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Original article

Experience of excess skin after gastric bypass or duodenal switch in patients with super obesity

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Abstract

Background: There is a lack of knowledge about the patient's experience of excess skin after bariatric surgery in patients with body mass index, (BMI) >50 kg/m^2. The objective of this study was to evaluate experience of excess skin after laparoscopic biliopancreatic diversion with duodenal switch (BPD/DS) or laparoscopic Roux-en-Y gastric bypass (LRYGB) and explore possible gender differences. Another aim was to analyze possible correlation between the reported experiences of excess skin with changes in weight, BMI, and hip and waist circumference after surgery.

Methods: One and/or 2 years after gastric bypass or duodenal switch surgery 57 patients responded to a specific questionnaire. The questionnaire included questions about the amount of excess skin and how much discomfort it caused. Furthermore, the patients were measured concerning weight and waist and hip circumference.

Results: One year after surgery, a majority of the patients experienced excess skin scored as >2 ("a lot of" or "very much"). The patients in the BPD/DS group experienced significantly more excess skin compared to patients in the LRYGB group. Women experienced more excess skin and discomfort on several body parts than men. The correlations between changes in BMI and the reported experience and discomfort of excess skin were low. There was a low to moderate correlation between changes in waist and hip circumference measures and the experience of excess skin on stomach and buttocks.

Conclusion: Weight loss after LRYGB and BPD/DS in super-obese patients is associated with substantial discomfort from excess skin. Women reported more discomfort and experienced more excess skin than men. There was a low correlation between experience of excess skin and changes in weight, BMI, and circumference measures. (Surg Obes Relat Dis 2014;▮:00–00.)

Keywords: Super obesity; Excess skin; Bariatric surgery

Bariatric surgery as a treatment for morbid obesity results in long-term weight loss, improved quality of life, and improvements in obesity-related co-morbidity [1]. Excess skin and subcutaneous tissue is a side effect of massive weight loss that causes discomfort and increases the risk for fungal infections and itching. It may also negatively affect physical activity [2–5]. Even though patients are informed before bariatric surgery about the risk of developing excess

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skin, they can experience the excess skin as a negative side effect [4]. In 1 study, more than two thirds of the patients described excess skin to be a negative consequence of the surgery [6]. Previous research has also indicated that women more frequently report excess skin than men, specifically on the upper arms, inner thigh and lateral back [3]. The only efficient intervention for removing excess skin is reconstructive plastic surgery [7]. The most common expectation associated with body contouring surgery is improvement in appearance, self-confidence, and quality of life [4].

It is reasonable to believe that super-obese patients undergoing bariatric surgery may experience more excess skin and subcutaneous tissue than less obese patients. There is a lack of studies investigating the experience of excess skin in super-obese patients or differences in the experience of excess skin after different bariatric procedures. The aim was therefore to evaluate the experience of excess skin after laparoscopic biliopancreatic diversion with duodenal switch (BPD/DS) or laparoscopic Roux-en-Y gastric bypass (LRYGB) in super-obese patients and to explore possible gender differences. The aim was also to analyze possible correlations between the reported experiences of excess skin with change in weight, body mass index (BMI), and hip and waist circumference after surgery.

Methods

This study is part of a Scandinavian trial conducted in 2 hospitals, Sahlgrenska University Hospital in Gothenburg, Sweden, and Oslo University Hospital Aker in Oslo, Norway [8]. The primary outcome was change in BMI 2 years after LRYGB or BPD/DS in super-obese patients. Secondary endpoints included changes in co-morbidity, quality of life, and gastrointestinal function and have previously been reported [8,9]. Another secondary endpoint was the patients' experience of excess skin after surgery, which is the focus in this present study.

The inclusion criteria were BMI 50–60 kg/m², age 20–50 years, and failed attempts at weight loss. Exclusion criteria are described elsewhere [8]. Sixty patients were randomly assigned to LRYGB or BPD/DS within the strata of sex, age (> or <35 yr), BMI (> or <55 kg/m²), and study center. The patients gave their written consent to participate in the study after receiving verbal and written information.

At follow-up at the clinic 1 and 2 years after surgery, the patients were asked to fill out a specific questionnaire concerning the experience of excess skin in different body parts and how much discomfort it caused. The questionnaire had been used previously [3]. Body parts included in the questionnaire were upper arms, stomach, breast, chin, buttocks, back, inside the thighs, and outside the thighs and knees. For each specific body part, the patients were asked to score their experience of excess skin on a 5-grade Likert scale ranging from "no" (0) to "very much" (4) excess skin. In addition, they estimated the degree of discomfort of excess skin for each body part on a 100-mm visual analogue scale with the endpoints "no inconvenience at all" (0 mm) to "worst conceivable inconvenience" (100 mm). Open questions linked to each specific body parts examined what difficulties the excess skin caused and whether it involved any restrictions in daily life.

Weight and hip/waist circumference were measured at the same occasions according to established standards [10].

Statistics and ethics

SPSS version 15.0 was used for the statistical analyses. Mann-Whitney's U test and Mantel-Haenszel X^2 was used to analyze differences between the groups and between genders irrespective of surgery performed. The analyses adjusted for presurgery BMI and sex were performed by using logistic regression with group as dependent variable and main testing variable, presurgery BMI, and sex as covariates. Spearman's correlation coefficient was used for analysis of correlation between weight loss and experience or discomfort of excess skin. It was also used to analyze the correlation between changes in circumference measurements and subjective estimations of experience and discomfort of excess skin. Statistically significant differences were defined as $P < .05$. Correlation was defined as little, if any ($r_s < .25$), low ($r_s = .26–0.49$), moderate ($r_s = .50–0.69$), high ($r_s = .70–0.89$), and very high ($r_s = .9–1.00$) [11].

The local ethics committees in Sweden and Norway approved the trial, and the trial was registered in Clinical Trials (NCT 00289705).

Results

In total, 60 patients were included in the trial, 31 underwent LRYGB and 29 BPD/DS. Fifty-seven patients (30 LRYGB and 27 BPD/DS) completed the questionnaire and were measured at 1 or both occasions. Mean preoperative BMI for the LRYGB patients was 54.7 kg/m² and 55.4 kg/m² for the BPD/DS patients. The demographic data at baseline are given in Table 1.

Patients in the BPD/DS group lost significantly more weight and had a significantly greater reduction in BMI compared with the patients in the LRYGB group at 1 and 2 years after surgery (Table 1). None of the patients had undergone any reconstructive surgery at time of follow-up.

Patients' experience of excess skin

One year after surgery, 23 of 27 patients (85%) in the BPD/DS group and 23 of 30 patients (77%) in the LRYGB group experienced excess skin scored as >2 ("a lot of" or "very much") in 1 or several body parts. The patients in the