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A case of bariatric surgery during pregnancy

Sarah Mavor, Melanie Lauti, Andrew D MacCormick

New Zealand has high rates of obesity, which is associated with reduced fertility.¹ Currently, bariatric surgery is the most effective treatment for obesity.² Sleeve gastrectomy is a commonly performed bariatric operation and involves excising the majority of the stomach.² Rapid and significant weight loss ensues, a less than ideal environment in which to nurture a fetus.³

When bariatric surgery is undertaken in women of reproductive age, patients are advised to delay pregnancy, with guidelines recommending a delay of at least one year.² Yet case reports of pregnancy within the first year of surgery are not uncommon.⁴ We report a case where the patient was unknowingly pregnant at the time of sleeve gastrectomy.

Case report

A 25-year-old woman weighing 135kg (BMI 47.2 kg/m²) with no obesity-related co-morbidities other than reduced fertility was referred for bariatric surgery. On specialist review, she had already lost 9kg

and was an appropriate candidate for sleeve gastrectomy. She was set a further 5kg weight loss goal.

Support to attain the preoperative weight loss goal was provided by the bariatric service. Once achieved, the patient undertook a very low calorie diet for three weeks prior to surgery, such that her weight on the day of surgery was 116kg (BMI 40.6 kg/m²).

A routine sleeve gastrectomy was performed using a 34 French calibration bougie and dividing the antrum 5cm proximal to the pylorus. There were no surgical complications and she was discharged on day two.

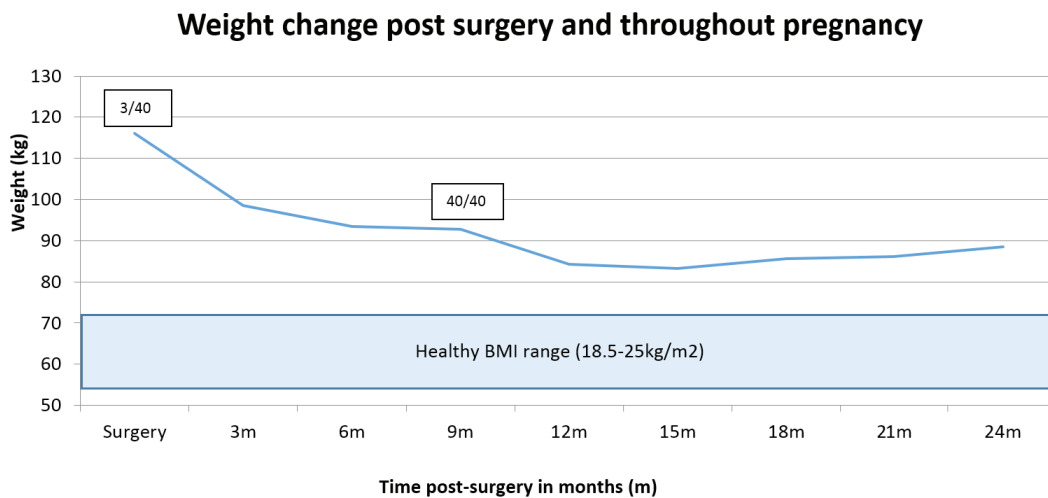
An obstetric ultrasound confirmed a single live intrauterine pregnancy of seven weeks gestation, four weeks following sleeve gastrectomy indicating intercourse approximately three weeks prior to surgery had resulted in pregnancy. The patient was monitored throughout her pregnancy by the bariatric and high-risk obstetric teams (Table 1 and Figure 1).

Table 1: Nutritional intake and supplementation throughout pregnancy recorded at bariatric dietitian appointments.

Time post-surgery	1 month	2.5 months	5 months	7 months	9 months
Time of pregnancy	7/40	13/40	23/40	31/40	39/40
Weight (kg)	105	98.6	94.4	92.8	92.8
Estimated energy intake (kcal)	235	312	1,000–1,200	745	1,230
Estimated protein intake (g)	24	44	72	53	71
Fluid intake (L)	1–1.25	-	1.5	1.2	>1.5L
Supplements	Folic acid, iron, incomplete MV (MultiADE®), protein shake	Pregnancy MV (Elevit with iodine®), 1–2x protein shakes	Pregnancy MV (Elevit with iodine®), IM B12, iron, protein shake	Pregnancy MV (Elevit with iodine®), iron, calcium	Pregnancy MV (Elevit with iodine®), IM iron, calcium, Fortisip 2–3x day
Other relevant information	Light morning sickness, constipated	Nausea resolved, constipated	Constipation improving	Increased fatigue, reduced portions, discontinued protein shakes	

MV = Multivitamin, IM = Intramuscular.

Figure 1: Trend of weight loss from day of surgery, through pregnancy up to two years post-surgery.



The patient delivered a healthy boy 40 weeks and 4 days gestation, weighing 3,410g (50th percentile), 51.5cm in length (between 50th and 75th percentile) and head circumference of 36.5cm (between 75th and 91st percentile).⁵ He achieved all expected milestones during the first year of life.

Discussion

To our knowledge, this is the first case report to demonstrate the implications of increased fertility associated with weight loss occurring prior to bariatric surgery.

Weight loss before surgery is a routine requirement for many bariatric services. As this case highlights, it may be sufficient to improve fertility. This raises the question of whether day of surgery pregnancy screening for all female bariatric patients of child-bearing age should be routine.

Reports of antenatal maternal and/or fetal malnutrition following bariatric surgery are rare, but include neural tube defects (folate deficiency), intracranial haemorrhage (vitamin K deficiency), maternal night blindness, preterm birth and vision complications in the neonate (Vitamin A deficiency).⁶⁻⁸ Cases that have been reported were all observed in so called ‘malabsorptive’ procedures rather than the ‘restrictive’ sleeve gastrectomy.^{6,7} Maternal vitamin B-12 and iron deficiencies are commonly reported but without adverse outcomes.^{7,8} Overall there is no strong

evidence regarding maternal micronutrient deficiencies, with only suggestions for screening and monitoring for micronutrient deficiencies available.³ There is no conclusive evidence supporting the theory that pregnancy within the first year post-surgery is unsafe.⁴

A second reason for delaying pregnancy following bariatric surgery is to maximise weight loss following surgery.⁴ With pregnancy, the focus changes to weight gain to support adequate growth and development of the foetus. Ministry of Health guidelines for non-bariatric patients aim for a weight gain of between 5–18 kg depending on pre-pregnancy BMI; however, there are no guidelines on what would be appropriate in bariatric patients.⁹ Aiming for weight gain, or even to slow weight loss negates the goals of the surgery, and ultimately may reduce the overall weight loss achieved.

In this case, weight stabilised at six months following sleeve gastrectomy. Whereas the weight-loss phase would usually last up to between 12–18 months. Postnatally, the patient achieved 60% excess body weight loss at two years. This is comparable to previous findings at the same institution, where the average percentage excess weight loss at two years following surgery was 55%.¹⁰

Routine counselling and contraceptive advice should be given to all female patients of child-bearing age, not only in

the early stages following surgery but also pre-operatively. This will ensure patients are adequately informed of the potential increase in fertility associated with even preoperative weight loss. Preventing pregnancy prior to surgery until after the first

postoperative year will ensure appropriate lifestyle changes are maintained and weight loss is maximised to optimise surgical results. In addition, a high risk pregnancy at risk of nutritional deficiencies is avoided.

Competing interests:

Nil.

Author information:

Sarah Mavor, Bariatric Dietitian, Counties Manukau Health, Auckland; Melanie Lauti, Surgical Registrar and Research Fellow, Counties Manukau Health and University of Auckland, Auckland; Andrew D MacCormick, Bariatric Surgeon, Counties Manukau Health and Senior Lecturer, University of Auckland, Auckland.

Corresponding author:

Sarah Mavor, Building 38, Western Campus, Middlemore Hospital, Private Bag 93311, Otahuhu, Auckland 1640.
sarah.mavor@middlesmore.co.nz

URL:

<http://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2016/vol-129-no-1447-16-december-2016/7111>

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