Eating Disorders in Adolescents With a History of Obesity

abstract

Adolescent patients with obesity are at significant risk of developing an eating disorder (ED), yet due to their higher weight status their symptoms often go unrecognized and untreated. Although not widely known, individuals with a weight history in the overweight (BMI-for-age $\geq 85$th percentile but $<95$th percentile, as defined by Centers for Disease Control and Prevention growth charts) or obese (BMI-for-age $\geq 95$th percentile, as defined by the Centers for Disease Control and Prevention growth charts) range, represent a substantial portion of adolescents presenting for ED treatment. Given research that suggests that early intervention promotes the best chance of recovery, it is imperative that these children’s and adolescents’ ED symptoms are identified and that intervention is offered before the disease progresses. This report presents 2 examples of EDs that developed in the context of obese adolescents’ efforts to reduce their weight. Each case shows specific challenges in the identification of ED behaviors in adolescents with this weight history and the corresponding delay such teenagers experience accessing appropriate treatment.

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KEY WORDS
eating disorders, obesity

ABBREVIATIONS
AN—anorexia nervosa
ED—eating disorder
PCP—primary care provider

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The “childhood obesity epidemic” has become a familiar slogan disseminated with the intention of raising awareness of risks posed to youth by sedentary behaviors and inadequate nutrition. These campaigns are based on the significant medical comorbidities associated with pediatric obesity, as well as rising prevalence estimates that suggest that 17% of children and adolescents meet criteria for this condition. Although pediatric eating disorders (EDs) have not received the same degree of public health attention, they are also serious conditions afflicting a sizable number of children and adolescents. At least 6% of youth suffer from EDs, and >55% of high school girls and 30% of boys report disordered eating symptoms, including engaging in ≥1 maladaptive behaviors (fasting, diet pills, vomiting, laxatives, binge-eating) to induce weight loss. Of concern, EDs are associated with a chronic course, high relapse rates, and significant impairment, along with a host of medical comorbidities that are often life-threatening.

Somewhat counterintuitively, patients with a weight history in the overweight (BMI-for-age ≥85th percentile but <95th percentile, as defined by the Centers for Disease Control and Prevention growth charts) or obese (BMI-for-age ≥95th percentile, as defined by the Centers for Disease Control and Prevention growth charts) range represent a substantial portion of patients presenting for ED treatment. Symptoms in these patients are not limited to binge-eating or bulimic behaviors. In 1 study in >100 patients with anorexia nervosa (AN), the majority had a history of obesity! Another study revealed that nearly half of patients presenting for adolescent ED treatment had a history of obesity and that it took significantly longer for these patients to be identified as compared with patients without this weight history (L.A.S., unpublished data). Although former diagnostic criteria classified individuals with AN as those who lost >25% of their baseline weight, irrespective of absolute body weight, the current diagnostic system’s inclusion of an absolute weight requirement has allowed many seriously ill patients to go undetected or to receive a diagnosis of eating disorder not otherwise specified, which might not convey the seriousness of the patient’s weight loss to other practitioners. This situation is particularly troubling given research that, compared with adolescents with AN, a sample of overweight teenagers who had lost >25% of their premorbid weight were more medically compromised. The following cases highlight EDs that developed in the context of obese adolescents’ efforts to lose weight. These examples show specific challenges in identification and treatment of EDs in young patients with an obesity history.

CASE 1

Daniel is a 14-year-old boy who presented to an ED evaluation with a 2-year history of significant weight loss (39.5 kg) that developed in the context of a history of obesity. Daniel reached his highest BMI of 33.6 when he was 12 years old. At that time, Daniel weighed 40 kg above the 50th percentile for BMI-for-age for boys. Throughout development, Daniel’s BMI had always trended well above his same age and gender peers and appeared to be moving steadily upward from the 90th percentile at age 3 to well beyond the 97th percentile. (See Fig 1 for weight history.)

Daniel’s weight-loss efforts began with attempts to eat healthily and exercise but quickly developed into severe restriction: he reported eating no more than 600 kcal per day while running high school cross country. He eliminated sweets, fats, and carbohydrates from meals and would only eat “diet food.” Daniel also exhibited many physical and emotional sequelae of low weight including difficulties concentrating, worsening mood and irritability, extreme social withdrawal, as well as cold intolerance, significant fatigue, bloating, and constipation. Similar to many individuals with AN, Daniel had little insight into the seriousness of his problem.

Daniel’s weight loss came to the attention of his medical providers in the context of a pediatric gastroenterology evaluation for concerns regarding constipation, bloating, and intermittent postprandial chest pain. Results of the gastroenterology evaluation, including screening for celiac sprue, Giardia, and Helicobacter pylori, a hydrogen breath test, thyroid testing, and a brain MRI, were unremarkable. However, Daniel exhibited marked sinus bradycardia, and laboratory results were consistent with significant dehydration. In spite of having lost over half of his body weight, the medical documentation associated with the evaluation stated, “there is no element to suggest that he has an eating disorder at this particular time.” At the request of his mother, however, Daniel was referred for an ED evaluation. Of note, Daniel’s weight was a focus of discussion at all medical appointments throughout his childhood. However, during the 13 medical encounters that took place when he was losing weight, there was no discussion of concerns regarding weight loss.(See Fig 1 for weight history.)

CASE 2

Kristin is an 18-year-old girl who presented to an ED evaluation for significant fear of weight gain, restrictive eating, excessive exercise, and binge-eating. At the time of the evaluation, Kristin was experiencing physical sequelae of low weight and poor nutritional status, including secondary amenorrhea, cold intolerance, and fatigue. She also had developed persistent back pain and stress fractures.

Kristin’s weight loss also began in the context of obesity. When she was
12 years old, her obesity was identified and addressed by her primary care physician (PCP) through a review of healthy eating and exercise habits. Consequently, Kristin attempted several diets with little success. At age 14, she reached her highest weight of 85 kg, corresponding to a BMI of 32. At this time, Kristin committed to a dietary regimen of 1500 kcal per day and began running 7 miles per day. Within 3 years, she lost 38 kg, going from beyond the 97th percentile to the 10th percentile. (See Fig 2 for weight history.) After the first year of her weight loss, she presented to a physical examination with secondary amenorrhea, dizziness, and orthostatic intolerance. At that appointment, her provider recommended that Kristin drink more water and prescribed oral contraceptives for Kristin’s amenorrhea. One year later, after losing an additional 18 kg, she returned for follow-up with continued orthostatic symptoms. Although her mother expressed concerns about Kristin’s restrictive eating and minimal dietary fat intake, these concerns were overlooked. At her next visit 6 months later, Kristin again presented with amenorrhea. Her PCP then recommended an evaluation for polycystic ovary syndrome, which Kristin declined. Documentation associated with the visit stated that it was likely that her amenorrhea was related to her running regimen.

Six months later, Kristin developed severe right distal shin pain and was referred to a sports medicine physician, who remarked on her weight loss, amenorrhea, stress fractures, and binge-eating and expressed concerns that she had developed the female athlete triad. Consequently, she was referred for a sports nutritional consultation. The dietitian expressed no concerns regarding her minimal dietary fat intake or significant weight loss and instead recommended that she maintain her current weight and eating pattern. Around the same time, Kristin presented to her PCP for a general medical evaluation. In spite of her mother’s concern that she may have an ED, her PCP documented, “given that her BMI is

FIGURE 1
BMI history for case 1.
currently appropriate, it is reasonable to
do a trial off the birth control pill and see if
her menses resume.”

**DISCUSSION**

These cases highlight EDs that
developed in the context of obesity and the
 corresponding challenges in identifi-
cation and consequent delay in treat-
ment. In both cases, despite regular
medical check-ups and obvious signs of
malnutrition, EDs were not identified as
such and consequently worsened.
Symptoms were instead attributed
to rarer disorders such as polycystic
ovary syndrome or gastrointestinal
conditions. It is important to note that
these patients’ weight histories and
severe physical and psychological
symptoms are not unique. In total, 45%
of the patients seen in our ED clinic in
the past year were adolescents with
a history of obesity.6

These cases were selected because they
highlight important issues for medical
providers to keep in mind in their
encounters with patients with obesity
histories. In particular, children and
adolescents whose weights fall in the
normal, overweight, or even obese range
are not exempt from having or de-
veloping an ED. Physical complications of
semitarvation and weight loss, which
are red flags in a low-weight individual,
are often misdiagnosed in these patients.
Because of this misdiagnosis, referral for
ED treatment is often delayed until the ED
symptoms have progressed and physical
and psychological sequelae are severe.6
PCPs need to be aware that youth with
significant EDs can present at any
weight. ED concerns should be based on
deviations from a child’s pattern of
growth and not simply the percentile at
which they present for treatment. It is
important to keep in mind that weight
loss is a fairly unusual and difficult task
for adults, and more so for adoles-
cents,10 and any weight loss, even if it
takes a child from overweight to the
“average” range, should prompt ED
screening. Furthermore, ED identifica-
tion should not hinge solely on weight
status. Even in the absence of low

![BMI History for Case 2](image_url)
weight, evidence of eating-disordered behaviors (e.g., driven exercise, rapid weight loss, extreme dietary restriction, binge-eating, compensatory behaviors such as purging), cognitions (e.g., unhealthy emphasis on the importance of weight/shape, skewed or negative body image), psychological features (e.g., social withdrawal, irritability, rigidity), and physical sequelae of starvation should prompt immediate intervention and referral to appropriate services. Early identification of EDs is associated with the most positive prognosis for teenagers and, as such, PCPs are often uniquely placed to ensure that patients’ symptoms are addressed with maximum effectiveness.

In summary, with the goal of early detection and intervention, it is essential that ED symptoms are on every practitioner’s radar, regardless of the patient’s weight. Disordered behaviors must be identified as early as possible, and patients referred for appropriate intervention. By maintaining awareness that EDs and obesity are, in fact, heavily overlapping, and not distinct, classes of disorders, health care professionals can improve overall patient health.

REFERENCES

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