



Avoidant restrictive food intake disorder emerging during COVID-19 pandemic resulting in superior mesenteric artery syndrome

Sahr Yazdani¹ · Zachary Bloomberg¹ · Rachel Klauber² · Edwin Meresh²

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Abstract

The COVID-19 pandemic has significantly increased the prevalence of psychiatric disorders within pediatric populations. However, only a limited number of studies have sought to understand the correlation between the pandemic and increased incidence of eating disorders. This case study highlights the hospital course of an 18-year-old female who presented with restrictive eating patterns and intensive exercise regimen, self-attributed to the COVID-19 pandemic, leading to superior mesenteric artery syndrome. In understanding the patient's avoidant restrictive food intake disorder (ARFID), this case study seeks to inform readers of this newer DSM-V diagnosis with the intent of educating pediatric providers of the severity and long-term impact of this disease. Moreover, the case study highlights the importance of gaining a more holistic view of psychiatric disorders emerging as a result of the COVID-19 pandemic.

Keywords Avoidant restrictive food intake disorder (ARFID) · Superior mesenteric artery (SMA) syndrome · COVID-19

Background

According to the CDC, the point prevalence of anxiety disorders and depressive disorders during the COVID-19 pandemic has increased threefold and fourfold, respectively, compared to 2019 [1]. A recent meta-analysis of 29 studies published between 2020 and 2021 analyzing greater than 80,000 children and adolescents revealed a prevalence of depression and anxiety symptoms of 25.2% and 20.2%, respectively [2]. This represents a twofold increase of distressing symptoms among the child and adolescent population, with prevalence rates highest in older adolescents and females [2]. Additionally, emerging data have illustrated a pandemic-associated increase in eating disorders in adolescent populations, as well. At C.S. Mott Children's Hospital in Ann Arbor, Michigan, the number of eating-disorder related medical admissions was more than doubled during the first 12 months of the COVID-19 pandemic [3]. This aforementioned study is one of a limited few that has sought

to understand the relationship between the COVID-19 pandemic and increasing maladaptive eating behaviors. As such, this case study seeks to expand our clinical understanding by highlighting a patient's new-onset, avoidant restrictive food intake disorder (ARFID) as a direct result of the COVID-19 pandemic; importantly, only discovered after she presented with superior mesenteric artery (SMA) syndrome.

ARFID is a relatively new diagnosis first published in the DSM-V, characterized by an eating or feeding disturbance evidenced by persistent failure to meet appropriate nutritional or energy needs, associated with one or more of the following: significant weight loss or significant nutritional deficiency, dependency on enteral feeding or oral nutritional supplements, or marked interference with psychosocial functioning [4]. Importantly, the eating or feeding disturbance is not better explained by another eating disorder such as anorexia nervosa or bulimia nervosa, nor is there a disturbed perception of one's body image [4]. Additionally, it is not attributable to a concurrent medical condition, culturally sanctioned practice, lack of available nutrition, or better explained by another mental disorder [4]. The true prevalence of ARFID has not yet been determined, however, preliminary estimates suggest that the disorder affects up to 5% of all children [5]. Of critical importance, it has been found that 63% of pediatric providers were unfamiliar with ARFID [6]. Patients with ARFID require a multidisciplinary

✉ Zachary Bloomberg
zbloomberg@gmail.com

¹ Loyola University Stritch School of Medicine, Chicago, IL, USA

² Department of Psychiatry, Loyola University Chicago Medical Center, Chicago, IL, USA

team to provide extensive nutritional rehabilitation, medical management, and psychological treatment. Therefore, it is vital to increase provider familiarity and understanding of this eating disorder.

Case study

Our patient is an 18-year-old female with no significant past medical history or psychiatric history who presented with abdominal pain, nausea, vomiting, and poor PO intake admitted to the vascular surgery service in 2020 due to concern for superior mesenteric artery syndrome. The psychiatry service was consulted due to concern for eating disorder as a potential cause for the disease. Patient endorsed eating a somewhat-restricted diet due to significant abdominal pain, nausea, and vomiting. Additionally, she endorsed increased exercising patterns and a recent 15-pound weight loss. During the past 2 months, the patient reported running for 2 h per day with additional weight training, and attributed the increase in activity to the inability to participate in structured sports as a result of the COVID-19 pandemic. The patient denied that weight loss was the purpose for her restricted eating patterns and increase in exercise, and denied body image issues in both the past and present. Family members endorsed that patient exhibits perfectionist-like tendencies, although also denied issues with body image. Patient and family denied symptoms of co-occurrent depression or anxiety. Upon admission, patient's relevant vitals are as follows: heart rate of 36, respiratory rate of 24, and BMI of 14.76. Relevant labs include a pH of 7.43, calcium of 8.5, phosphorus of 3.3, magnesium of 1.7, hemoglobin of 11.1, and red cell width of 19.2. An initial CT scan of her abdomen and pelvis demonstrated a markedly distended stomach with a distended 1st and 2nd segment of the duodenum, thereby arising concern for obstruction. An initial upper gastrointestinal imaging series demonstrated a narrow distal duodenum as compared to a distended proximal duodenum, therefore supporting possibility of extrinsic compression. Given the patient's severe state, a nasogastric tube was placed with an initial output of 1 L. A subsequent esophagogastroduodenoscopy ruled out intrinsic duodenal obstruction, and refeeding was initiated via oral intake advancing over 4 days with close monitoring of her electrolytes given her high risk for refeeding syndrome. During patient's hospital stay, the psychiatry service counseled patient and family extensively on possibility of restrictive eating disorder, and strongly recommended intensive outpatient programs designed for managing eating disorders upon discharge. The potential for severe and even fatal outcomes associated with the patient's current eating patterns were discussed extensively. However, patient and family declined enrollment in eating-disorder treatment

programs and stated preference to establish treatment with an outpatient therapist for individual counseling.

Discussion

As ARFID is a relatively new DSM-V diagnosis, evidence has shown that there is certainly a degree of unfamiliarity with its diagnostic criteria for providers in the medical community. As a result, this limited understanding is reflected in the general population and may cause patients and their families to resist acceptance of this diagnosis, as witnessed in this case. This is especially true when patients may not exhibit signs and symptoms characteristic of the more traditional eating disorders, such as the sense of altered body image associated with anorexia nervosa or purging behaviors associated with bulimia nervosa. Accordingly, it is vital for medical providers to educate patients and their families about ARFID to further increase awareness of this disease. Patient education is paramount in ensuring appreciation for the potential severity of ARFID outcomes to better understand the importance of treatment. Eating disorders are well known as the most fatal psychiatric condition, and have high morbidity rates with detrimental effects on cardiovascular, neurologic, and gastrointestinal functioning, as seen in this patient's presentation. Due to the immense physiologic impact, it is necessary to include eating disorders within the differential diagnoses when certain medical conditions such as SMA syndrome are suspected, particularly in the adolescent female population. While the exact mortality rate for ARFID is not currently specifically known, one study of 1,885 individuals found that the mortality rates for anorexia nervosa and bulimia nervosa were 4% and 3.9%, respectively, while the mortality rate for eating disorder not otherwise specified (including ARFID) was 5.2% [5]. While eating disorders trigger enormous physical and psychological impact for patients and their families, research in this area has been remarkably limited. A study analyzing the significant disparity between research on eating disorders and other mental illnesses found that in 2018, only 1,390 studies regarding eating disorders were published [7]. In comparison, there were 21,391 studies investigating mood disorders, psychosis, and developmental disorders [7]. In an effort to gain a more holistic view of psychiatric disorders emerging as a result of the COVID-19 pandemic, it is critical to recognize the increase in eating disorders and seek to educate patients and their families to establish a unified front in approaching treatment.

Author contributions All authors contributed to the conceptualization and direction of this case report. Data and clinical course were collected primarily by Sahr Yazdani, and clinical decisions were made

by Drs. Edwin Meresh and Rachel Klauber. The first draft of the manuscript was written by Sahr Yazdani, and all authors contributed critical revision and intellectual content on previous versions of the manuscript. All authors read and approved the final manuscript for publication and agree to be accountable for all aspects of the article.

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Data availability The data and information referenced during the current study are available from the corresponding author on reasonable request.

Declarations

Competing interests The authors have no relevant financial or non-financial interests to disclose.

Ethics approval This is an observational case report study and no ethical approval was required.

Consent to participate Consent was not necessary for this report, as all patient information is anonymized and the submission does not include images or details that may identify our patient.

Consent to publish All authors affirm that no personal or identifiable details, videos, or images were used in this manuscript, and consent to publish was not necessary to obtain.

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