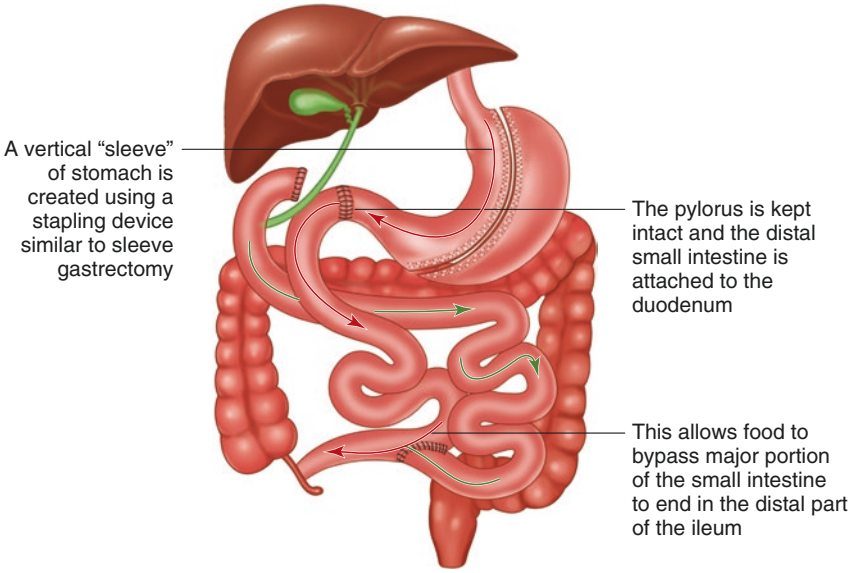

Fig. 2.3 Biliopancreatic diversion with duodenal switch

metabolic improvement. However, the more complex procedures are also associated with an increased risk of long-term nutrition and metabolic complications, which mandate close long-term follow-up in a multidisciplinary setting involving expertise in bariatric medicine, clinical nutrition, behavioral science, and metabolic surgery. Another potentially very important consideration in procedure selection is the