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Treatment for identical twins simultaneously developing an eating disorder precipitated by COVID-19 pandemic home quarantine

Leczenie bliźniąt jednojajowych, u których jednocześnie rozwinęło się zaburzenie odżywiania w związku z kwarantanną domową podczas pandemii COVID-19

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Abstract

An eating disorder presenting simultaneously in identical twins remains a rarity in the literature. In this case report, we describe monozygotic twins who presented simultaneously with anorexia nervosa as a psychological effect of COVID-19 home quarantine. Both twins were previously well but developed food restriction, exercise, and mutual surveillance behaviours in competition with each other over three months in early 2020. There were no features of other mood, anxiety or psychotic disorders, and there was no organic disease. However, a strong family history of anxiety disorders and highly permeable familial boundaries were identified. Non-pharmacological management modalities including family therapy and psychotherapy were implemented, and tailored to the twins. We discuss the unique genetic and psychological interactions that conceivably explain the aetiology of this simultaneous presentation of an eating disorder in a pair of twins and examine a simple psychodynamic formulation of this simultaneous emergence. Lastly, we look at the sequelae of COVID-19 related quarantines and isolation as potentiators of eating disorders in adolescents whose education and potential employment were drastically curtailed by movement restrictions.

Keywords: twin, eating, anorexia nervosa, pandemic

Streszczenie

Przypadki zaburzeń odżywiania występujące jednocześnie u bliźniąt jednojajowych stanowią rzadkość w dostępnym piśmiennictwie. Poniżej opisujemy przypadek bliźniąt jednojajowych, u których jednocześnie rozwinął się jadłowstręt psychiczny (*anorexia nervosa*) jako psychologiczny skutek izolacji domowej związanej z pandemią COVID-19. W ciągu trzech miesięcy na początku 2020 roku uprzednio zdrowe bliźniaczki zaczęły prowadzić ze sobą swoistą „rywalizację” polegającą na ograniczaniu spożywanej żywności, intensywnym ćwiczeniu i stosowaniu wzajemnego nadzoru. U dziewczynek nie potwierdzono innych zaburzeń nastroju, stanów lękowych, zaburzeń psychotycznych ani też żadnej choroby organicznej. Stwierdzono jednak mocno obciążony wywiad rodzinny w kierunku zaburzeń lękowych oraz mocno rozmyte granice w systemie rodzinnym. Zastosowano nefarmakologiczne metody leczenia, m.in. terapię rodzinną i psychoterapię, dostosowując je do potrzeb pacjentek. W pracy omówiono swoiste interakcje czynników genetycznych i psychologicznych, które mogłyby wyjaśnić etiologię jednoczesnej prezentacji zaburzenia odżywiania u bliźniąt, oraz przeanalizowano je z perspektywy procesu psychodynamicznego. Zwrócono także uwagę na skutki kwarantanny i izolacji związanych z pandemią COVID-19 jako czynników potencjalnie wywołujących zaburzenia odżywiania w populacji młodych ludzi, których możliwości w zakresie edukacji i zatrudnienia uległy drastycznemu ograniczeniu na skutek wprowadzonych restrykcji pandemicznych.

Słowa kluczowe: bliźnięta, odżywianie, jadłowstręt psychiczny, pandemia

INTRODUCTION

Anorexia nervosa is an eating disorder that traditionally begins in adolescence, and ranks among the mental disorders with the highest morbidity, mortality, and functional impairments (Herpertz-Dahlmann et al., 2011). It manifests as a restriction of food intake, which is related to the fear of gaining weight and also undue influence of body shape on self-evaluation (American Psychiatric Association, 2013). Both pharmacotherapy and non-pharmacological measures have their unique roles in the management of adolescents with anorexia nervosa (Zipfel et al., 2015). For identical twins who develop anorexia nervosa, be it individually or simultaneously, a unique conundrum manifests, whereby both genetic and environmental factors are inextricable overlapping causative factors. This case report further muddies the aetiological waters, as it illustrates a unique simultaneous presentation of anorexia nervosa in a pair of identical twins as an effect of home quarantine during the COVID-19 pandemic. COVID-19 further complicates matters, as it precipitates and perpetuates psychological distress, most notably specific fears about COVID-19 per se (Pang et al., 2020). Since March 2020, the Malaysian Federal Government has implemented lockdowns of varying degrees based on the severity of the pandemic through a Movement Control Order (MCO) (Salvaraji et al., 2020). Such lockdowns, quarantines, and disruption to compulsory education systems may precipitate frank psychopathology in vulnerable groups (Mukhsam et al., 2020). Looking at the issue from a bigger perspective, the risk of COVID-19 infection, alongside the preventive measures, may become significant stressors and exacerbate eating disorder-related triggers (Shah et al., 2020; Ünver et al., 2020).

CASE REPORT

This case report describes two 16-year-old female monozygotic twins, both attending an elite upper secondary school, who presented to an outpatient psychiatric clinic in July 2020 with restricted food intake, increase in weight loss-oriented activity, and distorted body image. They were previously well and had not demonstrated any psychopathology or any other emotional disorders prior to March 2020. However, during the three months duration of the MCO in Malaysia from March to May 2020, they began competing with each other in terms of the duration of exercise, food intake amount and body weight. Twin 1 had the highest previous weight of 49 kg and the lowest weight of 32 kg (height 160.5 cm). Twin 1 was described as being more confident than her sister and often dominant in social situations. Hence, she began the “game” of restricting her food intake first, and also started exercising more at home. She would also get jealous if she saw Twin 2 exercise more than her. Consequently, she started to compete with her sister in terms of food intake by hiding her meals. Throughout

those three months, she subsisted on bread, cereal with milk, porridge, sushi, and vegetables, with her lowest food intake being one bun per day. As a result, her menses stopped two months later. Due to difficulty in verbalising her own emotions, Twin 1 also began expressing her emotional state through calligraphy.

Twin 1’s drive to starve herself stemmed from the innate competitiveness between the twins. Twin 1 reported that she was jealous, as the younger twin was prettier. She reported that she was resentful about how schoolmates and teachers differentiated them in school, such as comparing who was thinner, more jovial, prettier, and more friendly. They were pre-morbidly highly competitive in all aspects, including grades, as both were top-of-the-class students in their elite school. After the onset of anorexic symptoms, the twins began to intensify the battle, comparing the number steps they walked, their food intake in grams, and the amount of food they were able to hide from each other. Twin 2, on the other hand, had the highest previous weight of 50 kg and the lowest weight of 33 kg (height 160.5 cm). She described herself as submissive and easily suggestible, and preferred Twin 1 to make major decisions for both of them. Twin 2 wanted to emulate Twin 1’s behaviour, hence she began hiding her food to reduce her food intake and increasing her steps in response to Twin 1’s exercises, to the point where they requested to have a bath together, so that they could monitor the competition carefully. Twin 2 subsequently started reporting unwanted obsessive thoughts compelling her to compete with Twin 1. Subsequently, in July 2020, they were brought for a medical consultation, as the parents noticed both twins had lost a lot of weight and were frequently standing at home due to discomfort caused by bony abrasions in their gluteal regions. Otherwise, there were no past or current features of psychosis or manic symptoms, and no apparent low mood or anhedonia. There were no other features of medical illness beginning during the preceding three months which would better explain the condition.

In terms of family dynamics, the twins were the only two children in the family. The twin’s father suffered from generalised anxiety disorder and the mother was on treatment for major depressive disorder, so the family history was significant. The father was a successful businessman who was frequently busy at work, whereas the mother was a small business owner. Initially, both parents seemed aligned with each other in their commitment for their daughters to receive treatment. However, the twins appeared to be more closely aligned with their mother, and idolised her. Both twins reported that they disliked their father’s fierce temperament, as he was abusive towards the mother. At the age of four, the girls began competing with each other in aspects including talents, and physical strength. The parents reported that when they competed in different events, they were supportive of each other; however this was not so when competing in similar activities. In secondary school, both twins were high achievers. The identical twins both reported that

they disliked studying in that school because of overwhelming academic and peer pressures. Both particularly disliked being scrutinised by other peers. As a consequence of this stress, the twins were supposed to attend school abroad this year; however, due to MCO, they were forced to stay in Malaysia, and were allowed to be homeschooled.

Some unusual dynamics were present in the family. The mother appeared to still infantilise the children, as she still bathed together with the twins at the age of 16, taking the opportunity to inquire and inspect their body weight and body shape. Also, there was an aspect of modelling involved, as the mother at times skipped her lunch and told the twins she was dieting for health reasons. The father, on the other hand, was overly punitive in his approach, as he decided to transition both twins to homeschooling this year; however, he stipulated an accompanying unrealistic goal that they had to achieve a body weight of 50 kg to prevent them being sent back to the elite school. Hence, the permissive and inconsistent parenting style in the family reinforced the twins' eating disorder. There was otherwise no history of substance or alcohol use, and there was no history of sexual abuse or any significant traumatic incidents affecting the two girls.

Both twins were diagnosed with anorexia nervosa and were mandated to attend an intensive eating disorder treatment on an outpatient basis. A multidisciplinary approach was offered to the twins. During the first session, the twins reported that they would like to stop competing with each other, which was reinforced by the therapist as the goal of therapy. Fluoxetine was started in both twins, and they were referred to a dietician. Family therapy was initiated, and subsequently olanzapine was added to augment the effect of fluoxetine.

Several treatment concerns proved challenging in the management. First, we noticed the competition between the twins interfered with treatment, and efforts were focused on channeling their competitiveness into a more constructive and healthy form to facilitate the recovery. We also re-drew boundaries to emphasise to both twins and their parents that they were two different individuals, despite being monozygotic twins and having the same illness. At the beginning of treatment, individual therapy alongside family therapy was employed to tackle the unmet needs in the family. Subsequently, the twins were treated as separate individuals in therapy; however, they still preferred back-to-back appointments, as they were afraid the other twin would exercise more and eat less at home. Over the course of therapy, in subsequent sessions, the twins reported less hatred towards each other and had gained some weight, but remained highly competitive.

DISCUSSION

This case has a high novelty value, as it demonstrates early and emerging evidence how COVID-19 lockdowns may have unusual or unexpected psychological sequelae which

can happen in tandem for two individuals who share their genetic and environmental background. Setting aside the neuropsychiatric sequelae of COVID-19, the psychological effect of COVID-19 isolation per se can result in a higher incidence of depression, anxiety (Mohd Kassim et al., 2020, 2021; Pang et al., 2020), and post-traumatic stress disorder in young people; however, there are scant reports in the literature about disorders presenting in tandem. Anorexia nervosa in twin settings is always contentious, as there is disagreement as to whether genetic or psychosocial factors have a greater contributory role (le Grange and Schwartz, 2003). The literature suggests that genetic factors influence the risk rather than deterministically control presentations in families, with psychosocial and interpersonal factors triggering the onset (Zipfel et al., 2015). However, it is crucial to pick it up at an early age, as it has correlations with depressive and anxiety disorders (Song et al., 2019), and may well present as a prodrome of such mood or anxiety disorders. For monozygotic twins with discordant presentations, factors that predispose anorexia nervosa twins compared to their unaffected twins include higher levels of perfectionism, younger age of first diet, and higher levels of gastrointestinal problems (Thornton et al., 2017). There is scarce literature on monozygotic twins presenting concordantly (le Grange and Schwartz, 2003; Orum et al., 2017), and this may represent the first documented instance of twins developing anorexia nervosa as an immediate consequence of the COVID-19 pandemic, which has caused untold psychological distress due to both fear of the physical illness and anxiety about the economic and occupational uncertainty across all aspects of life (Koh Boon Yau et al., 2020).

Psychodynamically, concurrent presentations in monozygotic twins can be hypothesised to originate from inadequacies in the separation-individuation phase and ill-defined boundaries between parental and child figures (Orum et al., 2017). In this case, the twins were put in highly constrained academic and familial settings, and had parents who failed to give them the freedom to individuate and take on unique personalities of their own. Hence, the twins were forced to separate and individuate in terms of their own body size and image, as they had sole control and possession over these aspects. This was compounded by the parents' anxious traits and the mother's role modelling in restricting her own food intake. Hence, the eating disorder was further perpetuated by psychological role modelling of parentally desired behaviours.

Clinically, this case has implications for how treating doctors need to deal with them both. As doctors need to remodel supervisory relationships in place of the parental figures, it is crucial that they begin individuating the twins by enforcing the need to come for separate appointments and at separate times, with separate agendas. The twins need to emerge from their chrysalis and stop forging identities which are anchored in each other. This is especially crucial considering the fact that no treatments have a good

evidence base in anorexia nervosa, with the exception of family-based therapy in adolescence (albeit with a small effect size). Therefore, it is important to disentangle family dynamics before embarking on any course of therapy, which will most likely feature a combination of modalities reducing cognitive rigidity through cognitive remediation (Tchanturia and Lock, 2011) and therapies improving motivation (Schmidt, 2005).

In conclusion, this case report illustrates an unusual presentation of twins who simultaneously developed anorexia nervosa, precipitated superficially by the COVID-19 pandemic lockdown. However, following a more rigorous psychosocial investigation, there were multiple factors related to parental boundaries and dysfunctional familial dynamics that had predisposed the twins to the development of anorexia since a young age. Treatment for such twins is no doubt exhausting for therapists and carers alike due to the caregiver burden being doubled at simultaneous presentation; hence, it is essential that separation and individuation of twins in all aspects of life should be initiated at an early stage in order to begin the process of recovery.

Consent

Written informed consent was obtained from the patients.

Conflict of interest

The authors declare that there is no conflict of interest.

References

- American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders: DSM-5™. 5th ed., American Psychiatric Association, Inc., 2013.
- le Grange D, Schwartz S: Family therapy for identical twins with anorexia nervosa. *Eat Weight Disord* 2003; 8: 84–87.
- Herpertz-Dahlmann B, Seitz J, Konrad K: Aetiology of anorexia nervosa: from a “psychosomatic family model” to a neuropsychiatric disorder? *Eur Arch Psychiatry Clin Neurosci* 2011; 261 Suppl 2: S177–S181).
- Koh Boon Yau E, Pang NTP, Shoemith WD et al.: The behaviour changes in response to COVID-19 pandemic within Malaysia. *Malays J Med Sci* 2020; 27: 45–50.
- Mohd Kassim MA, Ayu F, Kamu A et al.: Indonesian version of the Fear of COVID-19 Scale: validity and reliability. *Borneo Epidemiology Journal* 2020; 1: 124–135.
- Mohd Kassim MA, Pang NTP, Mohamed NH et al.: Relationship between fear of COVID-19, psychopathology and sociodemographic variables in Malaysian population. *Int J Ment Health Addict* 2021: 1–8. DOI: 10.1007/s11469-020-00444-4.
- Mukhsam MH, Jeffree MS, Pang NTP et al.: A university-wide preparedness effort in the alert phase of COVID-19 incorporating community mental health and task-shifting strategies: experience from a Bornean institute of higher learning. *Am J Trop Med Hyg* 2020; 103: 1201–1203.
- Orum MH, Kalenderoglu A, Kara MZ et al.: The importance of separation-individuation process in the treatment course of a monozygotic twin pair concordant for anorexia nervosa: a case report. *Journal of Mood Disorders (JMood)* 2017; 7: 163–165.
- Pang NTP, Kamu A, Hambali NLB et al.: Malay version of the Fear of COVID-19 Scale: validity and reliability. *Int J Ment Health Addict* 2020: 1–10. DOI: 10.1007/s11469-020-00355-4.
- Salvaraji L, Sharizman Syed Abdul Rahim S, Jeffree MS et al.: The importance of high index of suspicion and immediate containment of suspected COVID-19 cases in institute of higher education Sabah, Malaysia Borneo. *Malaysian Journal of Public Health Medicine* 2020; 20: 74–83.
- Schmidt U: Engagement and motivational interviewing. In: Graham P (ed.): *Cognitive Behaviour Therapy for Children and Families*. 2nd ed., Cambridge University Press, New York 2005: 67–83.
- Shah M, Sachdeva M, Johnston H: Eating disorders in the age of COVID-19. *Psychiatry Res* 2020; 290: 113122.
- Song YM, Lee K, Sung J: Genetic and environmental relationships between eating behavior and symptoms of anxiety and depression. *Eat Weight Disord* 2019; 24: 887–895.
- Tchanturia K, Lock J: Cognitive remediation therapy for eating disorders: development, refinement and future directions. *Curr Top Behav Neurosci* 2011; 6: 269–287.
- Thornton LM, Trace SE, Brownley KA et al.: A comparison of personality, life events, comorbidity, and health in monozygotic twins discordant for anorexia nervosa. *Twin Res Hum Genet* 2017; 20: 310–318.
- Ünver H, Rodopman Arman A, Erdoğan AB et al.: COVID-19 pandemic-onset anorexia nervosa: three adolescent cases. *Psychiatry Clin Neurosci* 2020; 74: 663–664.
- Zipfel S, Giel KE, Bulik CM et al.: Anorexia nervosa: aetiology, assessment, and treatment. *Lancet Psychiatry* 2015; 2: 1099–1111.