

# Abdominal Lipectomy: A Prospective Outcomes Study

## Abstract

**Context/objective:** Abdominal lipectomy is performed by plastic surgeons to provide symptomatic, functional, and cosmetic relief for patients with excess abdominal tissue. However, there are few clinical outcome studies looking at the utility of this procedure: this is the first prospective outcomes study.

**Design:** Patients who underwent abdominal lipectomy at the Bellflower Medical Center during a 12-month period (September 2004 through September 2005) were prospectively studied. Data were collected at the preoperative visit, during surgery, and at the one-week, one-month, and six-month postoperative visits.

**Outcome measures:** Complications, both major (requiring rehospitalization or reoperation) and minor (requiring local outpatient care) were identified. To evaluate the impact on our patients' perceived health and well-being as well as body image, we administered the Short Form-36 Health Survey (SF-36) and the Multidimensional Body-Self Relations Questionnaire (MBSRQ) to participants at their preoperative and six-month postoperative visits.

**Results:** For the 72 patients enrolled in the study, the postoperative major complication rate was 5.6% (four patients) and the minor complication rate was 27.8% (20 patients); 98.3% were happy to have had the surgery. Two components of the MBSRQ, feelings of attractiveness and body area satisfaction, showed significant improvement ( $p < 0.0001$  for each) at six-month postoperative testing. No component of the SF-36 reached statistical significance between pre- and postoperative testing.

**Conclusion:** Because the complication rate for cosmetic abdominoplasty in our study did not significantly differ from rates reported for other studies, and given our data on perceived patient satisfaction and improvement in outcomes, our study validates the utility of abdominal lipectomy for patients with symptomatic lower abdominal pannus.

## Introduction

Abdominal lipectomy is performed by plastic surgeons to provide symptomatic, functional, and cosmetic relief for patients with excess abdominal tissue. The excess abdominal pannus may be the result of significant weight loss or may be due to obesity. Abdominal lipectomy is different from a cosmetic abdominoplasty in that there is minimal or no abdominal wall undermining and, unless there is a ventral hernia, no abdominal muscle plication is performed. Additionally, the skin excess over the hips is not addressed, which may leave the patient with significant excess in these areas after surgery. There is concern over the utility of this procedure, with some plastic surgeons advocating for the more extensive abdominoplasty/body lift procedures for these patients and others in favor of this more limited procedure.

The patient population undergoing this procedure is heterogeneous. Some patients are morbidly obese and have never lost any significant amount of weight, whereas others have lost a large amount of weight but by body mass index (BMI) are still considered obese. Still other patients are no longer obese because of weight loss due to either prior bariatric surgery or dietary changes and exercise. Comorbidities also are varied.

The increasing prevalence of obesity in the US, coupled with the increasing availability of bariatric surgery, may lead to a dramatic increase in the demand for abdominal lipectomy. These patients have a significant emotional investment in their weight loss and are vocal in demanding the surgery. However, neither the patient nor the plastic surgeon has any objective data on which to evaluate the overall effectiveness of this surgery, as

Nadine B Semer, MD, FACS  
Wan C Ho, MD, FRCS  
Sharrie Mills, MD, FACS  
BM Rajashekara, MD, FACS  
Jason R Taylor, MD  
Nguyen B Trung, MD  
Henry Young, MD  
Juris Kivuls, MD, FACS

**Nadine B Semer, MD, FACS**, is volunteer faculty at Harbor/UCLA Medical Center and a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: nadinesemer@yahoo.com.

**Wan C Ho, MD, FRCS**, is a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: wan.ho@kp.org.

**Sharrie Mills, MD, FACS**, is a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: sharrie.x.mills@kp.org.

**BM Rajashekara, MD, FACS**, is a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: bilugali.m.rajas@kp.org.

**Jason R Taylor, MD**, is a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: jason.r.taylor@kp.org.

**Nguyen B Trung, MD**, is a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: nguyen.b.trung@kp.org.

**Henry Young, MD**, is a Plastic Surgeon at the Downey Medical Center in Downey, CA. E-mail: henry.x.young@kp.org.

**Juris Kivuls, MD, FACS**, is a Plastic Surgeon at the Bellflower Medical Center in Bellflower, CA. E-mail: juris.x.kivuls@kp.org.

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no prospective outcomes studies have been reported.

Abdominal lipectomy, as is cosmetic abdominoplasty, is fraught with complications such as hematoma, infection, wound dehiscence, and skin loss. Reported complication rates range from 15% to 80%.<sup>1-9</sup> Despite these high rates, plastic surgeons believe they are helping their patients by performing this procedure, but are they?

This study was designed to prospectively measure outcomes of abdominal lipectomy performed by participating plastic surgeons of the Southern California Permanente Medical Group. We report here our evaluation of complication rates and patients' stated satisfaction with abdominal lipectomy. In addition, we analyze outcomes data to evaluate the effect of the procedure on quality of life.

### Patients and Methods

Approval for this study was obtained from the Southern California Permanente Institutional Review Board. All procedures were deemed reconstructive in nature and covered by the patients' medical insurance. Patients were enrolled in the study during a 12-month period and monitored postoperatively for 6 months.

For this study, abdominal lipectomy was essentially an excision of the redundant lower abdominal pannus. Need for repositioning of the umbilicus was determined on an individual basis. When this was deemed appropriate, on the basis of patient preference and body habitus, minimal undermining of the superior abdominal wall was done to facilitate repositioning of the umbilicus and minimize risk of ischemia to the superior abdominal skin flap. Unless a concomitant hernia repair was required, no tightening of the abdominal wall musculature was performed.

A secure Web site was created using the WorkMover (WorkMover Corporation, Sebastopol, CA) business processing software package, allowing all data collection to be done in real time, with data elements directly input into the database. During the study period, all English-

speaking patients scheduled to undergo abdominal lipectomy were offered the opportunity to participate in the study. Only English speakers were included to ensure that there were no biases introduced into the outcomes instruments because of translation difficulties. Data were collected during preoperative, surgical, one-week postoperative, one-month postoperative, and six-month postoperative visits, looking at reasons for surgery, prior surgery, comorbidities, surgical intervention, postoperative regimen, and complication rates. More than 100 data elements, excluding the questionnaires, were collected for each patient.

Two instruments were selected for health-related quality-of-life measures. The Short Form-36 Health Survey (SF-36) was selected because it is a well-validated tool "designed as a generic indicator of health status" that can "be used in conjunction with disease-specific measures as an outcome measure in clinical practice and research."<sup>10,11</sup> The Multidimensional Body-Self Relations Questionnaire (MBSRQ) was selected to evaluate measures of body image because body image is a dominant issue for patients undergoing abdominal lipectomy.<sup>12,13</sup> Both of these instruments have been used in plastic surgery outcomes studies for a variety of conditions.<sup>14-19</sup>

The SF-36 and the MBSRQ were administered at the preoperative visit to establish a baseline; it was administered again at the six-month postoperative visit to access outcomes.

### Results

The average age of the 72 patients enrolled in the study was 47 years (range, 21-68), and there was a preponderance of women (women: 63; men: 9). As previously mentioned, this was a heterogeneous group in terms of BMI (Table 1). Fifty-eight patients had significant weight loss before consultation for surgery (average weight loss, 42.6 kg; range, 13.6-98.4 kg). Of these patients, 14 lost weight through diet and exercise alone, and 44 patients lost weight because of

**Table 1. Preoperative patient characteristics with respect to BMI**

	BMI < 25 kg/m <sup>2</sup>	BMI 25-29 kg/m <sup>2</sup>	BMI 30-35 kg/m <sup>2</sup>	BMI >35 kg/m <sup>2</sup>
No prior weight loss (n = 14)	0	0	5	9
Prior weight loss after bariatric surgery (n = 44)	1	10	25	8
Prior weight loss after dietary changes/exercise alone (n = 14)	1	5	5	3
Total (n = 72)	2	15	35	20

BMI = body mass index.

prior bariatric surgery. The patients' preoperative BMI ranged from 22.8 to 53.2 kg/m<sup>2</sup> (average, 33.3 kg/m<sup>2</sup>). All patients were at a stable weight for a minimum of six months before surgery. The most common associated medical diagnoses were hypertension and depression (21 and 16 patients, respectively). There were no active smokers in the study group.

Abdominal lipectomy was done as a wedge excision alone in four patients. Minimal undermining of the superior abdominal wall skin to facilitate repositioning of the umbilicus was done in 68 patients. Twelve patients had planned concomitant ventral hernia repair. The specimen (the excised skin from the abdominal wall) weight averaged 3.5 kg (maximum weight, 10.3 kg). Average duration of surgery was 156 minutes (range, 70–240 minutes), and average estimated blood loss was approximately 200 mL (range, 75–750 mL). No intraoperative transfusions were required. All patients had at least two drains placed at the time of surgery (range, two to three). Lower-extremity compression pumps were used for all patients.

All patients were observed overnight in the hospital. Only four patients stayed in the hospital for more than the planned overnight stay. One patient had persistent hypotension. Although she was clinically asymptomatic with no evidence of bleeding, she was kept an extra 24 hours in the hospital for observation. No cause for the hypotension was found, and it resolved without intervention. Three patients developed acute postoperative bleeding while in the hospital, necessitating urgent return to the operating room for evacuation of hematoma and control of bleeding. One additional patient required readmission to the hospital for surgery during the first postoperative week because of wound breakdown with infection. These four reoperations (4 of 72 patients) constituted the major complications, for a rate of 5.6%, encountered during this study.

No patients were found to have deep venous thrombosis or pulmonary embolism. One patient did have symptoms of calf pain at the one-week follow-up visit, but a blood test and duplex scan showed no thrombosis. No patients required reoperation because of complications after the one-week postoperative examination.

Minor complications affected 20 patients (Table 2). These included seroma requiring aspiration alone (7 patients), infected seroma requiring a course of oral antibiotics and aspiration (4 patients), and localized infection requiring oral antibiotics/localized wound separation/breakdown necessitating minor débridement or dressing changes (9 patients). Of 72 patients, 20

(27.8%) developed one or more minor complications. There was no correlation between preoperative BMI and postoperative complications. The average BMI with any postoperative complications was 35.0 kg/m<sup>2</sup>, similar to average BMI of 33.3 kg/m<sup>2</sup> in patients without complications. Concomitant hernia repair was not associated with a higher postoperative complication rate.

Table 2. Complications	
Major complications	Number of patients
Hematoma requiring reoperation	3
Wound breakdown/infection requiring reoperation	1
Minor complications	
Seroma	7
Infected seroma	4
Localized infection/minor wound breakdown	9

Table 3. Patients' perceived satisfaction at the end of the six-month follow-up period	
Satisfaction rating	Number of patients
Happy to have had the surgery	59
Overall happy but would have preferred to have undergone a more extensive "cosmetic" procedure	1
Unhappy to have had the surgery	0
Total	60

During the six-month follow-up period, two patients underwent secondary procedures because of difficulties from significant lateral "dog ears." One procedure was done in the office; the second required use of the operating room for intravenous sedation.

Six-month follow-up data (excluding data from the questionnaires) were available for 60 patients. Of these patients, 59 reported that they were happy to have had the surgery, with only one patient wishing she had had a more extensive body-lift procedure (Table 3). Since the procedure, 41 patients (68.3%) had lost additional weight (range, 1.4–15.4 kg) and 19 (31.7%) had gained weight (range, 2.3–13.6 kg).

In terms of health-related quality-of-life outcomes and body image measures, the MBSRQ identified two indicators for which there was statistically significant improvement after surgery: feelings of physical attractiveness (2.39–3.08;  $p < .0001$ ) and body area satisfaction (2.72–3.10;  $p < .001$ ). The scores were patient-chosen responses on a scale of 1 to 5, with 1 indicating the lowest ranking and 5 being the highest. There were no statistically significant differences in the SF-36 indicators before and after surgery.

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Figure 1. Preoperative photograph showing the excess abdominal wall pannus overlying the pubic area.



Figure 2. Preoperative photograph showing the excess abdominal wall pannus overlying the pubic area.



Figure 3. Postoperative photograph. The overhanging pannus has been removed but there are still excess skin/fat in the hip area, which could be corrected with a cosmetic procedure.

## Discussion

The impetus for undertaking this study was our belief, based on anecdotal evidence, that we were seeing a high major complication rate for this procedure, especially in patients who had already had bariatric surgery. However, the data do not support this belief.

Four patients had major complications requiring reoperation. Of these four patients, two had undergone bariatric surgery before entering our study; two had not, which was of no statistical significance. In addition, we compared this study group with our group of 75 patients who underwent free-transverse rectus abdominis myocutaneous (TRAM) flap breast reconstruction by our surgeons between 2001 and 2005. The free-TRAM flap procedure involves a more extensive abdominal wall dissection, and the average BMI (28.4 kg/m<sup>2</sup>) of those patients was less than that of our study group. The postoperative major complication rate with respect to the abdominal wall was 0/75 for the free-TRAM flap group. Although our lipectomy study group had a higher major complication rate (5.7% vs 0% for the TRAM flap group), this did not achieve statistical significance by Fisher's exact test ( $p = .1174$ ).

Our study population had similar rates of major and minor complications to those reported in the literature for obese patients as well as for patients who have undergone cosmetic abdominoplasty.<sup>1,3-9</sup>

Studies have documented the association of increased postoperative complication risk with increased BMI.<sup>9,20</sup> In our population, with an overall 33% complication rate, there was no association of increased complications in the patients with higher BMI. This might have been caused by the relatively low number of patients stratified to various BMI categories.

The major concern that prompted undertaking this study was whether patients benefited from the procedure. The procedure offered in this study was purely for reconstructive and health purposes—to prevent rashes and remove skin excess that covered the mons pubis, making personal hygiene difficult. As such, the extensive undermining and abdominal wall plication typical of a cosmetic abdominoplasty was not done. Additionally, cosmesis of the hips was not dramatically improved with this procedure. Despite these cosmetic limitations, 59 of 60 patients expressed happiness with the results, with only one patient wishing that she had had a body lift instead. These results reflect the utility of the procedure and the extensive patient counseling done preoperatively. Care was taken to thoroughly explain the differences between a cosmetic abdominoplasty and the planned reconstructive abdominal lipectomy so that patient expectations for the procedure were realistic.

This is the first prospective outcomes study of patients who have undergone reconstructive abdominal lipectomy rather than patients who have undergone cosmetic abdominoplasty. The study by Bolton et al<sup>13</sup>

of outcomes in abdominoplasty found improvement in body image, but the procedures were cosmetic. Our patients underwent reconstructive abdominal lipectomy, which does not usually result in as dramatic a cosmetic improvement as abdominoplasty (Figures 1–3). Nonetheless, the MBSRQ survey results showed definite improvement in terms of feeling of physical attractiveness and body area satisfaction, which validates the patients' perceived happiness with the procedure.

We found no significant changes in the scores on the physical or mental components of the SF-36. This is probably a reflection of the wide variation in the characteristics of patients undergoing lipectomy. We looked at the averages for the entire group, but it would probably be more accurate to compare the subgroups (ie, those patients who had undergone bariatric surgery and who have a BMI <30 kg/m<sup>2</sup>, those who had undergone and who have a BMI >30 kg/m<sup>2</sup>, those who lost weight without bariatric surgery, etc) and look for change. However, we did not have sufficient numbers of patients in each category to allow evaluation of differences in any meaningful way.

## Conclusion

Our concerns about abdominal lipectomy were unfounded. Our patients did not have a higher-than-expected complication rate compared with either other studies' results or a similar patient population undergoing free-TRAM flap breast reconstruction. Patient satisfaction was high, and this was corroborated by the postoperative improvement in feelings of physical attractiveness and body area satisfaction. Abdominal lipectomy, in well-counseled patients with realistic expectations, is a safe, efficacious procedure for treatment of symptomatic lower abdominal pannus. ❖

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