Journal of Plastic, Reconstructive & Aesthetic Surgery (2016) 69, e168–e173

JPRAS
An International Journal of Surgical Reconstruction
www.JPRASurg.com

Impact of reduction mammoplasty on the quality of life of obese patients suffering from symptomatic macromastia: A descriptive cohort study

F. Hernanz*, M. Fidalgo, P. Muñoz, M. González Noriega, M. Gómez-Fleitas

Oncoplastic Breast Unit, Department of Surgery, Valdecilla Hospital, University of Cantabria, Avda. Cardenal Herrera Oria, s/n., 30011 Santander, Spain

Received 20 November 2014; accepted 22 May 2016

KEYWORDS
Reduction mammoplasty;
Breast hypertrophy;
Symptomatic macromastia;
Obesity;
SF-36 health questionnaire

Summary *Background:* Although reduction mammoplasty (RM) is an effective and efficient treatment for symptomatic macromastia, overweight and obese patients who request this treatment are frequently rejected because of selection criteria based on the body mass index. Scientific evidence is inconclusive regarding the increased postoperative complications in obese patients undergoing RM, and there is a lack of adequately designed studies examining the impact of RM on the quality of life of this group of patients.
Patients and methods: A descriptive cohort study was performed on 37 consecutive obese patients (body mass index > 30 kg/m^2) undergoing bilateral RM for symptomatic macromastia. Short Form SF-36 quality-of-life questionnaires were completed at interviews a week before surgery and 6 and 18 months after surgery. In addition, 37 women of matching ages, who were companions of patients hospitalized at our short-stay surgery unit, were used as a control group for comparison. Significant differences between repeated measurements on a single sample were assessed using the Wilcoxon signed-rank test. To evaluate these changes, we used effect size by computing Hedges' g corrected.
Results: The preoperative SF-36 physical component score was significantly lower than the control group's score (40 vs. 53, $p < 0.001$). There was no significant difference in the mental component score (45 vs. 49, $p = 0.210$). Postoperative SF-36 scores were increased with a normalizing effect, as 18 months after surgery only the body pain domain scored lower than the control group scores.

* Corresponding author. Urb. Las Pérgolas 10, 39110, Sancibrian, Cantabria, Spain.
E-mail address: hernanzf@unican.es (F. Hernanz).

http://dx.doi.org/10.1016/j.bjps.2016.05.012

Conclusions: According to our results, obese women with symptomatic macromastia undergoing RM exhibited increased quality of life, and this improvement was maintained over time.

Therapy: Level III Evidence.

Background

Reduction mammoplasty (RM) and obesity are frequently discussed topics, but most published articles are concerned with early surgical complications in those obese patients who are undergoing RM for symptomatic macromastia, frequently describing an increase in the risk of complications in this group of patients. Although a portion of individuals quantifying this risk stated that the obesity status augments the odds ratio of experiencing complications 11.8-fold after adjusting for other variables[1] or that a body mass index (BMI) $>$ 36 is associated with a twofold higher risk of complications,[2] actual scientific evidence is inconclusive on whether the increased BMI is associated with an increased risk of complications.[3] In addition, most complications are minor and do not affect cosmetic or functional outcomes.[4,5]

Another concern related to obesity and RM is that despite the effectiveness of RM in the treatment of symptomatic macromastia, as demonstrated by a strong degree of scientific evidence,[5,6] such a surgery is often considered cosmetic and is regulated. BMI is often used as a criterion for selection. For example, a survey of funding criteria for RM conducted in the United Kingdom by 303Trust in 2007 revealed that 198 of 245 respondents specified a maximum BMI (range 25—32) as an exclusion criterion.[7]

Although several articles[8—12] report that these patients showed significant improvements in the quality of life after breast reduction to the same extent as those who were of normal weight, there is a lack of specifically designed studies for the particular purpose of evaluating the effect of RM on obese patients.

Patients and methods

A descriptive cohort study[13,14] was performed on 37 consecutive obese patients with a BMI $\geq$ 30 kg/m^2, who underwent bilateral RM (exposure variable) for symptomatic breast hypertrophy by one surgeon at Valdecilla University Hospital (Santander, Spain) from March 2010 to March 2013. Preoperative data — such as age; height; weight; sternal notch-to-nipple distance; and presence of morbidities such as arterial hypertension, diabetes, chronic respiratory disease, and smoking habit — were recorded at an appointment 1 week before surgery. Weight and height were converted to BMI using the following formula: weight (kg)/height^2 (m).

The RM technique consisted of the wise keyhole pattern with two different pedicles for the translation of the nipple—areola complex (NAC): a superomedial (31), an inferior (3) and a free nipple graft were used in three patients (the mean of breast tissue removed was 2652 g (deviation standard (DS) 605.5)). The amount of breast tissue removed was obtained by weighing the fresh breast tissue on a digital scale in the operating theatre. The average operative duration was 3 h (ranging from 2 to four and a half). Early complications were recorded in the period of 3 months after surgery.

Quality of life (outcome variable) was evaluated by Short Form SF-36 quality-of-life (Spanish version 1.4, June 1999)[15] questionnaires, which were answered at interviews 1 week before surgery and 6 and 18 months after surgery. The Short Form-36 Health Survey is a validated and widely used questionnaire to assess health-related quality of life. It contains 36 items, building eight health subscales (physical functioning and activities, daily activities, emotional status, social activities, mental health, vitality and energy, pain, and general health) and two summary scores: physical health and mental health. Higher scores represent better health. We used the physical and mental summary scores to demonstrate changes separately for physical and mental functions.

Short Form SF-36 quality-of-life (Spanish version 1.4, June 1999) questionnaires were answered by a group of 37 women of matching ages gathered as a control group to make a comparison. These women were companions of patients hospitalized at our short-stay surgery unit in the period of time from January to May 2013. The characteristics of this control group were as follows: age mean 44 years (SD 12), BMI mean 28.7 kg/m^2 (SD 4.44) with the distribution (57% normal weight, 32% overweight, and 11% obesity), and the distribution of patients according to the contour bra size (UK measurement): size 30 (two patients), 32 (eight), 36 (seven), 34 (10), 38 (six), and 40 (four).

The authors adhere to the STROBE guidelines for cohort study. No imputation of missing data was done. As the distribution of numerical variables was not normal, we used median and interquartile (IQR). Fisher exact test was used to compare two dichotomous variables and Wilcoxon signed-rank test for differences between repeated measurements on a single sample or matched samples.[16] The effect size was quantified by Hedges' g corrected[17] and analyzed with Comprehensive Meta-analysis (Biostat, Englewood, NJ), taking into account that an effect size of $\leq$0.2 is small, 0.5 is moderate, and $\geq$0.8 is large.[18]