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Revisional bariatric surgery in a transplant patient



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ABSTRACT

INTRODUCTION: A BMI of over 35–45 kg/m² is deemed the upper limit for considering a patient for a renal transplant. Voluntary weight loss attempts are a major concern for patients while on hemodialysis, however, bariatric surgeries have opened up a new door to notable weight loss results, even demonstrating significant improvements of patients' diabetic profile and hypertension.

CASE REPORT: Case of a 52-year-old male with a BMI of 42 in end-stage renal disease, that needed a kidney transplant but was ineligible to be placed on the waiting list due to his weight. A laparoscopic sleeve gastrectomy (LSG) was performed to aid with his weight loss. He also showed major improvements in his hypertension and diabetes profiles. The patient started gaining weight as well as showing deterioration in his diabetic control. He underwent the renal transplant 1.5 years post LSG, after which he showed improvements in his blood results, diabetic and hypertensive control. However, his weight began to increase again, for which he underwent gastric bypass. Since then, the patients' glucose, BUN and creatinine have normalized and his weight continued to drop, reaching a BMI of 31.83 kg/m² 2 years post bypass.

CONCLUSION: Bariatric surgery is a safe and effective procedure to assist renal transplant patients in losing weight. In addition, it has proven to be effective in the management of the co-morbidities that are associated with renal failure. Our study was also able to prove that converting from an SG to a bypass in a transplant patient is a safe and feasible option.

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1. Introduction

While there are many criteria that are considered when selecting a patient for a kidney transplant, a Body Mass Index (BMI) of over 35–45 kg/m² is deemed the upper limit to consider evaluation [1]. Whereas voluntary weight loss attempts are a major concern for the general population, for patients to attempt this while on hemodialysis is even more daunting. However, bariatric surgeries have opened up a new door to notable weight loss results, even demonstrating significant improvements of patients' diabetic profile and hypertensive control [2,3]. The work has been reported in line with the SCARE criteria [13].

2. Case presentation

This is a case of a 52-year-old male, known to have type 1 diabetes mellitus as well as hypertension and hypothyroidism. In 2003, he was diagnosed with diabetic glomerulosclerosis, which, by April 2010, had progressed to end stage renal disease (ESRD) requiring him to start hemodialysis. Before he began his dialysis sessions,

his Blood Urea Nitrogen (BUN) and creatinine levels were continuously high, showing numbers well above the upper limit of normal (Table 1).

By 2011, it was determined that the patient required a renal transplant. However, at that time his BMI was 42 making him ineligible to be placed on the waiting list. Therefore it was determined that a laparoscopic sleeve gastrectomy (SG) should be performed in order to aid with his weight loss. Multiple conventional weight loss attempts were undertaken before the need for surgery was established. He underwent the procedure on 5/10/2011 with no complications during or after the surgery. He managed to lose the maximum amount of weight 6 months after surgery, reaching a minimum weight of 91 kg with a BMI of 31.5 kg/m². He also showed major improvement in his hypertension and diabetes post the SG.

While the patient was being prepared for the kidney transplant, he started to show an increase in his weight as well as in his creatinine levels, reaching 97 kg by November 2012, and 814 umol/L as of March 2012 respectively. His diabetes control also deteriorated and he was required to increase insulin therapy again. He was finally scheduled for a kidney transplant which he received on 10/3/2013. The kidney was received from a cadaveric donor, 33 years of age with a BMI of 23 kg/m², and was not related to the patient. After the kidney transplant, the patient was started on the appropriate immunosuppressive as well as nutritional support and antibiotic and antiviral therapy. His blood tests began showing an improve-

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Table 1
Blood Results with time.

Parameters	May 2008	July 2008	Oct 2011	Post LSG	(Post-transplant) Oct 2014	Nov 2014	(Post-Bypass) May 2016	June 2016	August 2016
Glucose (mmol/L)	5.7	6.5H	9.6H	5.9	6.3H	5.6	4.80	5.3	5.6
BUN (mmol/L)	23.2H	23.6H	25.9H	12.3H	8.8H	6.5	5.59	5.0	3.7
Creatinine (umol/L)	534H	460H	1009H	601H	137H	122H	140H	106	114
RBC (10 ¹² /L)	3.89L	3.91 L	3.75 L	3.91 L	5.09	5.08	6.11H	5.66	6.03H
Hemoglobin (g/L)	126L	123L	129L	131	135	133	160	152	161
HCT (L/L)	0.36L	0.36L	0.38 L	0.40	0.43	0.41	0.496	0.478	0.514H
HbA1C (%)				6.13	8	6.74	7		6.4

BUN = Blood Urea Nitrogen.
RBC = Red Blood Cell (count).
HCT = Hematocrit.
HbA1C = Hemoglobin A1c.

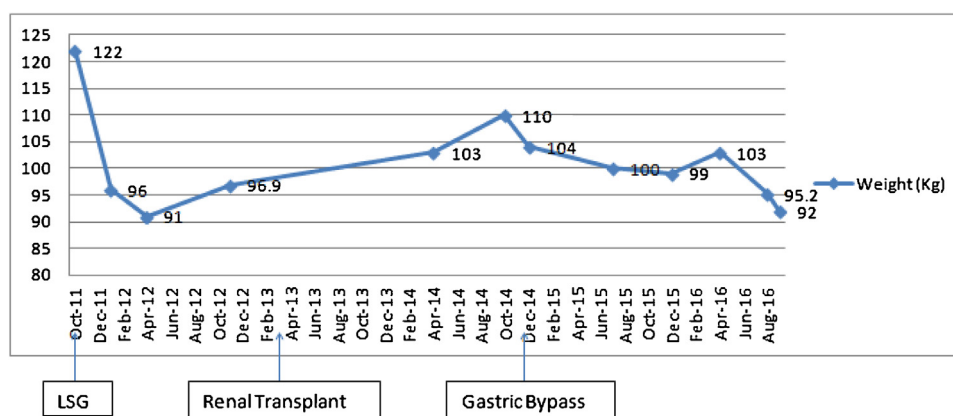


Fig. 1. Weight change with time.

ment immediately after the surgery, and maintaining such trends with time (Table 1).

After the surgery, the patients' hypertension and diabetes were under control again, showing a significant improvement, necessitating him to decrease medications for them. However, his weight began to increase once more, reaching 103 kg by April 2014 (Fig. 1), for which he consulted his surgeon who recommended an upper gastrointestinal tract endoscopy and gastrograffin image that showed an enlarged sleeve.

The patient continued to gain weight, reaching 110 kg by October 2014, and therefore a conclusion was reached that the best option for him would be a gastric bypass surgery. He underwent the procedure on 19/11/2014 with a smooth post-op course. Currently the patient is doing well, with no complaints. His glucose, BUN and creatinine have normalized (Table 1) and his weight continuing to drop, reaching 92Kg, making it a total weight loss of 18kg's after his gastric bypass surgery as of his most recent visit in September 2016.

3. Discussion

Obesity has now been established as a global pandemic, with numbers on a continuous rise with time. When it came to the population of patients undergoing renal transplant surgeries, Friedman AN et al. showed that 60% of the patients were obese (BMI > 30 kg/m²) at the time of the surgery [4]. While there are many criteria that are looked at when selecting a patient for a kidney transplant, a BMI of over 35–45 kg/m² is deemed the upper limit to consider evaluation for the transplant waiting list [1]. This is because recent studies have shown that morbid obesity is associated with multiple adverse outcomes in transplant patients. These

include wound healing complications, longer hospital stays, new onset diabetes, delayed graft function, acute organ rejection and reduced graft survival [5–8].

Medical weight loss regimens prior to kidney transplants have proven to have high failure rates, with patients spending years on the donor waitlist without achieving the target BMI, with 5% of potential candidates attaining a BMI of <30 when attempting conservative weight loss measures [9]. However, bariatric surgeries have now provided a new option for these patients. A case series conducted in 2013 was able to prove that SG's are well tolerated, technically feasible and are able to improve candidacy for transplantation, with an excess weight loss (EWL) of 50% at 12 months [10]. When it came to our patient, 6 months after he underwent the SG, he managed to reach a EWL of 52.5% conforming to the results of previous studies.

Bariatric surgery has also opened up a new frontier for the management of comorbid conditions that come as a consequence of obesity. Transplant patients have shown improvement in their diabetic profile, hypertensive control, as well as in their residual renal function after undergoing these surgeries [10,11]. As mentioned earlier, post-SG, our patients' diabetic and hypertensive profile dramatically improved, and began to deteriorate again after he started gaining weight. This could be because SG lacks the benefit that gastric bypass has in its mechanism for treating obese patients with metabolic syndrome, which is related to bypassing the foregut [12], and hence the sustained improvement perceived in our patients' metabolic profile was only seen after his bypass surgery, which verifies that the improvement seen after the SG was probably weight loss related. Our case study also proves that converting from an SG to a bypass in a transplant patient is a safe and feasible option and, to our knowledge, it is the only paper of its kind.

4. Conclusion

Bariatric surgery can be considered as a safe and effective procedure to assist renal transplant patients in losing weight to fit the transplant list criteria. In addition, it has proven to be effective in the management of the co-morbidities that are associated with renal failure, and our case study was also able to prove that converting form an SG to a bypass in a transplant patient is a safe and feasible option.

Conflict of interest

None.

Funding

None.

Ethical approval

Ethical approval to conduct the study was obtained from the Ministry of Health and Kuwait Institute for Medical Specialization Ethical Approval Board.

Author contribution

Dr. Salman Al Sabah: Study design, data collection, proof reading.

Dr. Eliana Al Haddad: Study design, data collection, data analysis, writing.

Guarantor

Dr. Salman Al Sabah.

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