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The ASMBS Textbook of Bariatric Surgery

Volume 1: Bariatric Surgery

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Foreword

What an honor to be asked to provide the introduction for the first textbook of metabolic and bariatric surgery to be authored by the ASMBS. We've come a long way since the first bariatric procedures in the 1950s. In the earliest days of the jejunoileal bypass with high mortality in elective procedures, malnutrition, and a poor understanding of the physiology of the procedure, surgeons who worked in this field often experienced justified criticism from their peers. As procedures expanded and surgeons began to do gastroplasty, including horizontal single row stapled, Gomez gastroplasty, and the vertical banded gastroplasty (VBG) and Roux-en-Y gastric bypass (RYGB), our surgical colleagues remained steadfast in their lack of support. In my own experience, I was blocked access to patients referred by pulmonary medicine specialists to treat obesity hypoventilation and sleep apnea, and had difficulty getting gut peptides analyzed in a prominent surgical laboratory after glucose tolerance tests comparing VBG to RYBP. It was Tom O'Dorisio, an internist at Ohio State University, who provided the assays for the first study, which showed a marked rise of GLP-1 (called enteroglucagon at that time) after RYGB versus no change after VBG.

Gradually, after the careful research by surgical leaders such as Ed Mason, MD; Ken Printon, MD; Walter Pories, MD; Bob Brolin, MD; John Halverson, MD; Alex Macgregor, MD; Henry Buchwald, MD; John Linner, MD; Pat O'Leary, MD; George Cowan, MD; Merv Deitel, MD; myself, and others, we were able to establish bariatric surgery as a field of surgery that could help desperately obese patients with multiple obesity-related diseases. This has markedly improved their quality of life and—as we have subsequently learned from Ted Adams et al.'s Utah study and Lars Sjöström et al.'s Swedish Obesity Study (SOS)—has increased their life expectancy. Numerous paired studies were done in the 1980s showing the dramatic improvement in type 2 diabetes mellitus (T2DM), sleep apnea, obesity hypoventilation, venous stasis disease, gastroesophageal reflux disease (GERD), hypertension, degenerative joint disease, pseudotumor cerebri, hepatic steatosis and cirrhosis, from before to after surgically induced weight loss. Clearly, obesity affects every organ in the body—and surgically induced weight loss reverses or improves all of these obesity related comorbidities.

These studies paved the way for the National Institutes of Health (NIH) in 1991 to support bariatric surgery for those whose body mass index (BMI) was $\geq$40 kg/m^2 without co-morbidities and $\geq$35 kg/m^2 with co-morbidities. Without this support, insurance coverage for bariatric surgery would have been discontinued. Dr. John Kral was extremely helpful with this endeavor. The next crisis occurred in 2004 when Centers for Medicare and Medicaid Services (CMS) decided to convene a Medicare Coverage Advisory Committee (MCAC) to determine whether CMS should cover bariatric surgery. The late Dr. Ross Brechner, a retired ophthalmologist, who was a CMS employee, was very helpful by presenting to this Committee a very positive review of the risks and benefits of bariatric surgery (subsequently published in *Surgery for Obesity and Related Diseases*). A number of our colleagues also made strong presentations when this was evaluated. In 2006, CMS published a favorable National Coverage Decision (NCD) supporting bariatric surgery according to the previously NIH-approved criteria. Had this not been approved, it would have been extremely difficult to obtain insurance coverage from private insurers.

Although adjustable gastric banding had been developed by Drs. Kuzmak, Belechiew and O'Brien for a number of years, the next major advance in our field was the application of laparoscopy for complex procedures, such as the RYGB and the BPD w/wo DS. This revolution was begun in 1993 by Dr. Alan Wittgrove and published in 1994. Over the years there has been a progressive increase in the percentage of bariatric procedures performed laparoscopically, reaching more than 90 % currently.

Despite the support from both the NIH and CMS, it still was (and continues to be) a problem obtaining insurance coverage for many suffering individuals. Our colleagues (and society in general) would say that all these patients had to do was eat less—and they should be able to control what they do. However, numerous studies have shown that the efficacy of dietary weight loss programs, with or without pharmaceuticals, were highly ineffective for the vast majority of severely obese patients. Although there are a few people throughout the United States who have been able to effectively lose a lot of weight and maintain that weight loss for many years (and I have met a number of these individuals), they are clearly in the minority—perhaps less than 5 %. Recent long-term data from the Look Ahead trial has shown that even though patients may lose and maintain small amounts of weight loss with a modest improvement of HbA1c, fitness, and decreased waist circumference, the overall cardiovascular mortality is the same. Years of trying to educate our colleagues and the public about the benefits of weight loss through surgery have been frustrated by the underlying prejudice and discrimination against this group of patients and the surgeons and integrated health teams that manage their disease.

The doubts of our colleagues were balanced against early retrospective studies creating an environment in which funding for higher-level data was forthcoming. This included randomized, prospective, controlled (RCT) studies evaluating various bariatric procedures (e.g., VBG versus RYGB) that provided academic credibility. After years of trying to obtain funding from NIH for studies related to bariatric surgery, thanks in large part to the help of Dr. Walter Pories and Dr. Bruce Wolfe, the Longitudinal Study of Bariatric Surgery (LABS) was initiated. Publications from this study in the *New England Journal of Medicine* and *SOARD* provided further scientific support. Studies by Drs. Schauer and Rubino and the international congresses for the treatment of type 2 diabetes mellitus have led our surgical colleagues and diabetologists to accept us as legitimate. We no longer were the "black sheep" of surgery. The ultimate expression of this was when the quality programs of the ASMBS and ACS joined last year to present one unified program of accreditation and quality improvement.

Yet we are still struggling with this issue: Is what we do truly of value? The data demonstrate it clearly is, so why don't all patients have access to surgical therapy for their disease? There never has been obstruction by insurers to operate on patients who smoked and had lung, pancreatic or bladder cancer, or bleb reduction for chronic obstructive pulmonary disease (COPD) or coronary artery bypass for heart disease from the lack of exercise, smoking or improper eating choices. It is highly probable that bariatric surgery has provided many, many more quality adjusted life years (QALY) than all of the cancer or coronary operations combined. In fact, bariatric surgery has been shown to significantly decrease cancer mortality. Do these companies really provide insurance for "their patients" or are they primarily interested in this year's "bottom line," since the benefits of bariatric surgery may take several years to provide a significant return on investment (ROI)?

Newer operations came upon the scene: LAGB, Scopinaro's biliopancreatic diversion (BPD), BPD with duodenal switch (DS), sleeve gastrectomy (SG) as a stand-alone procedure and, more recently, gastric plication. We evolved from simply the ASBS to the ASMBS, the American Society for Metabolic and Bariatric Surgery, as it became more clear how profoundly beneficial bariatric surgery and, in particular, RYGB and BPD with or without DS, or DS alone were for the remission of T2DM. Increasingly these procedures provide a window to understand the physiology of metabolism, hunger and satiety, the pathophysiology of obesity and the mechanisms of action of our procedures. Partnering with our medical and basic sciences colleagues, we are rapidly increasing our understanding of these mechanisms.

The procedures are also shedding light on the physiology and pathophysiology of various diseases. For instance, after gastric bypass beta cell hyperplasia can occur, usually with resolution of T2DM but occasionally with postoperative hypoglycemia, which can be difficult to manage.

Finally, the ASMBS journal, *Surgery for Obesity and Related Diseases*, has become a highly regarded surgical journal. The 2012 Impact Factor, a measurement of journal quality, was 4.1, which placed it 8th of 198 surgical journals. The only major surgical journals that were ranked above *SOARD* were *Annals of Surgery*, the *British Journal of Surgery* and, just barely, the *Journal of the American College of Surgeons*. This is certainly a credit to our field and is dramatic evidence of the regard in which bariatric surgery is held.

The 43 chapters in this textbook provide a comprehensive review of bariatric surgery—from preoperative assessment, anesthetic management, various surgical procedures, and postoperative care. This information should be of great value for surgeons and primary care physicians, internists from numerous specialties in endocrinology, cardiology, pulmonology, hepatology, orthopedics, plastic surgery, psychiatry, nephrology and neurology, as well as anesthesiologists, registered dieticians, bariatric surgical nurses, and patients.

Our field has progressed from a few surgeons pioneering a narrow and controversial path to thousands of surgeons and integrated health teams from around the world providing care for patients afflicted with severe obesity.

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Preface

The American Society for Metabolic and Bariatric Surgery (ASMBS) is comprised of a dynamic group of surgeons, physicians, and integrated health members, all of whom are constantly challenged to improve the care of obese patients. As acknowledged in a landmark 2013 decision by the American Medical Association, clinically severe obesity is a disease process that is associated with multiple life-threatening conditions that may lead to premature death. As repeatedly and consistently demonstrated by literature evidence, bariatric surgery has shown to be the only long-lasting effective treatment for obesity and its related comorbidities.

Due to the development of videoscopic instrumentation, critical care, modern stapling devices, and laparoscopy, the field of bariatric surgery has changed tremendously over that past three decades since ASMBS's founding in 1983. Until 1998, only 10,000 to 12,000 bariatric operations were being performed yearly in the United States, with high rates of morbidity and mortality. This number of operations has increased exponentially over the subsequent years and eventually peaked at more than 140,000 operations in 2004. This growth directly correlates with the development and transition from open to laparoscopic Roux-en-Y gastric bypass. Additionally in 2001, following the US Food and Drug Administration's approval of the laparoscopic adjustable gastric band, the number of bariatric procedures experienced a significant increase. By 2005, the number of laparoscopic Roux-en-Y gastric bypass cases being performed in the US surpassed the number of open Roux-en-Y gastric bypass cases. Most recently, the laparoscopic sleeve gastrectomy has proven to be an additional effective bariatric surgical option, with a risk and benefit profile between that of laparoscopic gastric bypass and laparoscopic adjustable gastric banding.

Along with those utilization changes, technological advancement, surgical technique and quality improvement all required our society to respond to and accommodate the educational needs of our members. This dynamic field of surgery will continue to grow with enhanced understanding of the mechanisms of action of the procedures we can offer and the development of innovative and complementary treatment of obesity. As the needs of the society and its members evolve, the ASMBS is committed to continuing to serve the educational needs of our members and expanding public education. Our annual meeting is the primary venue to disseminate new information and educational materials to clinical professionals. To enhance and augment these educational offerings, we are excited to present this comprehensive ASMBS textbook of bariatric surgery. The development of this book reflects the commitment of the ASMBS leadership's goal of providing the most up-to-date education for our members.

Designed to be the *most* inclusive textbook on the topic of bariatric surgery and integrated health services to date, this textbook comprises two volumes. The first volume is devoted to the science and practices of bariatric surgery and is divided into five parts detailing basic considerations, including bariatric surgery's history and evolution, the pathophysiology of obesity, mechanisms of action, primary operations and management of complications, revision of primary bariatric surgery for failure of weight loss, the role of metabolic surgery, and specific considerations such as the role of endoscopy in bariatric surgery and coding and reimbursement. The second volume focuses on the medical, psychological, and nutritional management of the bariatric patients.

Each chapter in this book was written by a world-renowned expert in their field. A comprehensive text that adheres to the highest standards is a major undertaking, and we, the editors, are grateful and indebted to every author who has devoted time and effort to research the most important evidence-based information and report it in a concise and easy-to-read chapter. We believe that this *ASMBS Textbook of Bariatric Surgery* is the leading source of scientific information for surgeons, physicians, residents, students, and integrated health members today and for years to come.

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