

From Obesity to Bigorexia: A Clinical Case Report

Da Obesidade à Vigorexia: Relato de um Caso Clínico

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ABSTRACT

Body image is a multidimensional construct about one's appearance. Social and media factors contribute to dissatisfaction and are associated with mental health disorders. In adolescence, obesity emerges as a significant factor, with a four-fold increased risk of body dissatisfaction. Muscle dysmorphia is characterized by an obsessive pursuit of muscularity and distorted body image. A 16-year-old male with a history of obesity and depression, medically accompanied since age 10, developed obsessive behaviors around diet and exercise after weight loss and remission of depression. He adopted a "bulking and cutting" regimen and used creatine, protein, and caffeine supplements. He displayed rigid behavior, with poor insight. Given the pervasive functional impairment, he was referred to child and adolescent psychiatry. Muscle dysmorphia, classified as a body dysmorphic disorder, is underdiagnosed. Adolescent obesity may be a predisposing factor. Early recognition, particularly in adolescents with obesity and body image concerns is crucial for healthy development.

Keywords: Adolescent; Body Dysmorphic Disorders; Body Image; Feeding Behavior; Feeding and Eating Disorders; Muscles; Obesity/complications

RESUMO

Imagem corporal é um conceito multidimensional relacionado com a perceção da aparência física. Fatores sociais e mediáticos contribuem para a insatisfação corporal e desenvolvimento de patologia mental. Na adolescência, a obesidade aumenta quatro vezes o risco de insatisfação corporal. A dismorfia muscular caracteriza-se por obsessão com a musculatura e distorção da imagem corporal. Um adolescente do sexo masculino, 16 anos, seguido desde os 10 anos por obesidade e perturbação depressiva, desenvolveu comportamentos obsessivos com exercício após perda ponderal e remissão da sintomatologia depressiva. Adotou uma dieta de "bulking and cutting" e iniciou suplementação com creatina, proteína e cafeína. Apresentava comportamento rígido, sem autocritica, tendo sido orientado para consulta de pedopsiquiatria. A dismorfia muscular, classificada como um distúrbio dismórfico corporal, permanece subdiagnosticada. A obesidade na adolescência pode predispor o seu desenvolvimento. O reconhecimento precoce, particularmente em adolescentes com obesidade e preocupações com a imagem corporal, é essencial para um desenvolvimento saudável.

Palavras-chave: Adolescente; Comportamento Alimentar; Distúrbio Dismórfico Corporal; Imagem Corporal; Músculos; Obesidade/complicações; Perturbações da Alimentação e da Ingestão de Alimentos

INTRODUCTION

Body image (BI) has been defined as a multidimensional construct that represents how individuals think, feel and behave regarding their physical attributes.^{1,2}

Body dissatisfaction often emerges during childhood or adolescence and is influenced by social and media factors.² Obesity in adolescence is a significant contributor, with meta-analyses showing a four-fold increased risk of body dissatisfaction compared to healthy-weight peers, and the literature documents several mechanisms facilitating the transition towards an extreme obsession with muscularity.^{3,4}

Muscle dysmorphia was first described in 1993 by Pope as "inverse anorexia nervosa", due to its similarity to body-related concerns observed in eating disorders, but with inverse symptoms, later also termed "adonis complex", "muscle dysmorphia" or "bigorexia".^{1,2,5} Although synonymous, muscle dysmorphia is the technical designation used in formal diagnostic classification systems. This entity consists of an extreme obsession with muscularity, leading to excessive exercise, unbalanced diets and, in some cases, anabolic substance use, with significant repercussions on physical, mental and social functioning.² Sociocultural influences, media exposure, and childhood bullying history have been identified as relevant contributing factors.⁵⁻⁹

The authors wish to draw attention to this underdiagnosed condition underscoring the importance of early clinical recognition.

CASE REPORT

A 16-year-old white male was followed at the adolescent medicine clinic since age 10 for obesity (maximum BMI 32.9 kg/m²), depressive disorder, compulsive eating, sedentary lifestyle, and insulin resistance. Initial laboratory evaluation

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revealed hyperinsulinemia (20mU/L) and a HOMA index of 5.26, indicating significant insulin resistance. We performed an abdominal ultrasound, which was normal. After multidisciplinary care, including pharmacological treatment with metformin and a selective serotonin reuptake inhibitor (SSRI) at age 14, he modified his eating habits and initiated physical activity, losing 14 kg over one year (BMI 23.8 kg/m²), with improved self-esteem and metabolic parameters (HOMA index 2.07). Both medications were discontinued by age 15.

In the following months, a significant behavioral change emerged. He intentionally gained 10 kg in six months (BMI 26.38 kg/m²) as part of a gym-recommended *"bulking and cutting"* program, followed by rapid weight loss (BMI 23.1 kg/m²), and initiated supplementation with creatine, protein, and caffeine. The patient denied taking steroids but reported drinking 4 L of water per day. He had three-hour bodybuilding sessions four times a week and daily static bicycle use. He displayed an aggressive and rigid attitude, and regarded missing a workout as inconceivable, weighing himself and counting calories obsessively, showing no self-criticism. The physical examination was unremarkable, and blood and urine tests were normal.

Displaying the same behavioral pattern at home, the patient was unable to attend family events, conflicting with training, responded aggressively when parents attempted to interfere with his diet or exercise routine, and his academic performance deteriorated. Given the pervasive functional impairment, he was referred to child and adolescent psychiatry, where he confided a profound fear of returning to his previous body shape. Cognitive behavioral therapy (CBT) was initiated without pharmacological intervention. After one year, he recognized dysfunctional patterns related to food and BI, reduced exercise duration, and reported greater flexibility in dietary habits, no longer experiencing guilt associated with occasional deviations from his routine.

The main clinical milestones, including BMI evolution, laboratory findings, therapeutic interventions, and the onset of obsessive behaviors are summarized in Fig. 1.

DISCUSSION

According to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), muscle dysmorphia is classified within the body dysmorphic disorder, in the obsessive-compulsive spectrum, though this classification remains controversial.^{2,5,8,10}

Affected individuals perceive themselves as insufficiently muscular despite normal or muscular appearance, engaging in compulsive exercise, restrictive diets and substance use, as repetitive responses to appearance concerns causing clinically significant distress across social, occupational, and other domains.^{2,6,8} Although primarily a psychiatric disease, it carries potentially significant repercussions on physical functioning.² Insight is frequently impaired, and the condition is associated with anxiety, social avoidance, depressed mood, neuroticism, and perfectionism.^{2,8,10} The DSM-5 criteria are summarized in Table 1.⁸

The disorder predominantly affects men, typically emerging during adolescence, a period of heightened vulnerability to body image concerns, and primarily affecting those aged 15 to 35 years.^{2,5,6}

The prevalence rate remains uncertain, given reliance on selected samples (athletes and bodybuilders). Furthermore, underdiagnosis persists due to limited clinical awareness, normalization of muscle-building behaviors, and significant help-seeking stigma.¹¹ Although longitudinal evidence is lacking, the literature suggests that muscularity-oriented behaviors and concerns are becoming increasingly common among adolescents.¹¹

The etiology remains poorly understood. Genetic and neurobiological factors, family history of obsessive-compulsive disorder and childhood abuse have been implicated.^{2,5,6,8} Media and social media platforms are particularly influential, promoting idealized muscular standards, and reinforcing compulsive behaviors.⁹ Obesity in adolescence may represent a predisposing factor to the development of muscle dysmorphia through several interrelated mechanisms, although longitudinal studies addressing this trajectory remain scarce.^{3,4} This is particularly relevant in Portugal, where obesity prevalence among adolescents is approximately 8% - 9%.¹¹ In the present case, the history of obesity, body dissatisfaction, and low self-esteem appears to have created vulnerability towards an obsessive pursuit of muscularity, with initial weight loss success and gym reinforcement acting as triggers for compulsive exercise and rigid dietary behaviors.

This condition is associated with the *"bulking and cutting"* regimen, which alternates periods of caloric surplus with periods of caloric deficit.⁹ Although widely promoted on social media, it carries significant health risks, including metabolic imbalances, nutritional deficiencies, asthenia, and impaired growth, particularly during adolescence.^{9,12}

Effective interventions for muscle dysmorphia remain limited. However, some studies suggest that CBT and SSRIs may be beneficial, as they are the first-line interventions for body dysmorphic disorder.^{6,10} In this case, and consistent with these recommendations, CBT was initiated without pharmacological intervention. The patient's profound fear of returning

to his previous body shape guided the therapeutic approach, and after one year, he demonstrated progressive recognition of dysfunctional patterns with improved dietary and exercise flexibility. Treatment should be multidisciplinary, involving psychotherapy, restructured exercise, and nutritional re-education, aiming to promote psychological well-being and self-acceptance.^{6,10}

CONCLUSION

Muscle dysmorphia remains underdiagnosed and underrecognized, with an underestimated prevalence. This case highlights a condition where muscularity-oriented behaviors appear increasingly common among adolescents, illustrating how obesity, body dissatisfaction, and sociocultural pressures may converge as predisposing factors. Early identification and multidisciplinary intervention are essential to ensure a timely diagnosis, appropriate guidance, and prevent long-term complications.

Further investigation is warranted to better understand this phenomenon during a developmental stage that is inherently turbulent.

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AUTHOR CONTRIBUTIONS

IE: Conceptualization, writing - original draft.

MIS, ABS, FO: Writing - review and editing.

PF: Supervision, writing - review and editing.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

PATIENT CONSENT

Obtained.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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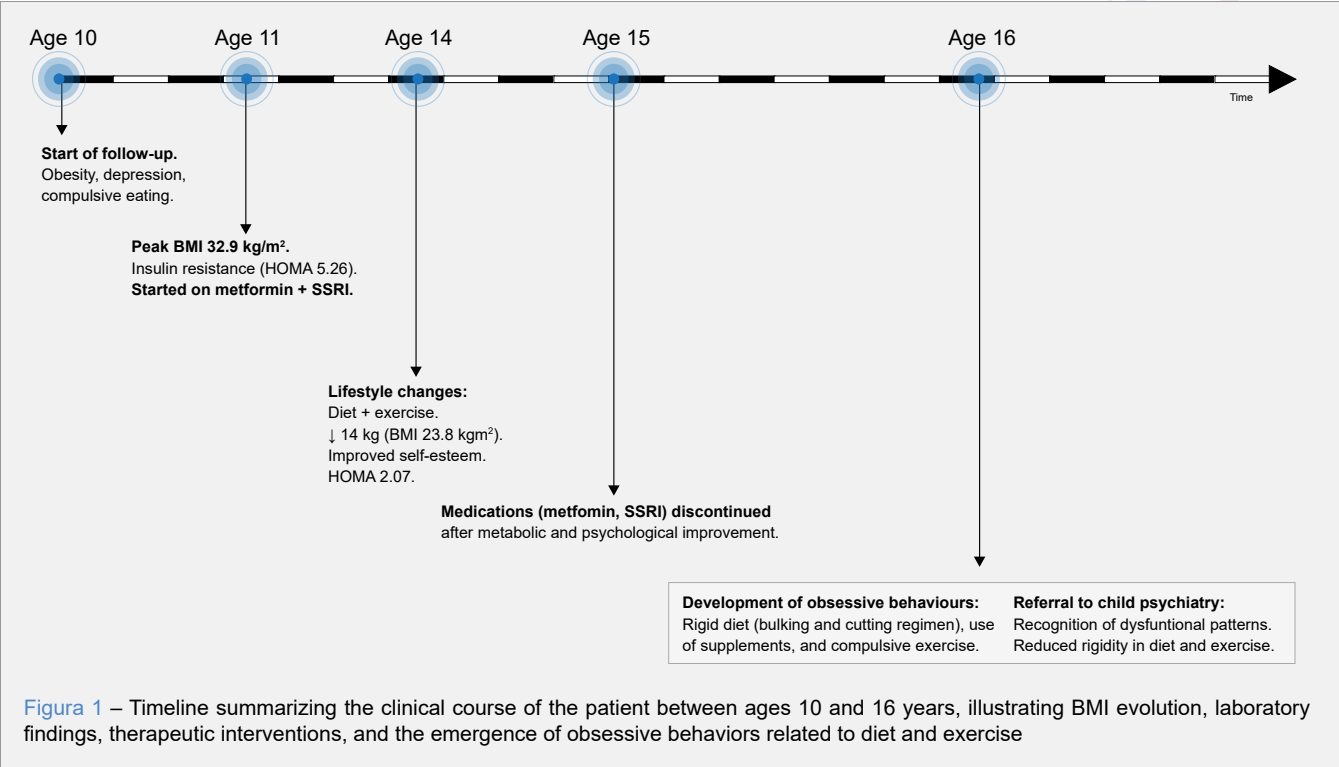


Figura 1 – Timeline summarizing the clinical course of the patient between ages 10 and 16 years, illustrating BMI evolution, laboratory findings, therapeutic interventions, and the emergence of obsessive behaviors related to diet and exercise

Table 1 – Diagnostic criteria for Bigorexia according to DSM-5

A. Meets criteria for body dysmorphic disorder.
1 - Preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others.
2 - At some point during the course of the disorder, the individual has performed repetitive behaviors or mental acts in response to the appearance concerns.
3 - The preoccupation causes clinically significant distress or impairment in social, occupational or other important areas of functioning.
4 - The appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an ED.
B. Excessive preoccupation with the body, considering that his/her body shape is too small or not muscular enough.

Bigorexia diagnostic criteria: DSM-5 (A+B)