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CASE REPORTS

BIGOREXIA - AN UNUSUAL DIAGNOSIS IN FEMALE

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ABSTRACT

Bigorexia is a body dysmorphic disorder observed almost exclusively in males. It is characterized by an excessive preoccupation with the body, wherein the individual believes their body forms are too small and experiences repetitive thoughts about exercising to increase muscle mass.

We present a case of a 16-year-old female who was referred due to suspicion of an eating disorder. Upon evaluation, we observed body image distortion, an obsession with physical activity and a strict dietary regimen aimed at enhancing muscle mass. This interfered with both school and family life. She did not perceive herself as overweight but expressed dissatisfaction with her body, despite having muscle hypertrophy. A diagnosis of bigorexia was established and she showed improvement through cognitive-behavioral therapy and the use of antidepressants.

Although bigorexia is relatively rare in females, healthcare professionals should be aware of this condition to provide early intervention.

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bigorexia, body dysmorphic disorder, female, adolescent.

Case Report

A previously healthy 16-year-old female was referred to an adolescent medicine appointment by her general practitioner for suspicion of an eating disorder (ED).

She had been concerned about her body image for the past two years, when she started exercising. Over the last year, her physical activity (PA) intensified, with her engaging in street workouts 6 h/day and running 12 km/day. Her PA interfered with her social/school life (she used her lunchtime or free time to train at the expense of being with her friends) and family life(frequent discussions, which ended with exercise prohibition). Whenever she could not follow the training plan, she experienced guilt and sleep disturbances due to recurring/obsessive thoughts of PA.

In the last months, before follow-up, she adopted a regimen of 7-8 meals/day, restricting carbohydrate intake. There was no history of purging or binge eating behaviours. While she did not consider herself fat, she did not appreciate her shape because it was not muscular enough. She idealized an unhealthy body. Her primary concern was defining abdominal muscles, rather than losing weight. She frequently compared her body to others and felt discomfort when they looked at her. At the time of the consultation, she had been amenorrheic for five months.

On the first clinical observation, she weighed 47.35 Kg with a body mass index (BMI) of 17.39 Kg/m^2(percentile 7 on WHO charts), showing thinness with decreased subcutaneous adiposity and muscle hypertrophy, particularly in the abdominal region. The rest of the physical examination was unremarkable. In mental status examination, she exhibited a depressed mood, high levels of anxiety and alterations of thought and perception.

A multidisciplinary follow-up was started, with regular Adolescent-Medicine, Nutrition, Child and Adolescent Psychiatry and Psychology appointments. Cognitive-behavioural therapy and antidepressant medication (sertraline 50 mg QD) were initiated, along with nutritional counseling. An extended laboratory investigation revealed a slight increase in creatinine (0.96 mg/dL) and alanine transaminase (52U/L) and a decrease in luteinizing hormone (<0.2 U/L) and estradiol (9 pg/mL) in the hormonal study, consistent with functional hypothalamic amenorrhea.

During the follow-up, there was a shift in the adolescent's behaviour: she adjusted her diet by increasing intake of carbohydrates and especially proteins. Despite being advised to suspend PA, she continued training secretly. However, she modified her workout plan (frequency and type of exercise) to achieve her goal. According to the teenager, all these measures were to increase muscle hypertrophy. There was a progressive weight increase (Figure 1), always with the concern that it was at the expense of muscle mass. This led to the diagnosis of Bigorexia, which was explained to the teenager, who accepted with some reluctance.

She also experienced upper quadrants abdominal pain, which worsened 30 minutes after meals and was relieved by defecation and alternating periods of constipation with diarrhea. She started taking esomeprazole and sucralfate with no sense of relief. After further

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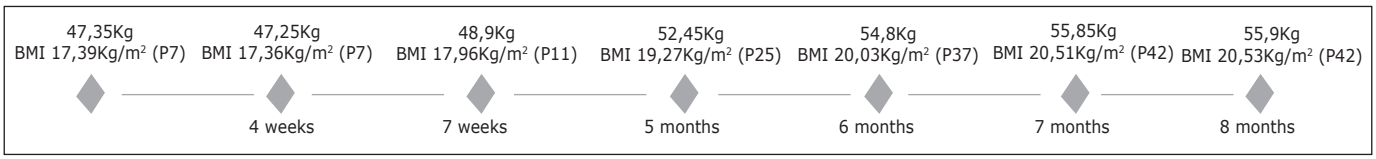
Figure 1. Evolution of weight and BMI (WHO percentiles) during follow-up in consultation.



investigation (negative faecal calprotectin and celiac disease screening, abdominal ultrasonography, upper gastrointestinal endoscopy and colonoscopy without changes), it was established the diagnosis of Irritable Bowel Syndrome (Roma IV criteria).

After eight months of follow-up, she maintained amenorrhea, despite sex hormones being within average values. Although still contraindicated, she continued to exercise, albeit with reduced intensity. Her weight stabilized (55.9 kg, BMI 20.53 Kg/m^2) and she no longer exhibited body image distortion (BID). While Her mood improved, gastrointestinal complaints persisted. At 18 years old of age, the patient was discharged from outpatient visits, remaining clinically stable.

Discussion

Bigorexia, also know as Muscle Dysmorphia (MD), represents a type of body dysmorphic disorder (BDD) characterized by an exaggerated preoccupation with the body, where individuals believe that they are not muscular enough. MD differs from BDD, where specific body parts are the source of dissatisfaction.[1] First described by Pope in 1993, it was initially termed «reverse anorexia» due to its similarities to ED.[2] Diagnostic criteria based on the Diagnostic and Statistical Manual of Mental Disorders(DSM-5)1 are outlined in Table 1, although this classification remains controversial among authors.[3]

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

Bigorexia diagnostic criteria – DSM-5 (A+B)
A. Meets criteria for body dysmorphic disorder.
B. Excessive preoccupation with the body, considering that his/her body shape is too small or not muscular enough.
Body dysmorphic disorder – diagnostic criteria
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 re¬sponse 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.

The prevalence is unknown and varies across studies[4], as the majority are performed on selected samples (athletes, bodybuilders).[5] Bigorexia affects approximately 6-10% of regular gym-goers[2,6] to 53.6% of bodybuilders.[4] The average age of onset is 19-20 years.[6,7] While it predominantly affects males,[1,6] cases in the opposite gender have been reported; however incidence in women is not known.[8] In opposition to the thin body, a new body ideal for women has emerged: a muscle-toned, lean build without a bulky musculature. This phenomenon may contribute to the growth of bigorexia symptoms in women, emphasizing the importance evoking this diagnosis in females.[8]

Regarding aetiology, little is known, particularly about the genetic or neurobiological factors involved.[9] Socio-cultural and environmental facets seem to play a fundamental role, given the importance society currently attaches to physical appearance.[5] Perfectionism, social physique anxiety, low self-esteem and low self-perception are individual characteristics that may play a key role in the development and maintenance of MD.[4]

The hallmark symptom of Bigorexia is the concern that one's body is not strong or muscular enough. There is usually some degree of BID, with individuals perceiving themselves as thin or weak, despite being often heavily muscled.[4,5] As result, these individuals adopt compulsive behaviours to achieve a muscular body, including strenuous exercise and a strict diet.[4] They spend several hours working out or/and lifting weights and experience extreme anxiety when they miss practices. Usually, they adopt an unbalanced rigid diet, high in protein and low in fat and eat every few hours, even without hunger. Deviation from the eating plan often leads to anxiety and attempted compensation, such as an extra training session.[6] The use of protein supplements is typical and is associated with anabolic steroid abuse.[1,6]

Obsessive thoughts about lack of muscle and the need for exercise can take up to five hours/day.[5,6] Other manifestations of concern about appearance include repetitive mirror checking, comparison with other people›s bodies, refusing to be seen partially undressed in front of others and declining social events for fear of being perceived as too small.[7] Consequently, all these behaviours and thoughts cause suffering and impairment in social, occupational and other clinically significant areas of functioning.[1]

Several questionnaires may help with MD diagnosis. The most widely used is the Muscle Dysmorphic Disorder Inventory (MDDI), which measures three core components of MD symptomatology: Drive for Size, Appearance Impairment and Functional Impairment. This questionnaire showed good construct validity and reliability.[6,7] However, we did not use this questionnaire since it is not validated in the female sex or in the teenager›s mother tongue.

The primary differential diagnosis is ED, regarding the dissatisfaction with image and the desire to change it using food and physical activity. The differences stand out because the concern centers on body

shape and not on weight; there is no fear of being overweight.[2] Some studies have reported rates of 29% premorbid anorexia nervosa in men with MD.[6,7] Thus, some authors advocate a transdiagnostic model in which these pathologies are at opposite ends.[3,6] Both diagnoses can coexist.[7]

Depression is the most common comorbidity.[1] Others that may also exist are anxiety disorder, obsessive-compulsive disorder[5], orthorexia[4] and substance use disorder.[1]

There are no evidence-based guidelines for bigorexia treatment.[3,5] Studies have shown that psychological and pharmacological approaches similar to those used in eating disorders treatment have been efficient.[3,6] Cognitive-behavioral therapy and family-based treatment showed positive results and selective serotonin reuptake inhibitors can help minimize some obsessive and compulsive aspects of these individuals.[3,5]

This case underscores the misconception that Bigorexia is mainly associated with males, causing the condition to be frequently overlooked in females despite its presence. This oversight can lead to delayed diagnoses. Healthcare professionals should broaden their awareness of Bigorexia in both genders, noting signs like gym obsession or/and compulsive physical exercise, body dissatisfaction, ED and consumption of anabolic steroids. Dispelling the gender-specific notion of Bigorexia and remaining vigilant can aid in quicker identification and intervention for females affected by the condition.

Compliance with Ethical Standards
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