Published in final edited form as:

Obes Res Clin Pract. 2011 January ; 5(1): . doi:10.1016/j.orcp.2010.09.181.

Total Reversal of Weight Loss from Adjustable Gastric Banding Surgery Associated with Excessive Intake of Energy Dense Liquid and Solid Foods: A Case Report

Meena Shah, Ph.D., Sneha Rao, M.D., Peter Snell, Ph.D., Beverley Adams-Huet, M.S., Claudia Quittner, M.S., R.N., and Abhimanyu Garg, M.D.

Division of Nutrition and Metabolic Diseases (MS, SR, CQ, AG), Department of Clinical Sciences (BAH), Department of Internal Medicine (PS, BAH, AG), and Center for Human Nutrition (MS, SR, CQ, AG), University of Texas Southwestern Medical Center at Dallas, Dallas, Texas, and the Department of Kinesiology (MS), Texas Christian University, Fort Worth, TX

Abstract

We report excessive bingeing and total reversal of weight loss in a patient after adjustable gastric banding surgery (AGBS). A 42-year-old female who underwent AGBS 4 years earlier was randomized to a diet group in a study on exercise training. The patient was on therapy for pre-diabetes and depression. She weighed 115 kg pre-surgery, lost 27.3 kg post-surgery, and weighed 117.3 kg at the start of the study. Her energy intake, assessed by 3-day food record, was 14,096 kcal/d at the beginning of the study of which 3,086 kcal/d was from liquid and 7,273 kcal/d from solid energy dense foods. The patient reported that the liquid foods facilitated bingeing on solid foods despite gastric band adjustments. Following intensive dietary counseling for 5 weeks, her reported energy intake decreased to < 3,000 kcal/d and body weight by 1 kg. Evaluating and actively addressing any dietary behavioral issues before and after AGBS are recommended.

Keywords

Binge eating disorder; energy dense liquid and solid foods; weight regain; adjustable gastric banding surgery

Introduction

Adjustable gastric banding surgery is a commonly performed surgical technique in the United States for the treatment of morbid obesity (1), and according to a meta-analysis, this procedure results in a 47.5% reduction in excess body weight (2). Weight regain after this surgery, however, is a problem in many patients (3), and a possible reason for this is non-compliance with post-surgery dietary guidelines (4–7). We report total reversal of weight

Corresponding Authors: Meena Shah, Ph.D., Associate Professor, Division of Nutrition and Metabolic Diseases, Center for Human Nutrition, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, Texas 75235-8537. Tel. 817 257-6871, FAX 817 257-7702, m.shah@tcu.edu and meena.shah@utsouthwestern.edu and Abhimanyu Garg, MD, Professor and Chief, Division of Nutrition and Metabolic Diseases, UT Southwestern Medical Center at Dallas, 5323 Harry Hines Blvd., Dallas, Texas 75390-8537. abhimanyu.garg@utsouthwestern.edu.

Conflict of Interest: The authors (Meena Shah, Ph.D., Sneha Rao, M.D., Peter Snell, Ph.D., Beverley Adams-Huet, M.S., Claudia Quittner, M.S., R.N., and Abhimanyu Garg, M.D.) have no conflict of interest to declare.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

loss associated with excessive consumption of energy dense liquid and solid foods in a patient after adjustable gastric banding surgery.

Case Report

A 42-year-old sedentary female consented to participate in a 12 week study to investigate the feasibility and efficacy of high volume cardio-respiratory endurance exercise training 4 years after undergoing the adjustable gastric banding surgery. She was randomized to the control arm of the study and received dietary counseling without the exercise intervention.

The patient kept meticulous daily food records at baseline (2 week days and 1 weekend day) and for 30 additional days over a period of 5 weeks while undergoing intensive dietary and behavioral intervention after which she withdrew from the study due to the stress of having to address both her dietary problems and increased depression at the same time. The patient assessed the amount of food that she consumed by either weighing the food or using household measures. The food records were analyzed for nutrient content using the Nutrient Data System for Research (version 5.0_35).

The patient was on medical therapy for a number of co-morbidities including pre-diabetes, sleep apnea, and gastroesophageal reflux disease, and on medical and psychotherapy for depression. She also had mild hypertriglyceridemia (206 mg/dL), pre-hypertension (128/87 mm Hg), stress urinary incontinence, lower extremity edema, and polycystic ovarian syndrome. Her fasting and 2 h post-prandial (after a 75 g of oral glucose administration) blood glucose concentration and glycosylated hemoglobin level were normal (91 mg/dL, 124 mg/dL, and 5.9%, respectively). The patient did not smoke and rarely consumed alcohol.

She was 156 cm tall and weighed 115 kg before bariatric surgery. The patient reported having had a history of binge eating disorder and dieting prior to undergoing bariatric surgery. The patient reported attending one pre-operative and two post-operative nutritional counseling sessions with a dietician. She also had the opportunity to attend monthly support group sessions post-operatively but did not say if she attended any of these sessions. She reported losing 27.3 kg within 5 months following surgery but regained it all which she attributed to dietary non-compliance and lack of exercise and not due to occurrence of any critical incident in her life post-surgery. Her body weight at the time of enrollment in our study (baseline) was 117.3 kg despite band adjustments. Her energy intake and body weight during the study as well as her pre-surgery body weight and maximum weight loss are presented in Figure 1. Her average energy intake from the 3-day food record kept at baseline was 14,096 kcal/d. About 22% (3,086 kcal/d) of her energy intake was in the form of liquids, which the patient reported drinking in order to be able to binge, and 52% (7,273 kcal/d) was from energy dense solid foods. Some of the foods that made a major contribution to her energy intake during baseline included whole milk (2,164 kcal/d), cereal (3,042 kcal/d), ice cream (1,176 kcal/d), regular soda (327 kcal/d), fatty or fried meat, fish and poultry (1,232 kcal/wk), high-fat spreads (231 kcal/d), fruit juice (454 kcal/d), sweeteners (452 kcal/d), cakes, cookies, candies, and puddings (739 kcal/d), and pastries (401 kcal/d). She engaged in two to three daily night time eating episodes. After most eating episodes the patient reported feeling anxious, exhausted, numb, angry, disgusted, sick, sad, and/or depressed.

Following baseline, the patient received intensive weekly dietary counseling to gradually reduce her energy intake to 1500 kcal/d by reducing her intake of energy dense solid foods and not consuming any energy from liquids, not drinking any liquids during meals and for at least 30 minutes before and after a meal, maintaining protein requirement, increasing the intake of whole fruits and vegetable to 5 servings per day, consuming smaller portion sizes

at meal times and for snacks, and not eating during the night. She also received counseling on goal setting, stimulus control, eating behavior, social support, eating out, problem solving, cognitive restructuring, relapse prevention, and motivation.

Her reported total energy intake following baseline decreased to < 3,000 kcal/d by the end of the 5th week (Figure 1). She generally reported consuming fewer high energy liquid and solid foods, chose low energy dense alternatives, maintained her protein requirement, and reported fewer night time eating occurrences. She was less successful at eliminating liquid consumption around and during meal times and energy from liquid foods, and did not meet her goal for fruits and vegetables. These changes were associated with about 1 kg reduction in body weight. The patient reported undergoing a band adjustment while participating in the study.

Conclusions

Our patient became non-compliant with the post-bariatric surgery dietary guidelines (8) within 6 months following adjustable banding surgery. Her reported energy intake at the beginning of our study was > 9 times higher than the amount she should have consumed (1,500 kcal/d) in order to successfully lose weight (9). She managed to overeat excessively despite band adjustments, by consuming large amounts of energy dense liquid and solid foods. Despite excessive energy consumption, her fasting and postprandial glucose concentrations and glycosylated hemoglobin level were normal. However, she was taking a daily dose of 500 mg of metformin. She reported improvement in her diet during the dietary intervention phase. Weight loss was, however, very modest during the study implying that she may have underreported her energy intake during the intervention phase. Prentice et al (10) have shown that obese women may underreport their energy intake by nearly 900 kcal/d when keeping a food record. Our patient would have lost more weight had her actual energy intake been similar to her reported energy intake.

This case indicates that a comprehensive pre-surgical eating and exercise behavior and psychiatric evaluation of the patient in order to identify any issues that may prevent long-term success followed by counseling regarding strategies to enhance success may be prudent (11, 12), but whether it improves weight loss outcomes remains to be proven. In addition, evaluation of compliance to dietary, exercise, and behavioral guidelines for 6 months prior to surgery may help to identify patients who comprehend and are more likely to be committed to the post-surgical requirements and thus are ready for surgery. Treatment may need to be deferred in patients who are not ready to follow the post-surgical guidelines. Post-surgically, whether patients with binge eating disorder benefit from long-term therapy by nutrition, exercise, and psychiatric professionals remains to be evaluated. A recent study reported improved eating behavior and weight loss in bariatric surgery patients who underwent long-term post-surgical behavioral, nutrition, and physical activity counseling compared to the control group who received usual care (13). Patients with psychiatric illness were not included in this study (13), however, which makes it difficult to generalize the findings especially since almost two-thirds of bariatric surgery candidates have psychiatric disorders particularly major depressive and binge eating disorders (14). Research is needed to determine how psychiatric problems and eating and exercise behaviors affect long-term success (15), and whether actively addressing these issues leads to better outcomes. The Longitudinal Assessment of Bariatric Surgery study, a multisite study funded by the National Institutes of Health, may elucidate the predictors of long-term success following bariatric surgery.

Acknowledgments

We would like to acknowledge Drs. Savitha Shastry, Zahid Ahmad, and Vinaya Simha for helping to collect some of the data and Rosemary Son for providing some of the materials for nutrition counseling. The study was partly funded by the National Institutes of Health grants M01-RR00633 and UL1-RR-024982.

References

1. Santry HP, Gillen DL, Lauderdale DS. Trends in bariatric surgical procedures. *JAMA*. 2005; 294:1909–17. [PubMed: 16234497]
2. Buchwald H, Avidor Y, Braunwald E, et al. Bariatric surgery: a systematic review and meta-analysis. *JAMA*. 2004; 292:1724–37. [PubMed: 15479938]
3. Shah M, Simha V, Garg A. Review: long-term impact of bariatric surgery on body weight, comorbidities, and nutritional status. *J Clin Endocrinol Metab*. 2006; 91:4223–31. [PubMed: 16954156]
4. Sjostrom L, Lindroos AK, Peltonen M, et al. Lifestyle, diabetes, and cardiovascular risk factors 10 years after bariatric surgery. *N Engl J Med*. 2004; 351:2683–93. [PubMed: 15616203]
5. Bueter M, Thalheimer A, Lager C, Schowalter M, Illert B, Fein M. Who benefits from gastric banding? *Obes Surg*. 2007; 17:1608–13. [PubMed: 18030543]
6. Pontiroli AE, Fossati A, Vedani P, et al. Post-surgery adherence to scheduled visits and compliance, more than personality disorders, predict outcome of bariatric restrictive surgery in morbidly obese patients. *Obes Surg*. 2007; 17:1492–7. [PubMed: 18219777]
7. Colles SL, Dixon JB, O'Brien PE. Hunger control and regular physical activity facilitate weight loss after laparoscopic adjustable gastric banding. *Obes Surg*. 2008; 18:833–40. [PubMed: 18408982]
8. Mechanick JL, Kushner RF, Sugerman HJ, et al. American Association of Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic & Bariatric Surgery medical guidelines for clinical practice for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient. *Obesity (Silver Spring)*. 2009; 17(Suppl 1):S1–70. v. [PubMed: 19319140]
9. Wing, RR.; Pinto, AM.; Niemeier, H. Maintenance: the ultimate goal. In: Apovian, CM.; Lenders, CM., editors. *Clinical guide for management of overweight and obese children and adults*. CRC Press; 2007.
10. Prentice AM, Black AE, Coward WA, et al. High levels of energy expenditure in obese women. *Br Med J (Clin Res Ed)*. 1986; 292:983–7.
11. Marcus MD, Kalarchian MA, Courcoulas AP. Psychiatric evaluation and follow-up of bariatric surgery patients. *Am J Psychiatry*. 2009; 166:285–91. [PubMed: 19255051]
12. Wadden TA, Sarwer DB. Behavioral assessment of candidates for bariatric surgery: a patient-oriented approach. *Surg Obes Relat Dis*. 2006; 2:171–9. [PubMed: 16925344]
13. Papalazarou A, Yannakoulia M, Kavouras SA, et al. Lifestyle intervention favorably affects weight loss and maintenance following obesity surgery. *Obesity (Silver Spring)*. 18:1348–53. [PubMed: 19834466]
14. Sarwer DB, Cohn NI, Gibbons LM, et al. Psychiatric diagnoses and psychiatric treatment among bariatric surgery candidates. *Obes Surg*. 2004; 14:1148–56. [PubMed: 15527626]
15. Fabricatore AN, Crerand CE, Wadden TA, Sarwer DB, Krasucki JL. How do mental health professionals evaluate candidates for bariatric surgery? Survey results. *Obes Surg*. 2006; 16:567–73. [PubMed: 16687023]

Figure 1.

Body weight before surgery, maximum weight loss at 5 months post-surgery, and body weight (left axis, connected points) and energy intake (right axis, bars) during the study. Food intake was recorded for 3 days (one weekend day and 2 weekdays) at baseline (BL) and for 30 additional days over nearly 5 weeks after baseline. Food intake was not recorded on days 1, 5 and 19 and body weight on days 1 to 5 during the study. The line within each energy intake bar indicates the target energy intake goal of 1,500 kcal/d.