

Does the Degree of Ptosis Predict the Degree of Psychological Morbidity in Bariatric Patients Undergoing Reconstruction?

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Background: There is proven therapeutic benefit in bariatric surgery for obese patients. Successful bariatric surgery will result in massive weight loss and ptotic skin, which can cause significant functional and psychological problems. As the incidence of bariatric surgery increases, so will the demand for plastic surgery. Currently, there is no evidence-based indication for massive weight loss body contouring, and therefore there is no standardized provision.

Methods: A prospective, multicenter, observational study of outcomes in 75 patients undergoing bariatric and plastic surgery procedures at two clinical sites was performed to determine whether the degree of ptosis can be determined by the type (malabsorptive or restrictive) of bariatric surgery and if the extent of disfigurement has an impact on psychological morbidity.

Results: Massive weight loss body contouring is not purely aesthetic surgery, but it leads to functional and psychosocial benefits. This study has given preliminary data on which anthropometric measurements and their thresholds lead to the greatest benefit from massive weight loss body contouring. From this study, the fourth quartiles of the anthropometric measurements xiphisternum to pubic symphysis (≥ 91 cm), umbilicus to pubic symphysis (≥ 38 cm), and hip circumference (≥ 143 cm) were statistically significant in crossing the psychometric tolerances from within the normal range to pathological psychology.

Conclusions: This study demonstrates that there is a statistically significant, quantifiable correlation among type of bariatric surgery, degree of ptosis, and psychological morbidity in patients who have undergone bariatric surgery. This pilot study could provide the basis for evidence-based guidelines for plastic surgery referral. (*Plast. Reconstr. Surg.* 134: 942, 2014.)

There is proven therapeutic benefit in bariatric surgery for obese patients.¹ Successful restrictive bariatric surgery will result in a loss of around 50 percent of excess body weight and up to two thirds of excess body weight in malabsorptive procedures.² This massive weight loss can result in ptotic skin, causing significant functional and psychological problems.³ As the number of bariatric surgery procedures performed increases, so will the demand for plastic surgery. Currently, there is no evidence-based indication for massive weight loss body contouring, and therefore, there is no standardized provision.⁴ However, restriction on the availability of surgery to rectify excess skin is an impediment to weight loss.⁵ Studies have

shown that there is improvement in mental health and psychological functioning following bariatric surgery.⁶ This study was carried out to investigate whether there is a correlation among type of bariatric surgery, ptosis, and psychological morbidity in patients who have undergone bariatric surgery.

METHODS

We performed a prospective, cross-sectional, multicenter, observational study of outcomes in patients undergoing bariatric and plastic surgery procedures at two clinical sites in Scotland, United Kingdom. Regional Ethical Committee approval was obtained for the study protocol. Written informed consent was obtained from all subjects. Seventy-five patients over the age of 18

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years who had undergone or were undergoing bariatric surgery were recruited from the regional bariatric service, with staggered entry between 2010 and 2012. Patients with a previous history of gluteal implants, abdominoplasty, and body contouring procedures were excluded.

Currently, there are no validated tools for the massive weight loss body contouring group. This led to a selection of patient-reported outcome measures being used, each selected for their individual data captured. The following patient-reported outcome measures were posted to patients:

1. Eating Disorders Questionnaire.^{7,8} This is a validated baseline questionnaire including self-reported information on demographics, weight history, weight control behavior, exercise, history of abuse, psychiatric history, past medical history, chemical use history, social history, and other factors.
2. Derriford Appearance Scale.⁹ This is a 24-item factorial scale measuring appearance-related distress, social anxiety, and avoidance, standardized on both general and hospital populations.
3. Hospital Anxiety and Depression Scale.¹⁰⁻¹² This is a 14-item screening tool for anxiety and depression, standardized to both general and hospital populations that generates ordinal data. Seven of the items relate to anxiety and seven relate to depression.
4. Short Form-36.¹³⁻¹⁸ This is a 36-item measure of health status commonly used in health economics as a variable in the quality-adjusted life year calculation to determine the cost-effectiveness of a health treatment.
5. Bariatric Analysis and Reporting Outcome System.¹⁹⁻²³ This is a tool validated for the

bariatric cohort and allocates points for percentage weight loss and change in medical conditions. A Likert scale is included for the following quality-of-life changes: self-esteem, physical well-being, social well-being, ability to work, and sexual intimacy.

Patients were followed up in clinic and completed questionnaires with a trained clinical research nurse who followed a standard operating procedure. Height and weight were measured. The same clinical practitioner took surface linear anthropometric measurements, including arm circumferences, apex of axilla to lateral folds, suprasternal notch to left and right nipples, nipple to inferior mammary folds, suprasternal notch to umbilicus, pannus to pubic symphysis, umbilicus to pannus and pubic symphysis, and waist and hip circumferences. A standard operational protocol was followed in taking anthropometric measurements to ensure intersubject consistency (see Appendix).

RESULTS

Data were analyzed with the SPSS version 19 statistical package (IBM, Armonk, N.Y.), at Dundee University. Seventy-five patients were recruited. Seven were lost to follow-up. Sixty-eight patients were reviewed in clinic and underwent the above protocol. Twenty-four patients were male and 44 were female.

The patients were divided into two groups: bariatric surgery alone or bariatric surgery and reconstructive surgery; the mean time since bariatric surgery was 19.64 and 38.71 months, respectively. Mean time since plastic surgery was 14.3 months (range, 3 to 45 months) (Table 1). Two sample *t* test demonstrated no statistically significant

Table 1. Demographic Data

	After Bariatric Surgery	After Plastic Surgery	Two-Sample <i>t</i> Test Assuming Unequal Variances
No. of patients	48	20	—
Sex, no. male/female	17/31	7/13	—
Mean time since bariatric surgery, mo (range)	19.64 (1–54)	38.71 (12–93)	—
Mean age, yr (range)	49.39 (28–67)	48.02 (24–68)	0.64
Mean height, cm (range)	167.77 (138–185)	169.17 (150.0–183.49)	0.04
Mean current weight, kg (range)	102.75 (59.9–159)	90.54 (56.67–142)	0.07
Mean body mass index, kg/m ² (range)	36.71 (22.55–54.57)	31.40 (20.44–49.7)	0.01
Mean previous weight, kg (range)	161.10 (87.1–233.2)	171.78 (114.3–261.86)	0.27
Mean weight lost, kg (range)	58.34 (7.4–155.2)	81.19 (37.85–160.36)	0.004
Mean percentage of excess weight lost (range)	63.62 (8.6–100)	82.06(36–100)	0.0005
Mean pack year history (range)	17.73 (0–60)	17.59 (0–80)	0.81
Mean exercise score	6.77	12.33	—
Career progression	0.32	0.88	—
Physical pain from feature	1.35	0.80	0.049
Feature limits physical ability	1.67	1.05	0.038

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