

GAINING EXPERIENCE

Training and Credentialing for the Performance of Laparoscopic Bariatric Surgery

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INTRODUCTION

Obesity is a global epidemic that currently affects over 300 million adults worldwide with over one third of them living in developing nations.¹ It is estimated that 15% of all overweight individuals have a body mass index (BMI=weight kg/height m²) greater than 35. The National Institutes of Health reported^{2,3} in 1991 that any patient with a BMI>35 with a comorbid condition related to obesity or a BMI>40 without a comorbid condition is an eligible candidate for surgery. Compared with surgical therapy, no diet or medication can offer morbidly obese individuals the opportunity for successful long-term weight loss.

Therefore, because of the persistent rise in the incidence of obesity, the demand will increase for adequately trained surgeons with the skill and expertise needed to treat these patients⁴ (Table 1). The aim of this paper is to review the materials, methods, and means available for surgeons interested in performing weight-loss operations to gain the needed experience to perform these complex procedures.

The first decisional steps that any surgeon must take include the following: (1) analyze the population and determine the need for bariatric surgical services; (2) determine whether he or she can be committed to life-long follow-up and care of these

patients; (3) develop an infrastructure and team to support the surgical services, including trained medical assistants, primary care physicians, anesthesiologists, pulmonologists, psychologists, and other specialists as needed; and (4) decide whether he or she will perform these operations through a traditional laparotomy or using advanced laparoscopic techniques. The University of Pittsburgh's program emphasizes that any surgeon entering this field should take the necessary measures to learn the laparoscopic approach. When compared with traditional laparotomy, the laparoscopic approach offers the patient the benefit of less perioperative morbidity and mortality and this translates into less recovery time for the patient.

Among the specific areas where less perioperative morbidity can be demonstrated with laparoscopic surgery in general are preserved pulmonary function with fewer pulmonary complications;⁵ shorter episodes of postoperative ileus;⁶ fewer wound-related complications, such as hematomas, seromas, infections, hernias, and dehiscences;⁷ and a reduction in postoperative adhesion formation.⁸

Other longer term postoperative benefits from laparoscopic Roux-en-Y gastric bypass (LRYGBP)



Advanced video technology allows surgeons at the University of Pittsburgh to demonstrate techniques across the institution or around the world.

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Table 1. Total Number of Roux-en-Y Gastric Bypasses Performed in the USA*	
1998	25000
1999	23000
2000	38000

*Data from a sampling of US hospitals by the National Center for Health Statistics. Shows the number of patients discharged with the International Classification of Disease (ICD-9-CM) classification 44.31 (High gastric bypass) and 44.39 (Other gastroenterostomy and gastroenterostomy without gastrectomy). The latest year for which numbers are available is 2000.

include lower rates of wound infection, lower rates of incisional hernia formation, and higher quality of life scores for the first 6 months postoperatively.^{9,10} The end result is that laparoscopic patients return to their activities of daily living much faster than those patients who undergo traditional laparotomy.¹⁰ Although these reports are impressive in demonstrating the benefits of laparoscopy over laparotomy, it is the individual surgeon who must make the choice as to which operative approach is best suited for his or her patients and his or her abilities.

LEARNING CURVES

Whether laparoscopy or laparotomy is ultimately chosen, each surgeon should be aware that a definite learning curve is associated with these procedures. The concept of a procedure-specific "learning curve" first began in the late 1980s when higher rates of common bile duct injury were noticed with the first laparoscopic cholecystectomies done by experienced surgeons.¹¹⁻¹³ As new laparoscopic procedures have been developed, almost every known procedure has demonstrated specific learning curves.¹⁴⁻²⁰ Operations for obesity are no different as each one has its own learning curve.

Laparoscopic adjustable gastric banding (LAGB) is currently regarded as the simplest of the operations performed for morbid obesity. Only 1 FDA-

approved device is available in the United States, the LAP-BAND®, (BioEnterics, Carpinteria, CA); however, several others are available worldwide. These devices, despite their being somewhat easier to insert surgically, nonetheless require accrual expertise. Both Chevallier et al²¹ and O'Brien et al²² noted a significant decrease in their conversion rates to open procedures as their experience increased. Chevallier et al²¹ had 8 conversions in his first 50 procedures and 4 in his last 350. Similarly, O'Brien et al²² had 5 conversions to open in his first 72 cases and none in his last 230 patients. O'Brien et al²² also demonstrate that their rate of band prolapse decreased from 22% in their first 100 patients to 2.5% in their last 200 patients. The most convincing demonstration of the LAGB learning curve was made by Favretti et al.²³ In their first 100 patients, the major complication rate (complications requiring reoperation) was 20%. In the second 100 patients, the major complication rate was only 6%. In the next 300 patients, the major complication rate was 3.0%. In the last 300 patients, the major complication rate was zero with 97% follow-up. Despite the relative ease of LAGB insertion, achieving good placement that does not result in band slippage, malposition, or port-site complications may be far more difficult.

The most popular laparoscopic weight-loss surgical procedure performed in the United States today is the Roux-en-Y gastric bypass. This procedure is technically challenging because it requires laparoscopic skills not generally utilized in routine general surgical practices. These advanced skills include intracorporeal suturing, stapling, and 2-hand dissection techniques. The size of these obese patients also heightens the complexity of the procedure by decreasing the intraabdominal space and increasing the intraabdominal visceral fat. Patient size makes standard instrumentation inadequate in many instances. Additionally, the presence of hepatomegaly and the high incidence of previous abdominal surgery present major technical barriers to completion of the procedure laparoscopically. Many of the patients require numerous concomitant procedures, such as ventral or incisional hernia

repair and cholecystectomy, that require adjunctive modalities that must also be mastered.

In a prior study conducted at the University of Pittsburgh,²⁴ it was noted that wound infections, anastomotic leaks, operative times, and complications all decreased significantly after 100 patients. These results were mirrored by other authors²⁵⁻²⁸ who also found a steady decrease in operative time and complications after operative experience extended beyond 100 cases.

SKILL ACQUISITION

In light of these results, it becomes obvious that many surgeons in practice today and residents in training may not have the technical expertise or proper training to care for these complex patients.^{29,30} The question then becomes what is the most effective way to acquire these skill sets?

Rosser and colleagues³¹ have described methods for reliably, reproducibly, and objectively evaluating surgical skill sets irrespective of prior experience. Once deficits are found, they can often be overcome with a 2-day course that reinforces objective performance criteria and monitors progress.³² The surgeon's progress can then be compared with that of thousands of other surgeons who have previously taken the course.

In addition to skill acquisition, it is often necessary to obtain procedural-specific educational training. This is especially true for bariatric surgery as several different procedures are done around the world as well as several different variations of those procedures, each with its own side effects and unique short- and long-term complications. An example of such a course is the *University of Pittsburgh Annual Update on Morbid Obesity*.³³ This course and others like it offer in a didactic format an extensive review of the various aspects of bariatric surgery. They are usually taught by world-renowned faculty and give the practitioner a succinct overview of most topics related to bariatric surgery. They last from 2 to 4 days.

These courses should not be confused with the workshop concept that was popularized in 1977. A

workshop involves procedural-specific information in combination with proven animal models in teaching laparoscopic surgical methods.³⁴ This usually includes an 8-hour didactic lecture, half a day of animal lab, and half a day observing live surgery. These courses are tailored for surgeons already in practice who wish to begin practicing bariatric surgery and who already have some laparoscopic skills. These courses have been found highly effective at the University of Pittsburgh for a large segment of surgeons beginning bariatric surgical practices. However, these courses, in and of themselves, do not represent adequate training.

CREDENTIALING

In the United States, each individual hospital or health system governing board is responsible for granting clinical privileges at that hospital or health system.³⁵ The health system then forms credentialing committees that review the board certification, training, and experience of each individual applicant. Typically, board certification or board eligibility implies that the applicant is competent to perform procedures he or she was trained in. However, as seen in Table 2, most residents who are leaving residency today have not performed sufficient numbers of cases to be considered proficient in open or laparoscopic bariatric surgery. This situation also applies to surgeons who are already in practice and who wish to start doing bariatric surgery. Problems like these have led most credentialing committees to adopt criteria published by specialty boards or specialty societies.³⁶ For bariatric surgery in the United States, the American Society of Bariatric Surgeons (ASBS) has taken the lead in publishing guidelines for obtaining privileges in bariatric surgery (The Society of American Gastrointestinal Endoscopic Surgeon [SAGES] co-authored the statement on the granting of laparoscopic privileges in bariatric surgery).³⁷

The ASBS suggests that every surgeon interested in beginning a bariatric program should attend a bariatric training course of at least 2 days, which includes both didactic teaching and a hands-on labo-

	Mean No of Cases	Mean No Chief Year	No for Competency
1999-2000			
Bariatric	5.0	2.8	35
Nissen	5.4	3.7	26
Colectomy	1.8	1.1	29
2000-2001			
Bariatric	6.7	3.8	35
Nissen	6.2	3.9	26
Colectomy	2.3	1.4	29
2001-2002			
Bariatric	9.5	5.6	35
Nissen	5.9	3.3	26
Colectomy	2.1	1.9	29

*The number of bariatric cases the average graduating chief surgical resident does during his fifth year and the total number done during his residency. Bariatric cases are not broken down into open versus laparoscopic at this time by the Residency Review Commission. These numbers represent total bariatric cases done in comparison to other advanced laparoscopic cases. Column 3 is the number of cases experts have said is required for competency in bariatric surgery.³⁶

ratory. Additionally, ASBS suggests that the hospitals require documentation of 3 proctored cases in which the assistant is a fully trained bariatric surgeon, and the completion of an approved preceptorship program. These are the same provisional requirements for both open and laparoscopic surgeons.

The statement also suggests that perioperative outcomes should be reviewed after the first 10 independent laparotomy cases or 15 laparoscopic cases. After 6 months, the surgeon's outcome data should be compared with published outcome benchmarks in terms of patient safety and results.

Hospitals should also require the surgeon to show that his or her bariatric program has provisions for ancillary services, such as specialized nursing care, dietary instruction, counseling, support groups, exercise training, and psychological assistance. Documentation should be available indicating that a program is in place to prevent, monitor, and manage short- and long-term complications. In addition, a system should be in place to provide follow-up for all patients, with the expectation that at least 50% of the patients who

receive restrictive procedures and 75% of those with malabsorptive operations will be seen on a regular basis for at least 5 years.

Just as institutions can expect performance requirements of the surgeon, so too can the surgeon expect performance requirements of the hospital. The American College of Surgeons has provided guidelines for facilities wishing to perform bariatric surgery.³⁸ These include specialized operating suites with tables to accommodate patients weighing up to 750 pounds, appropriate retractors, staplers, and longer instruments. Anesthesiologists should be specially trained in bariatric surgery and regularly assigned to bariatric procedures as members of the bariatric surgery team. Hospital staff with regular contact with bariatric patients should be educated on the special needs of the morbidly obese, which include intensive respiratory care regimens, assisting with ambulation, the recognition of potential problems with intravascular volume, cardiac, diabetic, and vascular conditions, and the use of special beds, chairs, and commodes. All facilities should conform to standards mandated by the

Joint Commission on Accreditation of Health Care Organizations.

FELLOWSHIP TRAINING

These extensive demands placed on surgeons have led to the concept of the “mini-fellowship.” These training programs in bariatric surgery last from 1 to 6 weeks and involve all phases of bariatric education with extensive operative and outpatient clinical experience. Several such programs are now being offered throughout the United States (The University of Pittsburgh, Tufts, University of Texas Southwestern, and Mount Sinai are some of the institutions that offer these fellowships). These typically allow the surgeon enough experience to satisfy the privileging bodies of institutions, such as hospitals and societies like ASBS.³⁷

After completing their surgical training, residents who wish to make laparoscopic bariatric surgery their specialty often seek additional training by doing a laparoscopic fellowship. Over the last few years, laparoscopic fellowships have increased in number from 20 to 90.^{39,40} Most of these fellowships offer extensive training in laparoscopic bariatric surgery with some being “primarily bariatric.” The rise in laparoscopic fellowship opportunities coincides with the explosion in the prevalence of obesity, which in turn, has created an acute demand in the community. Many of these fellowships are 2 years in length with the first year devoted to research. This fact reflects the growing complexity of the field of bariatric surgery as well as the recognition that obesity is a condition of multiorgan dysfunction. However, for purely clinical experience, it is generally agreed that 1 year is sufficient to master the techniques needed to perform these operations. It is hoped, although not yet proven, that this new cadre of fellowship-trained surgeons will result in lower complication rates, improved outcomes, and new research that enriches the surgical treatment of obesity.

MALPRACTICE INSURANCE

One immediate benefit of fellowship training relates to malpractice insurance premiums. Prior to 2000, bariatric surgery was not recognized as a surgical subspecialty by the insurance industry. This effectively meant that any general surgeon could perform bariatric surgery without being placed in a different category than other general surgeons who did not perform bariatric surgery. However, the insurance industry realized that bariatric surgery was unique, not for the number of claims per se, but for the potential of huge awards to relatively few patients (ie, most bariatric surgical patients are young and therefore have many productive years left, thus raising the possibility of higher damage awards). This has caused the average bariatric surgeon's premiums to be 40% to 100% higher than that of comparable general surgeons nationwide. It has also resulted in fewer companies offering bariatric surgical malpractice insurance (currently, only 2 exist, down from 5 two years ago). These companies noticed that most of the claims brought against physicians were against surgeons who performed relatively few bariatric procedures yearly. These findings have been incorporated into a pricing structure for underwriting bariatric surgeons. Typically, 5 things can lower the rates that a typical bariatric surgeon will pay. The first is the skill of the surgeon. A surgeon's practice must demonstrate low complication rates. The lower the complication, the lower the premium the surgeon pays. This also relates to the number of procedures a surgeon does: higher volume surgeons have lower rates than lower volume surgeons. The second criterion is the number of claims against the surgeon both in terms of volume and in terms of awards. The third is the surgeon's educational background in performing bariatric surgery, meaning a surgeon who has 10 cases proctored by an experienced surgeon will pay a much higher rate to begin doing bariatric surgery than a surgeon who has completed a laparoscopic bariatric fellowship. The fourth is whether the surgeon is a member of ASBS. The insurance industry feels that membership demonstrates that the surgeon is committed to lifelong

The mini-fellowship may be the ideal compromise for surgeons in practice who wish to begin a bariatric surgical practice.

education in the nuances associated with the surgical treatment of obesity. The last is whether the surgeon is practicing in a center of excellence, meaning that the surgeon has the support staff to adequately follow these patients and provide them with appropriate lifelong counseling. These could make a big difference in the costs of a typical reoperation policy that currently runs between \$75 to \$110 000 a year (\$1 million per occurrence, \$3 million aggregate per year with a \$10 000 deductible per occurrence) (Personal communication from K. Keenan of John Burnham Associates about bariatric surgical malpractice rates in the United States, April 4, 2003).

CONCLUSION

Bariatric surgery is the fastest growing field of general surgery. A definite learning curve exists for bariatric surgery in general and for laparoscopic surgery in particular. To learn the skills needed to help this population, several methods have been applied. General didactic meetings alone are insufficient to begin a bariatric surgical practice. Workshops alone may be beneficial for some surgeons. The mini-fellowship may be the ideal compromise for surgeons in practice who wish to begin a bariatric surgical practice. However, a 1-year fellowship may be the ideal training modality for those surgeons who may not have obtained sufficient skill in advanced laparoscopy during their residency. This situation applies to the majority of candidates who seek additional training in laparoscopic bariatric surgery.

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JOURNAL WATCH: Surg Endosc

The Effect of Using Laparoscopic Instruments on Muscle Activation Patterns During Minimally Invasive Surgical Training Procedures • Quick NE, Gillette JC, Shapiro R, Adrales GL, Gerlach D, Park AE. *Surg Endosc*(2003)17:462-465. Using surface electromyography electrodes, muscle activity was recorded while performing a targeted grasp and release, a simulated bowel inspection, and a cable-tying exercise each with three different inline finger-looped graspers.

JOURNAL WATCH: JSLS

Port-site Closure: A New Problem, An Old Device • Di Lorenzo N, Coscarella G, Liroi F, Gaspari A. *JSLS*(2002)6:181-183. The Deschamps needle is a rigid, noncutting instrument that has been present in surgical suites for many years. The authors report successful use of the Deschamps needle for closure of laparoscopic port-site defects.