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Surgery for Obesity and Related Diseases 2 (2006) 613–616

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Laparoscopic bariatric surgery can be safe for treatment of morbid obesity in patients older than 60 years

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Received May 25, 2006; revised September 14, 2006; accepted September 18, 2006

Abstract

Background: Previous reports have questioned the safety of bariatric surgery in older patients. The aim of this study was to quantify the perioperative morbidity and mortality of older patients undergoing laparoscopic bariatric procedures at our institution.

Methods: A retrospective chart review of all laparoscopic bariatric procedures performed from February 1999 to September 2005 was performed to identify patients at Mount Sinai Medical Center who were older than 60 years at surgery.

Results: We identified 55 patients (36 women and 19 men). The mean age was 61.5 years (range 60–70), and the mean body mass index was 46.2 kg/m^2 (range 38.1–61.0). Of the 55 patients, 33 (60%) had undergone laparoscopic Roux-en-Y gastric bypass, 9 (16%) laparoscopic gastric banding, 7 (13%) laparoscopic biliopancreatic diversion with duodenal switch, 3 (5.5%) laparoscopic revisional surgery, and 3 (5.5%) laparoscopic sleeve gastrectomy. The mean operative time was 2.3 hours (range 1.1–5.5). No patients required conversion to open surgery, and no perioperative mortality occurred within 30 days. The morbidity rate was 7.3% (n = 4). One patient developed an anastomotic bleed that was treated conservatively, and another patient developed an empyema that was successfully drained with a chest tube. That patient also developed a urinary tract infection, and another patient had a wound infection. The mean length of stay was 2.8 days (range 1–14).

Conclusions: In a carefully selected patient population in a medical center with appropriate experience, laparoscopic bariatric surgery can be performed safely with low morbidity and mortality in the elderly population.

Keywords: Laparoscopy; Bariatric surgery; Elderly; Morbidity; Mortality

Morbid obesity is a growing problem in the United States, currently affecting 8–12 million people. As the incidence of morbid obesity increases across all age groups, more patients will seek bariatric surgery to achieve and maintain weight loss. In 2004, an estimated 140,000 people underwent bariatric surgery in the United States [1].

It has been estimated that 25% of the American population 60–69 years old are obese [2]. In the past, patients in this age group have not routinely been offered bariatric surgery, even though the estimated life expectancy of a nonobese person at age 60 years is 21.6 years and at age 70 is 14.4 years [3]. If it could be shown that bariatric surgery is safe, older patients could realize the reduction in comorbidity, enhancement in quality of life, and, potentially, the increased life expectancy that bariatric surgery can provide [4]. Therefore, we believe that age, by itself, should not be considered an absolute contraindication to bariatric surgery.

Although several reports have been published regard-

Presented at the 23rd Annual Meeting of the American Society of Bariatric Surgery, June 26 to July 1, 2006, Moscone West Convention Center, San Francisco, California

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1550-7289/06/$ – see front matter
doi:10.1016/j.soard.2006.09.009

ing the efficacy and safety of bariatric surgery in older patients [5–10], concern remains regarding the operative morbidity and mortality in this specific population. In particular, the 2005 report by Flum et al. [11] demonstrated a greater than expected morbidity and mortality rate in Medicare patients and was influential in changing the public perception of the safety of bariatric surgery. These data, and others, contributed to the Center for Medicare and Medicaid Services 2005 decision to modify Medicare's policy regarding bariatric surgery such that only certified Centers of Excellence would be permitted to perform surgery on Medicare patients.

The aim of our study was to evaluate the postoperative morbidity and mortality for laparoscopic bariatric surgery in patients >60 years old at our institution. This study was not a longitudinal evaluation of the elderly cohort but rather measured the perioperative complication and mortality rates for this elderly bariatric population.

Methods

After obtaining full institutional review board approval, a retrospective chart review of all laparoscopic bariatric procedures performed at Mount Sinai Medical Center in patients >60 years from February 1999 to September 2005 was performed. The data collected included patient demographics, body mass index (BMI), procedure type, medical insurance type, co-morbid diseases, and perioperative (30-day) morbidity and mortality.

All operative procedures were performed by 5 board-certified surgeons assisted by laparoscopic surgery fellows in training. All bariatric surgeons maintained a surgical volume of >50 cases annually. The decision to perform surgery was determined by the fulfillment of the criteria described by the consensus development panel of the National Institutes of Health [12]. The procedures performed included laparoscopic gastric bypass, laparoscopic duodenal switch, laparoscopic sleeve gastrectomy, laparoscopic adjustable gastric band, and laparoscopic revisional surgery.

All patients were counseled extensively regarding the risks and benefits of each procedure. A joint decision was made by the surgeon and patient to select the procedure with the best perceived risk/benefit ratio.

All patients underwent an extensive preoperative bariatric evaluation. Upper endoscopy was performed on all patients including biopsy to check for *Helicobacter pylori*; those with positive *H. pylori* test findings were treated with antibiotic therapy. Patients who had not undergone a colonoscopic evaluation within 5 years, or with recent changes in bowel habits, also underwent colonoscopy. Full preoperative blood work was performed, including nutritional parameters (albumin, iron panel, folate, B_{12} vitamin, 1,25-vitamin D, and intact parathyroid hormone level). A psychological evaluation was performed for all patients by a psychiatrist or psychologist familiar with bariatric surgery. All patients possessing a gallbladder underwent right upper quadrant abdominal ultrasonography. All patients with a history suggestive of sleep apnea underwent sleep testing and were treated with continuous positive airway pressure or bilevel positive airway pressure, if the test findings were positive. All patients underwent a basic cardiopulmonary evaluation with extended testing (exercise or chemical stress testing, with cardiac catheterization if positive) on the basis of the patient history and physical examination findings. Nonambulatory patients were excluded from surgery because of the possibility of a greater risk of deep vein thrombosis.

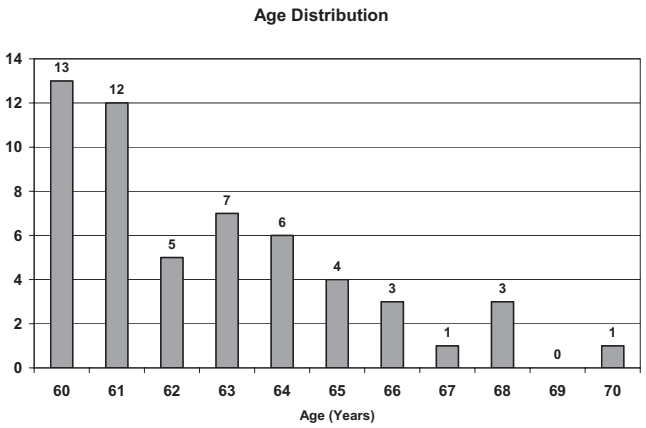

Fig. 1. Age distribution of study patients.

Patients who underwent gastric bypass and duodenal switch were followed in the office at 3 weeks and 3, 6, and 12 months after surgery and then annually thereafter. Patients undergoing laparoscopic adjustable gastric banding were seen in the office at 3 weeks postoperatively and had their first band adjustment at 6 weeks after surgery. They were followed monthly for 6 months and annually thereafter. All patients continued taking vitamin, iron, and calcium replacements, with the regimen dependent on the procedure type.

Results

From 1999 to 2005, 1279 bariatric procedures were performed at our institution. From this group, 55 patients >60 years old were identified (Fig. 1). Of the 55 patients, 36 were women (65.4%). The mean patient age was 61.5 years (range 60–70). The mean BMI was 46.2 kg/m^2 (range 38–61). Of the 55 patients, 40 (72%) had ≥3 obesity-related co-morbidities and 49 (89%) had an American Society of Anesthesia score of 3. The co-morbidities are enumerated in Table 1.

Nine patients (16%) were insured primarily by Medicare. Within this group, 1 patient had a postoperative complication (wound infection).

Table 1
Co-morbidities

Co-morbidity	n (%)
Hypertension	28 (50)
Hypercholesterolemia	24 (43)
Diabetes	19 (34)
Sleep apnea	18 (32)
GERD	8 (14)
Joint disease	7 (12)
Urinary stress incontinence	5 (9)

GERD = gastroesophageal reflux disease.

Of the 55 patients, 33 (60%) had undergone laparoscopic Roux-en-Y gastric bypass, 9 (16%) laparoscopic gastric banding, 7 (13%) laparoscopic biliopancreatic diversion with duodenal switch, 3 (5.5%) laparoscopic revisional surgery, and 3 (5.5%) had laparoscopic sleeve gastrectomy (Table 2). The mean estimated blood loss was 45 mL (range 10–350). The mean operative time was 2.3 hours (range 1.1–5.5). No procedures were converted to open surgery, and no perioperative mortality occurred within 30 days. The overall morbidity rate was 7.3% (n = 4). Complications included 1 anastomotic bleed that was treated conservatively, 1 empyema that was successfully drained with a chest tube, 1 urinary tract infection, and 1 wound infection (Table 2). The empyema was associated with a postoperative pneumonia. The mean length of stay was 2.8 days (range 1–14).

Discussion

The National Institutes of Health Consensus Conference on health implications of obesity in 1985 recognized patient age >50 years as a potential contraindication to bariatric surgery [12,13]. This decision was based on data from the 1970s reporting high complication rates and poor results [14].

Since the advent of the laparoscopic general surgery in the late 1980s, its use has increased progressively for the surgical management of morbid obesity. At present, laparoscopic bariatric procedures are commonly performed for patients considered to be at high risk of complications, specifically the super-super-obese and the elderly.

In the past several years, a number of investigators have published encouraging series of laparoscopic bariatric surgery in the elderly; most of these studies included patients undergoing a single procedure (Table 3). In 2004, Sugerman et al. [6] reported on a series of 80 patients >60 years predominantly treated with open gastric bypass (65%), with a perioperative morbidity and mortality rate of 8.7% and 0%, respectively. In their series, 22 patients (27%) underwent laparoscopic gastric bypass. Papasavas et al. [7] described a series of 71 obese patients >55 years treated with laparoscopic gastric bypass. No conversions to open surgery were needed, and the perioperative morbidity and mortality rate was 16.8% and 1.4%, respectively.

Promising results in the elderly population have also been reported with the use of the laparoscopic adjustable gastric band. Silecchia et al. [8] reported their experience in patients >55 years, without mortality and with minimal morbidity. In contrast, Flum et al. [11] described a 30-day mortality rate of 4.8% and a 90-day mortality rate of 6.9% in Medicare patients >65 years after bariatric surgery. In a subset analysis, however, a significantly lower early mortality rate of 1.1% was found in high-volume centers. That study did not distinguish between open and laparoscopic bariatric procedures, however.

Since 1999, 55 patients >60 years underwent laparoscopic bariatric surgery at our institution. This group represented 4.3% of the 1279 patients who underwent laparoscopic bariatric procedures at Mount Sinai during the period evaluated in this study. Although gastric bypass was the predominant operation, chosen for 60% of patients in this cohort, a full spectrum of laparoscopic bariatric procedures, including revisions, were represented.

All patients in our series were carefully selected after undergoing an extensive preoperative evaluation. Despite this selective screening process, 49% of our patients had an American Society of Anesthesia score of 3 and 72% had ≥3 obesity-related co-morbidities. We declined surgery in patients with an excessively high preoperative risk, including all nonambulatory or oxygen-dependent patients. No patients were excluded solely on the basis of their BMI. The mean BMI was 46.2 kg/m^2, and 2 patients were super-super-obese (BMI >60 kg/m^2).

The postoperative management of our elderly patients was identical to that for the younger patient population, with 2 major exceptions. For our bariatric patients <60 years old, postoperative contrast studies were obtained only for a clinical suspicion of leak. All patients ≥60 years old underwent a contrast swallow study on the first postoperative day. The patients <60 years were not routinely followed in a monitored setting (surgical intensive care unit or postanesthesia care unit) beyond the immediate postoperative period unless

Table 2
Procedure and complications

Procedure	n (%)	Complications (n)	Type
LRYGB	33 (60)	2	UGI bleeding, left empyema
LAGB	9 (16)	0	
LDS	7 (13)	1	Wound infection
LSG	3 (5.5)	0	
LRS	3 (5.5)	1	UTI
Total	55 (100)	4 (7.3)	

LRYGB = laparoscopic Roux-en-Y gastric bypass; UGI = upper gastrointestinal; LAGB = laparoscopic adjustable gastric banding; LDS = laparoscopic biliopancreatic diversion with duodenal switch; LSG = laparoscopic sleeve gastrectomy; LRS = laparoscopic revisional surgery; UTI = urinary tract infection.

Table 3
Published reports of laparoscopic bariatric surgery in the elderly

Investigator	Patients (n)	Procedure (n)	Age criterion (yr)	Early morbidity (%)	Early mortality (%)
Papasavas et al. [7], 2004	71	LRYGB	>55	15.4	1.4
Sosa et al. [5], 2004	23	LRYGB	>60	4.3	4.3
St. Peter et al. [16], 2004	20	LRYGB	>60	10	0
Silecchia et al. [8], 2005	24	LAGB	>55	0	0
Quebbeman et al. [10], 2005	27	LAGB (14) LRYGB (13)	>65	11	0
Present study	55	LRYGB (33) LDS (7) LSG (3) LAGB (9) LRS (3)	>60	7.3	0

Abbreviations as in Table 2.

they had sleep apnea or other cardiopulmonary co-morbidities. In practice, this represents approximately 30% of all bariatric patients in our practice. For the patients ≥60 years, a much larger percentage (72%) were monitored in the surgical intensive care unit or postanesthesia care unit for the initial 24 hours as a precaution. As with the younger patients, this decision was based on the presence of sleep apnea, the severity of other patient co-morbidities, and their cardiovascular status.

Our perioperative morbidity rate of 7.2% and our lack of mortality compare favorably with other series of elderly patients, as well those of patients <60 years [7–11,15]. Our patients had no anastomotic or gastrointestinal leaks, and only 1 patient required an invasive procedure after surgery (chest tube drainage of empyema).

We attribute our low morbidity rate in this group to the thorough preoperative evaluation and careful patient selection in a high-volume bariatric center staffed by experienced bariatric surgeons and ancillary staff. In their 2005 study, Flum et al. [11] found that experienced bariatric surgeons (>70 cases/yr) had a mortality rate of 1.1% versus 9% for less-experienced surgeons (<15 cases/yr). Although our study did not directly compare our results with elderly patients with those of a younger cohort, the data in this group of patients support the hypothesis of Flum et al. [11]. Our data further support the importance of laparoscopic bariatric surgical experience in this relatively more fragile subset of patients. The series we have presented adds to the small, but growing, body of data demonstrating that multiple laparoscopic bariatric operations may be done safely in the elderly population in a high-volume bariatric center [10].

Acknowledgments

We thank Drs. Mark Reiner and W. Barry Inabnet, III for allowing us to include their patients in our review.

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