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The results of gastric bypass surgery in a teenager

SURUJPAL TEELUCKSINGH,¹ DILIP DAN²

Introduction

Obesity in childhood and adolescence is becoming a major problem in many parts of the world. We report the beneficial social, emotional and menstrual effects of weight loss from gastric bypass surgery in a morbidly obese teenager.

Case report

This 13-year-old Trinidadian girl of European extraction (figure 1) was referred for treatment of polycystic ovarian syndrome. She had experienced menarche at age 9 and soon thereafter experienced progressive weight gain. She was described as a chubby

baby and young girl but weight gain had become particularly noticeable after menarche. Her periods, initially regular, became increasingly irregular after age 10 when acne and body hair were also observed. There was a family history of obesity and dysthyroidism. There was no exposure to exogenous glucocorticoids. Appetite was described as healthy and she engaged in regular mild physical activity.

Physical examination revealed morbid obesity (body mass index (BMI) 46 kg/m², waist circumference 123 cm), acne over the face and back and moderate hirsutism without virilisation. There was marked purple cutaneous striae over the trunk but purpura, proximal myopathy, and hypertension were not present. Blood glucose, serum lipids, electrolytes, thyroid function tests, urinary free cortisol and the response of plasma cortisol to overnight dexamethasone suppression were all within normal limits. The ovaries displayed multiple small follicular cysts on ultrasound examination.

After two years of conservative management with diet, exercise, metformin and sibutramine failed to restore menstrual function and had no impact on weight (indeed, there was a further weight gain of 10 kg), the patient became socially withdrawn. The patient and her parents were counselled on the merits/demerits of surgical treatment for obesity and consented to gastric bypass surgery.

Prior to undergoing surgery the patient underwent metabolic and anaesthetic assessment as well as dietary and psychological counselling. She was already being seen by her psychologist for depression prior to being evaluated for surgery. Her surgery was deferred for an additional year to ensure adequate psychological preparation.

The patient underwent a laparoscopic Roux-en-Y gastric bypass on 29 March 2007. This was done under general anaesthetic using a six-port technique. A proximal gastric pouch of 15–20 cm³ was created using a linear stapler (Ethicon Endosurgery). The jejunum was transected 50 cm from the duodeno-jejunal flexure and a 150 cm Roux limb created. A jejuno-jejunosomy was done with a linear stapler. An anti-colic anti-gastric anastomosis (1.5 cm) was done with an EndoGIA (Ethicon Endo Surgery). The anastomosis was tested for leaks with air and dye.

The patient was ambulated 4 h after surgery and after a gastrograffin study on day 1 revealed no leak, she was started on a liquid diet. By day 2 she was started on a full liquid diet and discharged from hospital.

Her diet consisted of 60 g protein and 500–700 calories with *ad libitum* water intake. She was advanced to a pureed

Figure 1. Patient at age 13 years



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Figure 2. Patient at age 15 years, 2 years post-operatively



diet by 2 weeks and soft food by week 4. By week 6 she was on a regular diet with significant volume restriction and quality selection (mainly protein with carbohydrate exemption). Exercise was started on day 10 with predominantly cardiovascular workouts and full weight training by 6 weeks.

She was seen for follow-up at 1 week at which time she had lost 8 kg. At 6 weeks weight loss was 15 kg and initiation of a rigorous exercise program was commenced. By 4 months weight loss of 25 kg was recorded. Two years later, the patient had lost 55 kg (BMI 30 kg/m²) (figure 2), had socially readjusted,

was menstruating regularly and was free of acne and with only mild hirsutism.

Discussion

Our patient was referred to one of us for treatment of polycystic ovarian syndrome. Conservative measures of dietary restriction and physical activity failed to have any significant impact on weight reduction as did pharmacological treatment with sibutramine. The severity of the obesity presumably mitigated any potential benefit of metformin¹ in ameliorating the clinical features of polycystic ovarian syndrome. Weight reduction was steady and sustained up to 2 years post-operatively with restoration of the menses and disappearance of acne and much of the hirsutism. The benefits of surgery in this case were even more far-reaching. Depression presumably arising out of frustration over failure to lose weight and social maladjustment from gross obesity were prominent and both disappeared as weight loss ensued.

The benefits and relative safety of bariatric surgery in morbidly obese adults are fairly well-established.² A current prospective study (Teen-LABS) is seeking to determine the risk/benefit of gastric bypass in adolescents and data from this will allow comparisons with similar interventions in adults.³ With the increasing prevalence of childhood and adolescent obesity decisions on the best treatment option will become increasingly relevant and such data will be invaluable in guiding clinical practice.

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