



Gastric by pass after a kidney transplantation : about a case report

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Introduction

Morbid obesity is often considered a contraindication to renal transplantation in patients with end-stage renal disease and post-renal transplantation patients, as it increases the risk of graft loss, delayed graft function recovery, and heightened morbidity and mortality after transplantation.

Currently, bariatric surgery remains the only effective and long-lasting solution for morbid obesity, offering a better quality of life and a normal life expectancy. Bariatric surgery is a safe and effective treatment that can be proposed to obese patients after renal transplantation to achieve sustainable weight loss without long-term deterioration in renal function.

Materials and Methods

We report the case of a 42-year-old renal transplant recipient who underwent transplantation 12 years ago from a living donor, her mother, with a creatinine nadir of 12 mg/L. Her preoperative BMI was 31 kg/m².

In 2024, her BMI increased to 42 kg/m², despite good renal function. However, she developed complications related to morbid obesity, including hypertension, sleep apnea syndrome, severe depression with suicidal ideation, and failure of all dietary interventions over the years.

Bariatric surgery was proposed after multidisciplinary consultation. She underwent a laparoscopic Roux-en-Y gastric bypass.

On postoperative day 1, the patient received 3L/day of intravenous hydration, with daily monitoring of her fluid balance. Functional renal failure appeared on postoperative day 3, with intractable vomiting, a three-point rise in creatinine, and a return to preoperative levels by day 7. No metabolic complications were observed. Immunosuppressive therapy (tacrolimus, mycophenolate mofetil) was maintained, with residual levels within target ranges.

Weekly creatinine monitoring was continued until three months postoperatively. The patient progressively lost weight, with a current BMI of 24 kg/m² over six months. Her blood pressure improved without the need for antihypertensive

medication, and her lipid profile showed significant improvement.

Discussion

Managing morbid obesity in kidney transplant patients presents a major clinical challenge due to the metabolic effects of immunosuppressive therapy, post-transplant weight gain, and obesity-related risks. This case highlights the benefits and necessary precautions of performing gastric bypass in this population.

In our patient, gastric bypass resulted in a 30% reduction in initial body weight over 12 months, along with a significant improvement in metabolic comorbidities, particularly post-transplant diabetes. Notably, renal function remained stable throughout follow-up, with preserved glomerular filtration rate (GFR), which is remarkable. This observation contrasts with some studies, such as Springer et al. (2016) [1], which reported temporary renal function deterioration in some patients post-gastric bypass, possibly due to inadequate immunosuppressant adjustments or postoperative dehydration.

Bariatric surgery is increasingly proposed after renal transplantation for obesity management, yielding excellent weight and metabolic outcomes. Weight gain post-transplantation is influenced by several factors, including:

- The metabolic effects of corticosteroids used as immunosuppressants, which increase appetite.
- A sedentary lifestyle resulting from rapid improvement in quality of life and reduced uremic symptoms, leading to excessive food intake.
- The development of metabolic syndromes, such as post-transplant diabetes, exacerbated by calcineurin inhibitors (e.g., tacrolimus).

Obesity increases the risk of cardiovascular complications, reduces graft survival, and heightens infection risks, making it a critical post-transplant health issue. Studies have demonstrated that high BMI is a predictor of long-term graft rejection and increased morbidity [2].

This case demonstrates the feasibility and safety of gastric bypass in a renal transplant patient. Despite concerns

regarding malabsorption effects on immunosuppressant pharmacokinetics and hypovolemia risks affecting the graft, our observation shows renal function preservation.

Several recent studies have emphasized the benefits of bariatric surgery in obese transplant patients, particularly in reducing metabolic risk factors and potentially improving long-term graft survival. In the largest published series of 21 patients [3], patient and graft survival were superior to those in a control population, with only one patient experiencing acute renal failure.

Bariatric surgery is increasingly considered for kidney transplant patients, with an emphasis on postoperative follow-up for immunosuppressant dose adjustments. Recent data suggest that gastric bypass not only facilitates weight loss but also improves obesity-related comorbidities without major negative impacts on the renal graft [4].

The stability of renal function parameters and the improvement in metabolic comorbidities observed in our case suggest that bariatric surgery can be a viable option even for high-risk transplant patients. Previous studies have reported similar outcomes, with significant weight loss and reduced metabolic risks, enhancing long-term graft survival [5]. However, close monitoring and immunosuppressive therapy adjustments are crucial to preventing graft rejection.

Our observation also highlights the importance of a multidisciplinary approach in managing kidney transplant patients undergoing bariatric surgery to optimize outcomes and minimize risks. While this case is encouraging, further studies are needed to confirm the safety and efficacy of this procedure in this specific population.

Indications for Bariatric Surgery in Kidney Transplant Patients

Selection Criteria:

Bariatric surgery indications in transplant patients must be carefully evaluated to mitigate procedural and postoperative risks. Criteria include:

- BMI > 35 kg/m² with associated comorbidities (diabetes, uncontrolled hypertension).
- BMI > 40 kg/m² without comorbidities.
- Persistence of metabolic comorbidities despite optimized medical treatment.

Preference for Roux-en-Y Gastric Bypass (RYGB):

Gastric bypass is often favored over sleeve gastrectomy because:

- It significantly improves glycemic control, which is crucial for diabetic patients.
- It promotes rapid and sustained weight loss, essential for reducing cardiovascular complications.
- It carries a lower risk of gastroesophageal reflux than sleeve gastrectomy.

However, gastric bypass increases the risk of nutrient and medication malabsorption, necessitating careful immunosuppressant dosage adjustments and monitoring.

Immunosuppressant Management and Pharmacokinetic Implications

Absorption Challenges:

- Gastric bypass alters the absorption of immunosuppressants (tacrolimus, cyclosporine, mycophenolate mofetil) due to a reduced intestinal absorption surface and changes in gastric pH.
- This can lead to under- or overdosing, increasing the risks of graft rejection and drug toxicity, respectively.

Management Strategies:

- Close monitoring of blood drug levels is essential during the initial postoperative months.
- Liquid formulations or extended-release drugs may be considered to optimize absorption.
- Collaboration with a clinical pharmacist is recommended for rapid dose adjustments.

Specific Postoperative Risks and Complications

Infectious Risks:

- Immunosuppressed patients are at increased risk of infection, particularly in the early postoperative period.
- Targeted antibiotic prophylaxis and careful monitoring for signs of infection (e.g., fever, abdominal pain, or peritonitis) are essential.

Conclusion

In addition to significant weight loss, bariatric surgery improves metabolic comorbidities that may negatively affect renal function. Gastric bypass in a renal transplant patient was well tolerated, with no apparent risk to the graft. This procedure may be a viable option for morbidly obese transplant patients, provided that close renal function monitoring and necessary immunosuppressant adjustments are implemented.

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