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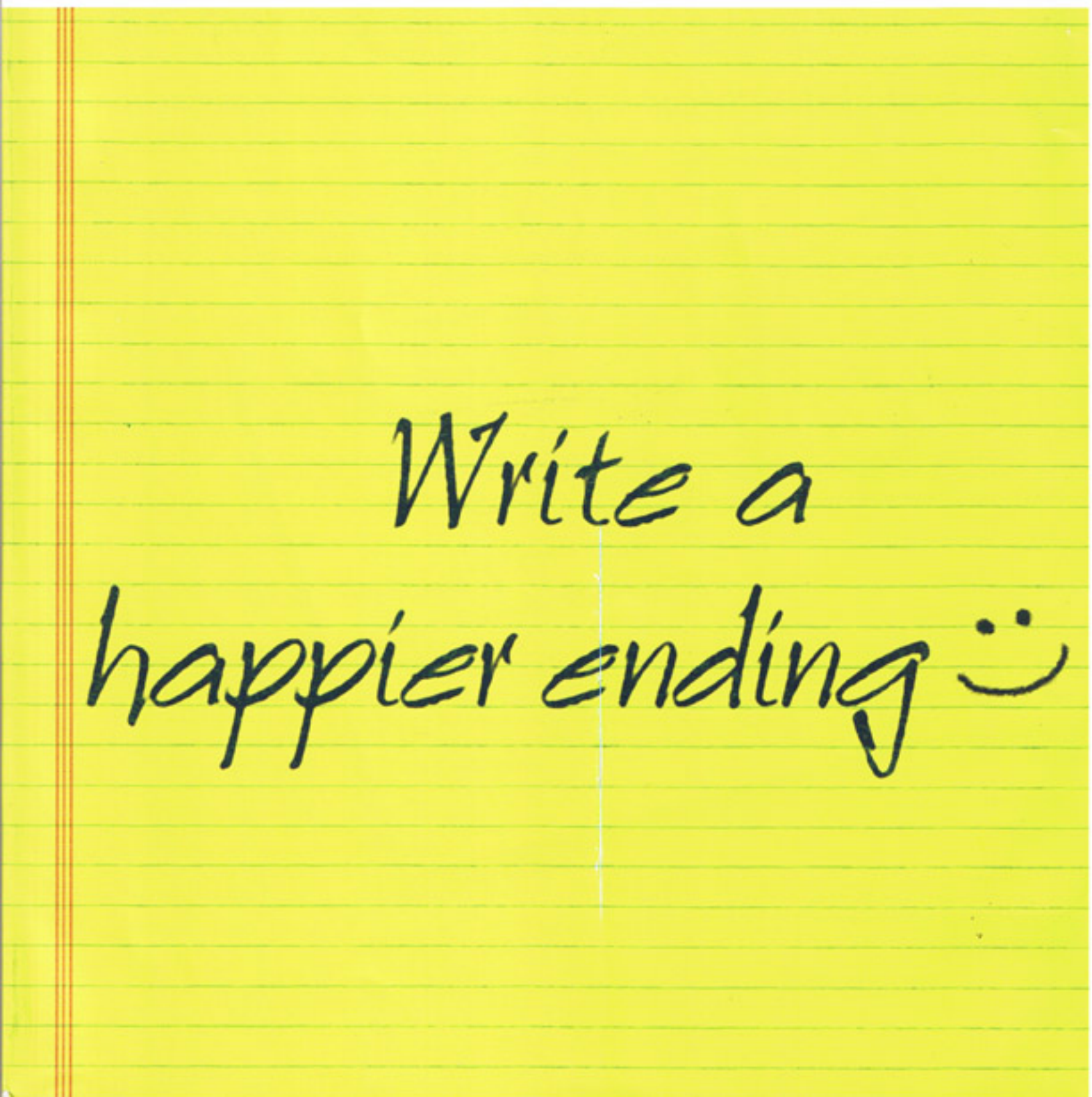

Abdominoplasty Combined With Additional Surgery: A Safety Issue

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Background: *Although it is becoming more common for abdominoplasty to be performed in combination with other procedures, it has been suggested that such combined procedures may raise the risk of postoperative complications.*

Objective: *The purpose of this study was to determine whether abdominoplasty performed in conjunction with adjunct procedures would result in an increased morbidity.*

Methods: *A total of 102 patients who underwent abdominoplasty, either alone or combined with additional surgery, between March 2003 and March 2005 were included. A retrospective chart review following institutional review board guidelines was conducted. Combined surgeries included breast reduction, mastopexy, hysterectomy, colostomy revisions, and ventral hernia repairs. Complication rates were also correlated with body mass index (BMI). Twenty-seven patients underwent abdominoplasty alone, and 47 patients were in the abdominoplasty combined group. Complication rates of 18.5% vs. 17%, respectively, were analyzed with a t test (P = .44) and were further stratified in relation to BMI.*

Results: *We found a direct correlation between elevated BMI and increased complication rate. Comparison of BMI < 25 (normal) with BMI > 30 (obese) revealed complication rates of 9% vs. 36%, respectively (P < .02). Obesity in our study was a significant predictor of postoperative complications.*

Conclusions: *It would appear that combining abdominoplasty with additional surgical procedures does not lead to increased complication rates and is safe with carefully selected patients and appropriate deep vein thrombosis prophylaxis.*

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Abdominoplasty is a commonly performed truncal rejuvenation procedure, the popularity of which appears to be increasing. Indications include aesthetic considerations secondary to a large, symptomatic abdominal panniculus, diastasis of the rectus abdominis muscles, and unsightly scars.[1] Basically, the operation consists of lower abdominal wall dermatolipectomy, reapproximation of the musculofascial layer, and undermining and advancement of the upper abdominal flap.[1-3]

It would appear that it is becoming more common for combined procedures to be performed in the same setting by an array of physicians, including general surgeons, gynecologists, colorectal surgeons, and plastic surgeons. It has been our experience that most commonly, an abdominoplasty will be combined with a gynecologic procedure such as a hysterectomy or oophorectomy, an additional aesthetic procedure such as breast augmentation or mastopexy, or a herniorrhaphy.[1,2] Our patient population has developed considerable interest in such combined procedures to reduce operative time, anesthesia, recovery time, and overall cost.

Concerns over patient safety have been addressed in past publications.[1] It has also been suggested that an abdominoplasty in association with intra-abdominal or gynecologic procedures might actually increase the risk of postoperative complications.[2] This article presents our institutional experience with abdominoplasties combined with a wide variety of other surgical procedures.

Methods

A retrospective chart review was conducted on patients who underwent abdominoplasties performed by the plastic surgery department at our institution from March 2003 to March 2005.

Following institutional review board approval, the dictated operative notes on all patients were reviewed. Patients were separated into 2 groups: a control group (those undergoing an abdominoplasty only) and an experimental group (those undergoing abdominoplasty and another surgical procedure). All postoperative visits were documented and reviewed for any complications. Complications included wound infection, wound dehiscence, deep vein thrombosis (DVT), and seroma. The

Table 1. Postoperative complications

Type of procedure	Number of procedures	Number of complications	Complication incidence rate	*P* value
Abdominoplasty	27	5	18.5%	.44
Abdominoplasty*	47	8	17%	
Belt Lipectomy	13	4	30%	.02
Belt Lipectomy*	2	0	0%	
Panniculectomy	9	1	11%	.30
Panniculectomy*	4	1	25%	

*Combined procedure.

Table 2. Effect of BMI on postoperative complication rates

BMI	Number of procedures	Number of complications	Complication incidence rate	*P* value
<25	11	1	9.1%	
≥25	51	13	25.5%	.07
≥30	25	9	36.0%	.03

same review was also performed on panniculectomy and belt lipectomy patients. Data were compiled and analyzed with respect to several variables (body mass index [BMI], gender, and age).

Results

Our series yielded a complication rate of 18% for abdominoplasty only and 17% for abdominoplasty combined with other procedures (Table 1). The difference in complication rates was not found to be statistically significant. Belt lipectomy alone resulted in a complication rate of 30%, whereas belt lipectomy combined with other procedures resulted in a complication rate of 0%. The number of belt lipectomies in our series was too small to determine any clinical significance. Finally, our study determined the complication rates for panniculectomy alone and panniculectomy combined with other procedures, which were 11% and 25%, respectively. A *t* test analysis revealed that the difference in complication rates was not statistically significant.

Overall, our most commonly observed complication was wound dehiscence, which accounted for 60% of all complications. Wound infection represented 20% of all complications, while seroma and thrombosis occurred at 7%.

Several studies have reported obesity as an important comorbidity in determining complication rates postoperatively.[4,5] We analyzed BMI in relation to the complication rates for all procedures. Data were stratified along 2 BMI cutoffs: 25 (overweight) and 30 (obese). As the BMI increased, the incidence of complications increased. The difference in complication rates between obese patients (BMI ≥ 30) and normal weight (BMI < 25) patients yielded a *P* value of .027 (Table 2). This was statistically significant. Furthermore, the difference in wound infection rates and wound dehiscence rates between overweight patients (BMI ≥ 25) and normal weight patients was also statistically significant (Table 3).

Discussion

The performance of adjunct procedures in combination with abdominoplasty has been a common practice in many plastic surgery services. Several authors have reported on the safety of combining various surgical procedures with abdominoplasty.[6-8] This practice offers a financial advantage to the patient and reduces the need for multiple hospitalizations. There appears to be a widespread perception that combining surgical procedures increases morbidity, despite evidence to the contrary. Hensel et al[6] found that patients undergoing abdomino-

Table 3. Effect of BMI on type of complication

BMI	Wound infection	Wound dehiscence	Seroma	Wound erythema	Venous thrombosis
<25	0	1	0	0	0
≥25	3	8	1	1	1
≥30	0	7	0	1	1

plasty combined with intra-abdominal procedures did not have a significant increase in complications.

Our retrospective study examined 102 patients from 2003 to 2005 who underwent abdominoplasties, belt lipectomies, and panniculectomies performed by the Plastic Surgery Department of the Miller School of Medicine, University of Miami. Frequently, abdominoplasty, belt lipectomy, or panniculectomy was combined with another surgical procedure, such as a total abdominal hysterectomy (TAH) or bilateral salpingo-oophorectomy (BSO).

Our data show no significant increase in morbidity between our control group and those patients who underwent combined surgical procedures. Results of the belt lipectomy data series are significant ($P = .02$), but this is based on a small sample size. Our results compare favorably to other reports. An Israeli study examining the safety of TAH combined with abdominoplasty in 15 patients found an acceptably low rate of major complications when compared with either procedure alone.[7] A study by Perry[8] found the most major complications to be superficial wound infection and minor dehiscence. Our review yielded similar findings.

Our only thrombotic postoperative complication was saphenous vein thrombosis in a patient who underwent a ventral hernia repair combined with a panniculectomy. The patient was morbidly obese (BMI ≥ 40) and presented to the emergency room with leg pain and swelling after a 4-hour plane flight. She was admitted and treated with heparin. The symptoms resolved and there were no further sequelae. Other studies have shown that the incidence of thrombotic events postoperatively is closely related to the patient's obesity rather than the combination of surgical procedures.[2,9] Furthermore, obesity was a risk factor for postoperative complications in both the control and experimental groups.

One notable result of our data series is the absence of DVT as a postoperative complication. Various studies have reported the postoperative incidence of DVT in plastic surgery patients as between 0.39% and 1.1%.[10,11] Another study, consisting of 222 patients, found a 6.6% postoperative incidence of pulmonary embolus (PE) in patients who underwent abdominoplasty combined with various gynecologic procedures.[12] In our series, we found no such correlation. This outcome can be primarily attributed to our DVT prophylaxis. We treated all of these patients as high risk based on the criteria set forth by the *1999 Plastic Surgery Task Force on Deep Venous Thrombosis Prophylaxis*.[13,14] Each received 5000 units of heparin, administered subcutaneously, and intermittent pneumatic compression devices were placed prior to the induction of anesthesia and kept in place until the patient was fully ambulatory. Risk of DVT was determined by the latest risk assessment model, as published by Davison et al.[15] Age, obesity, oral contraceptive use, pregnancy, prior history of DVT/PE, and hypercoaguable states were all considered as predisposing risk factors in the model. We considered most patients in our study to be at relatively high risk for thrombotic complications. Therefore, they were all treated with the aforementioned pneumatic compression devices as well as subcutaneous heparin.

Recent recommendations for DVT prophylaxis by the American College of Chest Physicians state that subcutaneous low-dose unfractionated heparin (LDUH) and subcutaneous low-molecular-weight heparin (LMWH) are equally efficacious. In meta-analyses, LMWH demonstrated a lower bleeding risk than LDUH. The heparin may be administered preoperatively (2 hours before) or postoperatively (delayed 12 hours).[16]

Conclusion

Our data support the results of other pertinent reports: performance of abdominoplasty combined with other surgical procedures does not appear to produce significant additional morbidity. Adequate consideration must be given to related risk factors when assessing and accepting a candidate for such combination procedures. A thorough preoperative assessment by the plastic surgeon and either the general surgeon or gynecologist is expected for a successful outcome. Appropriate thrombotic prophylaxis in this high-risk group is certainly warranted. ■

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