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Case Report

Meeting the Body Mass Index Requirement for Gender-affirming Surgery Using Antiobesity Medication

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Abstract

One-fourth of transgender and gender diverse (TGD) patients presenting for initial gender-affirming surgery (GAS) consult is denied surgery due to obesity. Many surgery centers enforce body mass index (BMI) requirements for GAS because of concerns about perioperative risks, cosmetic outcomes, and reoperation. TGD people experience gender minority stress and disparities in lifestyle factors that likely contribute to excess weight gain. Gender-affirming hormone therapy has also been associated with increased body weight. Effective and affirming weight management interventions for TGD patients with overweight and obesity are currently lacking. We report the case of a 40-year-old transgender woman with a BMI of 39.6 kg/m^2 who presented for weight loss to qualify for gender-affirming bilateral breast augmentation, requiring BMI <35 kg/m^2. In addition to lifestyle modification counseling, she was started on semaglutide with monthly dose escalation, leading to 13.9% weight loss with a BMI of 34.1 kg/m^2 within 3 months. This case highlights the need for access to affirming weight management services for TGD patients pursuing GAS and the role of antiobesity medications in reaching presurgical BMI targets. Further studies should evaluate the needs of TGD patients in weight loss interventions and the effects of weight loss and antiobesity medications on gender-affirming hormone therapy.

Key Words: obesity, body mass index, antiobesity medication, transgender, gender-affirming surgery

Abbreviations: AKI, acute kidney injury; AOM, antiobesity medication; BMI, body mass index; GAHT, gender-affirming hormone therapy; GAS, gender-affirming surgery; MBS, metabolic and bariatric surgery; OSA, obstructive sleep apnea; TBWL, total body weight loss; TGD, transgender and gender diverse.

Introduction

Gender-affirming care, including gender-affirming hormone therapy (GAHT) and gender-affirming surgery (GAS), can be lifesaving care for transgender and gender diverse (TGD) people. Many TGD patients cannot access GAS because their body mass index (BMI) is above presurgical cutoffs. BMI requirements are often set to 30 or 35 kg/m^2 because of concerns about increased perioperative risk, poorer cosmetic outcomes, and need for reoperation with higher BMI [1]. These concerns were recently challenged based on multiple small, retrospective studies showing minimal or no difference in major complications with higher BMI [2]. Still, presurgical requirements are set at the discretion of surgeons, requiring that patients meet these cutoffs.

TGD patients are often turned away based on BMI screening before initial GAS consultation or encouraged at initial consult to follow-up after losing weight without referral for weight management, if appropriate. In 1 US study of 1457 TGD patients presenting for initial GAS consult, 26% had obesity and were encouraged to follow a self-monitored weight management protocol before returning [3]. Of 1367 patients that presented for follow-up, 27% had obesity, suggesting that self-monitored weight management is an ineffective weight loss approach for TGD patients pursuing GAS.

Like the general population, most TGD patients with obesity need medication or surgery to reach their weight goal. A recent retrospective Dutch study of 11 transgender men and 4 transgender women supports the use of metabolic and bariatric surgery (MBS) to reach BMI targets before GAS [4]. Most patients underwent gastric bypass surgery, and all patients weighed significantly less at time of GAS compared with pre-MBS. However, mastectomy was delayed on average 3.4 years for transgender men and vaginoplasty was delayed on average 3.0 years for transgender women. Given the lifesaving nature of GAS, it is imperative to offer effective weight management approaches to meet presurgical BMI requirements in a more timely manner.

Antiobesity medications (AOMs) are effective in achieving significant weight loss within approximately 1 year (6.1%-14.9% total body weight loss [TBWL]) [5]. TGD people taking GAHT are excluded from AOM clinical trials, and we are not aware of studies or case reports evaluating the effectiveness or safety of AOMs in TGD patients. Given the need for timely, effective, and safe weight management approaches for TGD patients pursuing GAS and the promising weight loss from using AOMs, we present a case illustrating the effective use of an AOM in a transgender woman to reach a presurgical BMI target to qualify for GAS.

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Case Presentation

A 40-year-old transgender woman with hypertension, prediabetes (hemoglobin A1c, 6.1%), mixed hyperlipidemia, nonalcoholic steatohepatitis, gastroesophageal reflux, and solitary congenital kidney presented to an academic weight management program to lose weight before gender-affirming bilateral breast augmentation. She presented with a weight of 280 pounds (127 kg) and BMI 39.6 kg/m^2. Her weight was stable at 240 pounds (109 kg) for 3 years while on estradiol valerate 10 mg IM weekly and spironolactone 50 mg until she started micronized progesterone 100 mg orally nightly last year, at which time her weight gradually increased to a peak of 294 pounds (133 kg). She lost 14 pounds (6.3 kg) in 1 month before her initial appointment by reducing candy and sugary beverages. She had no prior experience with weight loss programs, AOM, or MBS. She wished to lose 35 pounds (16 kg), 12.5% TBWL, to reach BMI <35 kg/m^2 to qualify for surgery.

Treatment

She reported eating mostly at fast food restaurants. She did not struggle with disordered eating but endorsed sweet cravings and drinking multiple sugary beverages daily. She was instructed to follow a lower calorie diet, particularly avoiding caloric beverages, and was encouraged to self-monitor intake. She was referred for a sleep study given concerns for obstructive sleep apnea (OSA). Her primary physical activity was walking at work. She was not willing to engage in gym exercises or in outdoor activities because of body dysmorphia and concerns about discrimination. She was counseled on home exercises and was provided online queer-friendly resources. In addition, she was prescribed semaglutide 0.25 mg weekly to address insulin resistance and for superior weight loss with semaglutide compared with other Food and Drug Administration–approved AOMs [5].

Outcome and Follow-up

She experienced significant improvements in hunger and satiety after starting medication. The dose was escalated at monthly appointments, at which time side effects were monitored and absent aside from mild abdominal cramping. She reached semaglutide 1.0 mg weekly by 3 months and weighed 241 pounds (109 kg) with a BMI of 34.1 kg/m^2, corresponding to 13.9% TBWL (Fig. 1). Her hemoglobin A1c improved (5.4%); however, her creatinine increased from 0.97 to 1.36 mg/dL (85-120 µmol/L; reference, 0.66-1.25 mg/dL [58–110 µmol/L]) with decreased water consumption because of reported decreased thirst since starting semaglutide. The acute kidney injury (AKI) resolved with increased water consumption. Her estradiol level also increased after weight loss to >500 pg/mL (>1835 pmol/L; guideline recommendation, 100-200 pg/mL [367-734 pmol/L]) requiring dose reduction. She was referred to her plastic surgeon to schedule surgery after only 3 months of initiating an AOM.

In addition to using an AOM, the patient reduced her daily calorie intake and fast food and sugary drink consumption. Her sleep study results were consistent with moderate OSA, and she was referred to sleep medicine to address OSA before GAS. She did not immediately incorporate any resistance activity to avoid promoting a masculine upper body contour. She was encouraged to do light resistance activity focusing on maintaining lean mass with weight loss, choosing to begin a home resistance band training program.

Discussion

This case illustrates the use of an AOM in addition to lifestyle modification to meet BMI requirements for GAS. Surgery centers usually recommend self-monitored weight management, leading to insufficient weight loss for most patients. This patient experienced 13.9% TBWL in 3 months on semaglutide, reaching 1.0 mg weekly. Compared with retrospective data suggesting that MBS can assist transgender men and women in achieving presurgical BMI cutoffs to obtain GAS in a mean of 3.4 and 3.0 years [4], respectively, this patient was referred to plastic surgery to schedule breast augmentation 3 months after starting an AOM. BMI requirements for GAS are often similar among procedures (eg, vaginoplasty vs breast augmentation). Although initial mean BMI for transgender women (40.1 kg/m^2; range, 39.0-47.3 kg/m^2) in the Dutch study was similar to this patient, BMI was higher in transgender men (44.2 kg/m^2; range, 37.7-49.0 kg/m^2). MBS generally leads to greater weight loss compared with AOM monotherapy or lifestyle modification. Compared with 28.4% and 23.0% TBWL at 1 year after Roux-en-Y gastric bypass and sleeve gastrectomy, respectively, the 1-year weight loss is significantly less for semaglutide (14.9% TBWL), phentermine/topiramate (8.6%-10.5% TBWL), orlistat (8.5% TBWL), liraglutide (8.0% TBWL), naltrexone/bupropion (6.1%-6.4% TBWL), and comprehensive lifestyle interventions (5%-10% TBWL) [5, 6]. Although surgical weight loss is superior to other available methods, MBS may be cost-prohibitive or undesirable. Although limited insurance coverage for AOMs continues to restrict access, this case highlights that AOMs are an option for patients within 6% to 15% of their presurgical goal. Safe monitoring of AOMs needs to be determined because this patient experienced AKI after initiating treatment. Although she may have been at increased risk given congenital solitary kidney, AKI has also been reported in patients with chronic kidney disease using semaglutide [7]. There is no known mechanism for AKI resulting from glucagon-like peptide receptor agonists, like semaglutide. In this case, AKI resolved with increased water intake, suggesting that the patient may have been dehydrated, possibly from decreased thirst.

This patient's weight was stable with class I obesity while taking estradiol valerate 10 mg IM weekly and spironolactone 50 mg orally until starting micronized progesterone 100 mg orally nightly with an associated 54-pound (24.5 kg) weight gain in 1 year. Feminizing GAHT with estrogen and spironolactone is associated with 1.8-kg total body weight gain, 3.0-kg increased fat mass, and 2.4-kg loss in lean mass at 12 months [8]. Only 1 study evaluated the weight and body composition effects of estradiol valerate 10 mg IM every 10 days with subcutaneous goserelin acetate and found 0.4 kg/m^2 increased BMI, 2.4 kg increased fat mass, and 2.4 kg loss in lean mass at 12 months with even greater changes at 24 months [8]. To our knowledge, there are no published data on body composition or weight changes associated with including progesterone in GAHT.

Importantly, transgender women with BMI ≥30 kg/m^2 report greater social relations after initiating GAHT than individuals with lower BMI [9]. Thus, some weight gain to obtain desired body shape may be gender-affirming, and the patient's wishes should be assessed before weight

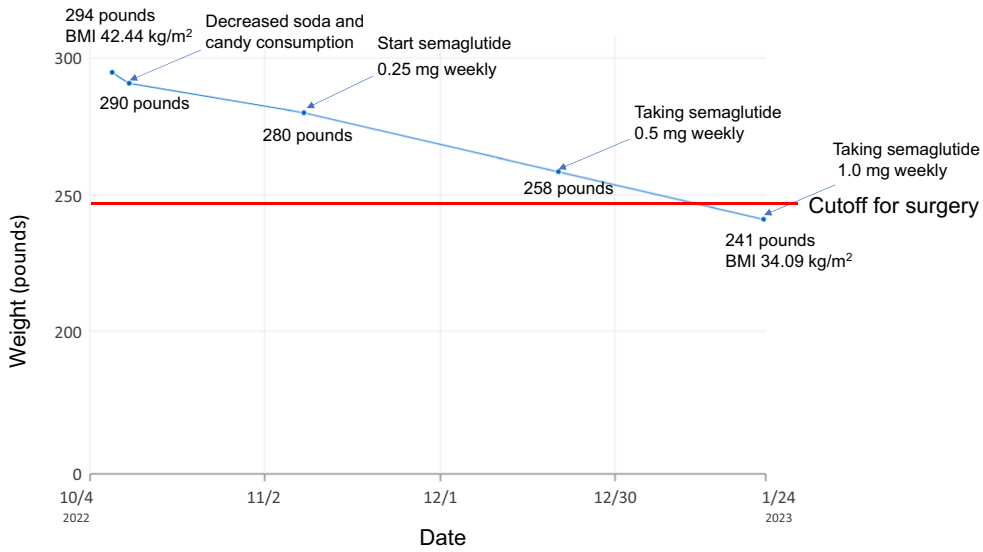

Figure 1. Weight trajectory of a transgender woman with lifestyle modification and use of semaglutide.

management. For this patient, 3 months of semaglutide treatment reversed the weight gain that she experienced after 1 year of progesterone GAHT. Though we could not confirm the timing of blood draw in relation to estrogen injection, this patient required a dose reduction in estrogen during her weight loss. Further evaluation of the effects of significant weight loss and AOMs on GAHT dose and hormone levels is needed.

This patient's largest barriers to engaging in lifestyle modification were body dysmorphia and fear of discrimination. Gender minority stress encompasses the distal (eg, gender-related discrimination, rejection, and victimization) and proximal (eg, internalized transphobia, negative expectations) stressors that TGD people experience that contribute to worsened mental and physical health [10]. In this case, the patient was open to home exercises focusing on toning rather than strengthening to avoid developing a masculine upper body. Given patients' legitimate concerns regarding safety (ie, victimization) and affirmation (ie, inadequate changing rooms) in public spaces as well as desired body contour, health care providers must individually tailor their physical activity recommendations.

In summary, we report the case of a 40-year-old transgender woman on feminizing GAHT with obesity and multiple weight-related comorbidities presenting for weight loss to meet presurgical BMI requirements for GAS. Semaglutide and lifestyle modifications resulted in 13.9% TBWL and a 5.5-point reduction in BMI at 3 months, qualifying her for the procedure. Prescribing AOMs may be a preferable alternative to self-monitored weight loss, which is often insufficient, or MBS, which can delay GAS for years. Further studies need to assess the validity of BMI cutoffs for GAS. Until then, TGD patients deserve effective and timely weight loss treatments, such as AOMs, and affirming providers to help them lower BMI to meet GAS criteria.

Learning Points

- Although there is heterogeneity between surgery centers, many require body mass index cutoffs (<30 or 35 kg/m^2) for gender-affirming surgery (GAS) that limit access for one-fourth of patients presenting for new surgery consults at some centers.
- Antiobesity medications are effective treatment options for transgender and gender diverse (TGD) patients before GAS and may result in more timely weight loss than metabolic and bariatric surgeries, which can delay GAS by 3 years.
- Health care providers must tailor lifestyle modifications to the unique needs of TGD patients, who may experience disparities in healthy behaviors because of gender minority stress and socioeconomic inequities.

Contributors

All authors made individual contributions to authorship. J.M.T. provided the direct management of this patient, wrote the first draft of the manuscript, and created the figure. A.H.G. provided oversight of the management of this patient and provided critical revisions to the manuscript. S.J.I. contributed to the writing of the discussion and provided critical revisions to the manuscript. All authors reviewed and approved the final draft.

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Disclosures

None declared.

Informed Patient Consent for Publication

Signed informed consent obtained directly from the patient.

Data Availability Statement

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

References

1. Bigarella LG, Ballardin AC, Couto LS, *et al*. The impact of obesity on plastic surgery outcomes: a systematic review and meta-analysis. *Aesthet Surg J*. 2022;42(7):795-807.
2. Brownstone LM, DeRieux J, Kelly DA, Sumlin LJ, Gaudiani JL. Body mass index requirements for gender-affirming surgeries are not empirically based. *Transgend Health*. 2021;6(3):121-124.
3. Martinson TG, Ramachandran S, Lindner R, Reisman T, Safer JD. High body mass index is a significant barrier to gender-confirmation surgery for transgender and gender-nonbinary individuals. *Endocr Pract*. 2020;26(1):6-15.
4. van der Sluis WB, de Bruin RJM, Steensma TD, Bouman MB. Gender-affirmation surgery and bariatric surgery in transgender individuals in The Netherlands: considerations, surgical techniques and outcomes. *Int J Transgend Health*. 2022;23(3):355-361.
5. Chakhtoura M, Haber R, Ghezzawi M, Rhayem C, Tcheroyan R, Mantzoros CS. Pharmacotherapy of obesity: an update on the available medications and drugs under investigation. *EClinicalMedicine*. 2023;58:101882.
6. Arterburn DE, Johnson E, Coleman KJ, *et al*. Weight outcomes of sleeve gastrectomy and gastric bypass compared to nonsurgical treatment. *Ann Surg*. 2021;274(6):e1269-e1276.
7. Leehey DJ, Rahman MA, Borys E, Picken MM, Clise CE. Acute kidney injury associated with semaglutide. *Kidney Med*. 2021;3(2):282-285.
8. Klaver M, Dekker M, de Mutsert R, Twisk JWR, den Heijer M. Cross-sex hormone therapy in transgender persons affects total body weight, body fat and lean body mass: a meta-analysis. *Andrologia*. 2017;49(5):e12660.
9. Silva ED, Fighera TM, Allgayer RM, Lobato MIR, Spritzer PM. Physical and sociodemographic features associated with quality of life among transgender women and men using gender-affirming hormone therapy. *Front Psychiatry*. 2021;12:621075.
10. Streed CG J, Beach LB, Caceres BA, *et al*. Assessing and addressing cardiovascular health in people who are transgender and gender diverse: a scientific statement from the American Heart Association. *Circulation*. 2021;144(6):e136-e148.