COVID-19 fear-induced anorexia nervosa and obsessive-compulsive disorder leading to fatal megaloblastic anemia: Lethal psychological complication of the pandemic

Shivam Khanna¹, Dhruv Talwar¹, Sunil Kumar¹, Sourya Acharya¹, Samarth Shukla²

¹Departments of Medicine and ²Pathology, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (Deemed to be University), Wardha, Maharashtra, India

ABSTRACT

We report a young female having severe pallor and breathlessness on presentation, being diagnosed as a case of megaloblastic anemia, which was confirmed on bone marrow biopsy. On detailed history taking, she was revealed to have anorexia nervosa precipitated due to extreme fear of COVID-19 along with obsessive-compulsive disorder. Thus, a psychiatric disorder presenting due to simple phobia of COVID-19 can also have a fatal outcome in the young. Therefore, psychiatric health needs urgent attention by physicians, governments, and policymakers across the globe to prevent the surge of mental illness during the ongoing pandemic.

Keywords: Anorexia nervosa, COVID-19 fear, megaloblastic anemia, obsessive-compulsive disorder

INTRODUCTION

COVID-19 fear-related morbidity and mortality is underreported and a less explored area.¹ Mental health services were not acquired in over 60% psychiatrically predisposed individuals, including adolescents and children (72%), and elderly (70%) according to the statistics reported by the WHO. Fear of going out of home, touching objects, and quarantine has created a sense of helplessness and disparity among all age groups alike, which is further worsened by the lockdown restrictions imposed to control the spread of COVID-19.² Purchasing food or raw materials from grocery stores, in times of scarcity of resources leads to a feeling of guilt of using up the resources. This is more profoundly found in female genders, especially those who are divorced, living alone, under quarantine, in presence of chronic illness, or with history of mental health issues.³ Anorexia has been linked to fear of COVID-19 in recent studies, and separately anorexia has been rarely associated with the presence of normal or hypoplastic or aplastic marrow, with additional but not necessary finding of gelatinous bone marrow transformation in patients of severe malnutrition.⁴

As the primary care providers are often the first contact of patients, it is important for the clinicians working at the grass-root level to be aware of such hidden psychological illnesses, which are often neglected till long leading to serious complications.

Received: 23-09-2021
Revised: 09-12-2021
Accepted: 16-12-2021
Published: 16-02-2022
Case Report

Case presentation

This case report highlights the case of a 17-year-old female with complaints of breathlessness since 10 days, which exacerbated since 2 days, suffering from generalized weakness, body-ache, and irritability with episodes of extreme anger since 15 days, and her outside reports suggestive of severe anemia, presenting to emergency department, and admitted to the intensive care unit.

The patient had no history of obsessive-compulsive disorder (OCD) in the past, characterized by a peculiar history of frequent washing of hands. Her social interaction had reduced since the advent of COVID-19 pandemic, and she started eating less due to fear of reduced resources during the pandemic and due to phobia of contracting COVID-19. There was no history of fever, drug intake, and previous cardiac disorder and bronchial asthma. There were also frequent episodes of anxiety attacks, which occurred when she was offered food by her relatives as the patient thought that she will contract COVID-19 by consuming food items as well.

Physical examination

On general examination, she had a cachexic build, with severe pallor. Her body mass index was 16. Her pulse was 112 per minute, regular, blood pressure was 110/70 mmHg, bilateral pedal edema was present, with raised jugular venous pressure. On auscultation, there were bilateral basal crepitations and third heart sound was heard. The patient was irritable and not interacting with anyone and not answering any questions asked to her during the history taking. Thus, clinically she was in cardiac failure, which seemed to be due to severe anemia.

Diagnostic evaluation

Her laboratory reports were suggestive of severe pancytopenia with no evidence of sepsis. Her WBC count was 3000, Hb 2.1 g/dL, MCV was 116.4 fL, RBC Count was 0.56 million cells per microlitre (cells/mcL), Platelet count was 26000 platelets per microlitre of blood and serum vitamin B12 levels were low 94 pg/mL. She was investigated for pancytopenia with bone marrow aspiration cytopathology report suggestive of the presence of megaloblast showing sieve-like chromatin [Figure 1a] and macroovalocytes with few orthonormoblasts seen in severe megaloblastic anemia [Figure 1b] but gelatinous marrow transformation was not found.

Therapeutic intervention

She was transfused with whole blood transfusion after bone marrow aspiration and diuretics with oxygen support. During the course of hospital stay, her condition deteriorated and she went into a gasping state, and was intubated and taken on mechanical ventilator. The patient unfortunately succumbed to the condition on day four of admission.

Discussion

As noted before, the younger age group was more seriously affected with anxiety due to the scare of COVID-19 pandemic and uncertainty of the future. The availability of a continuous stream of information on media channels and the internet has had a direct impact on depression with circulation of negative thoughts and rumors related to COVID-19. Increased reporting of mortality with less focus on the treated section of patients seems to have had a negative toll on mental health with young individuals believing COVID-19 infection to be equal to a death sentence.

Because OCD is an ego-dystonic disorder and eating disorders like anorexia nervosa are ego-syntonic disorders, fear of eating more may not be perceived as a problem by the patient and they may provide appropriate explanations for the same. The two disorders have been linked to each other, according to recent studies, where 20%–60% of eating disorder patients have a history of OCD in their lifetime.[5]

In relation to this patient, COVID-19 has led to repetitive behaviors, like hand washing, cleaning of surfaces, changing of clothes, and repeated bathing after touching anything. This favors the findings of studies showing an increasing incidence of obsession disorders due to phobia of COVID-19 in already predisposed individuals.[6]

The fear of COVID-19 landing a patient into severe megaloblastic anemia and subsequent cardiac failure in a psychiatrically predisposed young female carries a grave prognosis. This case proved to be fatal and to prevent further casualties, we need more awareness regarding this clinicopathological discourse.

It can be achieved by using more ambitiously the newly developed scales to screen and assess anxiety on a regular basis like the COVID-19 anxiety scale (CAS), which has a very good statistical reliability and correlates well with the anxiety level and deterioration in patients with COVID-19 fear.[7] A score greater than and equal to 9 is considered more than normal for anxiety level in any individual.
Another score used is Fear of COVID-19 Scale (FCS-19S), which is usually >25 on a scale of 7 to 35 and is a self-scoring and assessment scale. It correlated well with the CAS score. As this is a self-scoring system, it should be handed over to relatives and societies and collected to assess the future risk of such fatalities.\(^8\)

Other than the scientific measures, lifestyle modifications are equally important in the treatment of psychiatric illnesses associated with the pandemic. Diversion of mind by indulging in various hobbies and following a regular routine with healthy habits like regular exercise help to reduce stress and anxiety, which seem to have taken a toll during the pandemic. To assess one’s own mental health status and of near and dear ones, we need regular attention to look for changes in sleep pattern, use of drugs, alcohol, and difficulty in concentration. These may be signs of impending or deterioration mental health, which are an alarm of impending serious manifestation such as in our case, which can be picked up by the primary care providers at early stage.\(^9\) Therefore, primary care providers should be aware of such complications arising out of mental illness and be prompt in detecting and treating such conditions as well as encouraging awareness programs in rural areas so that the taboo around psychiatric illness can be removed and patients can reach health care centers for help without any stigma. Serious manifestations of psychiatric illness have been reported before.\(^10\) However, this is the first case report to the best of our knowledge to report fatal outcome resulting from the fear of contracting COVID-19. Psychiatric illnesses continue to rise in the pandemic due to various restrictions.\(^11\) Hence, it is important to be on the watch of such deadly presentations of underlying psychiatric conditions.

**Conclusion**

This case of fatal heart failure that occurred due to COVID-19 fear-induced anorexia nervosa and obsessive-compulsive disorder in a young female is a warning sign. COVID-19 has serious implications on mental health, which may result in mortality, and thus these issues need to be noticed and managed in the initial stages to avoid serious implications later on with special care to be given to patients already predisposed to develop mental illness.

**Key points**

- Psychiatric illness can have serious discourse even in young individuals leading to fatal outcome.
- Clinicians should be well aware of such outcomes of fear-induced psychiatric disorders in order to detect them early in the course and treat them promptly.

**Consent**

Proper consent was taken from the patient’s relative for this case report.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**References**

1. Hensley L. Why the coronavirus pandemic is triggering those with eating disorders. Global News; 2020. Available from: https://globalnews.ca/news/6735525/eating-disorder-coronavirus/. [Last accessed on 2020 May 25].
2. Talwar D, Kumar S, Acharya S, Khan S, Verma P. Acute suicidal psychotic illness in mentally healthy patient: Is it COVID19? Med Sci 2021;25:1277-80.
3. Ahmed MZ, Ahmed O, Zhou A, Sang H, Liu S, Ahmad A. Epidemic of COVID-19 in China and associated psychological problems. Asian J Psychiatr 2020;51:102092. doi: 10.1016/j.ajp.2020.102092.
4. Abella E, Feliu E, Granada I, Millá F, Oriol A, Ribera JM, et al. Bone marrow changes in anorexia nervosa are correlated with the amount of weight loss and not with other clinical findings. Am J Clin Pathol 2002;118:582-8.
5. Kaye WH, Bulik MC, Thornton L, Barbarich N, Masters K. Comorbidity of anxiety disorders with anorexia and bulimia nervosa. Am J Psychiatry 2004;161:2215-21.
6. Mak IWC, Chu CM, Pan PC, Yiu MGC, Chan VL. Long-term psychiatric morbidities among SARS survivors. Gen. Hosp. Psychiatry 2009;31:138-26.
7. Silva WAD, de Sampaio Brito TR, Pereira CR. COVID-19 anxiety scale (CAS): Development and psychometric properties. Curr Psychol 2020:1-10. doi: 10.1007/s12144-020-01195-0.
8. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: Development and initial validation. Int J Ment Health Addict 2020;1-9. doi: 10.1007/s11469-020-00270-8.
9. Marelli S, Castelnuovo A, Somma A, Castronovo V, Mombelli S, Bottoni D, et al. Impact of COVID-19 lockdown on sleep quality in university students and administration staff. J Neurol 2021;268:8-15.
10. Khanna S, Talwar D, Kumar S, Madaan S, Goyal A. Bulimia nervosa leading to squamous cell carcinoma of the esophagus in a young adult. Cureus 2021;13:e1536.
11. Panda PK, Gupta J, Chowdhury SR, Kumar R, Meena AK, Madaan P, et al. Psychological and behavioral impact of lockdown and quarantine measures for COVID-19 pandemic on children, adolescents and caregivers: A systematic review and meta-analysis. J Trop Pediatr 2021;67:fmaa122.