Bariatric Surgery in a Patient on Peritoneal Dialysis

Editor:

Obesity is a major public health problem and one of the leading causes of death in the United States (1). Trends of obesity in the end-stage renal disease (ESRD) population have been similar to those in the general population (2). Obesity itself is an independent risk factor for chronic kidney disease (3) and has been associated with increased rates of peritonitis (4).

In recent years, bariatric surgery has become a safer option for weight loss, and improved surgical results have led to bariatric surgeries being performed even in patients with a body mass index of less than 35 kg/m². After surgery, improved obesity-related morbidity and overall mortality have been shown in non-ESRD populations (5,6). Improvement in kidney function after bariatric surgery even in ESRD patients was noted in a literature review by Currie *et al.* (7). In other patients, surgery not only improved metabolic syndrome, but also provided a quick path to acceptance onto the transplant list (8). However, concerns have been raised that Roux-en-Y gastric bypass may cause hyperoxaluria leading to kidney stones (9) and oxalate nephropathy (10). By contrast, purely restrictive surgeries such as sleeve gastrectomy do not lead to an increase in urinary oxalate and are less likely to worsen renal function (11). Higher body mass index has been shown to be positively associated with survival in hemodialysis (HD) patients, but that association might not hold true for patients on peritoneal dialysis (PD) (12).

Here, we report the case of a 27-year-old man who had been on PD for 43 months before his bariatric surgery. The cause of his ESRD was immunoglobulin A nephropathy. His other medical problems included hypertension, hyperlipidemia, obstructive sleep apnea, hyperuricemia, and morbid obesity. He was initiated on HD through a tunneled right internal jugular HD catheter, which later led to thrombosis of that vein requiring warfarin. After 2 months on HD, he decided to switch to PD. His treatment consisted of nightly cycler treatments with 5 exchanges of 3 L 2.5% dextrose over 8 hours. His last fill consisted of 2.5 L 7.5% icodextrin, which dwelled for 10 hours and was followed by a midday exchange using 3 L 2.5% dextrose.

Our patient was doing well on PD, with no peritonitis episodes. However, he had a very hard time controlling his weight and could not be placed on the transplant list, which led him to consider bariatric surgery. His weight at the time of enrollment into the surgical weight loss

program was 170 kg. He underwent a laparoscopic sleeve gastrectomy that used 6 laparoscopic incisions, all placed cephalad of the PD catheter. The sleeve gastrectomy was formed around a 34-French tube, using a mechanical stapling device. The staple line was not reinforced or buttressed. The operation was uneventful, as was the postoperative recovery, and the patient was discharged home on postoperative day 1.

The night before surgery, our patient had spent 12 hours on his cycler, with no final fill. The night of the surgery, PD was held. Upon discharge home the next day, the patient restarted nightly PD. He was initiated on hourly low-volume exchanges, with dry days for first 2 weeks. At weeks 3 and 4, a 1 L final fill was added. A somewhat similar protocol was published by Crabtree (13). After 4 weeks, the patient resumed his presurgical PD regimen. No fluid leaks or other perioperative surgical complications occurred.

It has been more than 2 years since the surgery, and the patient has done well, with no peritonitis. At his 26-month follow-up visit, the man's weight was 57.6 kg, representing an excess body weight loss of 91%. (On the day of surgery, his weight had been 153.8 kg.) Meanwhile, his serum albumin level has ranged from 3.7 mg/dL to 4.2 mg/dL. In addition, at 13 months after his surgery, he was listed on the United Network for Organ Sharing waiting list for renal transplantation.

Our search of the PubMed database did not reveal any reported cases of bariatric surgery in patients on PD. To the best of our knowledge, this is the first published case of a patient on PD undergoing sleeve gastrectomy. With the epidemic of obesity and the use of PD both increasing, and with dialysis patients needing transplant work-ups and evaluations, more obese patients on PD will be undergoing bariatric surgery. Our case shows that bariatric surgery can be done without having to switch the patient from PD to even temporary HD, which entails a potential for complications associated with a HD catheter. The rationale for the choice of sleeve gastrectomy was to provide the patient with the best weight loss potential combined with the lowest possible complication rate. The lap band was not chosen because of its lower weight loss benefit and higher re-operation rate. A gastric bypass was not chosen because of the fear of having a fresh small-bowel anastomosis submerged in dialysate.

Each patient has to be individually evaluated, and the patient and the surgeon have to have a comprehensive discussion to determine the appropriate weight-loss operation and the acceptable risk. Roux-en-Y gastric bypass has certain advantages with respect to long-term weight loss and diabetes control, but the mortality risk is higher (albeit low overall) compared with sleeve

gastrectomy. We believe that our patient's case will help convince surgeons and nephrologists to continue PD in such patients, as is already being reported in other types of abdominal surgeries (14,15).

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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