Case Reports

Sponge eating: a strange type of pica

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Pica refers to the compulsive ingestion of nonnutritive substances. It is more common in tropical countries where cultural and dietary factors play a role. Soil (geophagia), ice (pagophagia), and hair (trichophagia) are the most prevalent substances ingested. We describe the clinical case of a 22-year-old patient diagnosed with sickle cell disease (SCD) with pica for sponge. The treatment with fluvoxamine, amitriptyline and risperidone resulted in a partial response. This case is an example that highlights the difficulties treating of this entity.

INTRODUCTION

Pica is the persistent eating of substances without nutritional value, such as dirt or paint. The ingestion of non-food items can lead to harmful or even fatal outcomes. It appears common for patients with sickle cell disease (SCD) to ingest paper, fabric, foam and dirt,[1,2] as approximately one-third of patients with SCD will develop *pica* behaviors. For example, one study performed in the United States found that of 395 study participants with sickle cell disease, 33% had pica behaviors, while another study performed in Belgium found that of 55 study participants with sickle cell disease, 56% had pica behaviors.[3,4] It is unclear whether pica is a specific marker of SCD severity but the association between pica and low body weight in these studies suggests a nutritional effect on its prevalence. Pica is likely to be underreported, with one report suggesting that inadequate monitoring systems and lack of education about the dangers of pica were evident among SCD caregivers .[2]

In this article we describe the clinical case of a patient diagnosed with sickle cell disease and *pica* for the sponge to highlight the challenges that arise while treating this condition.

CLINICAL CASE

Ms A is a 22-year-old woman who was born in Angola and has a diagnosis of sickle cell disease SS. She has left hemiparesis and speech disturbance sequalae following an embolic stroke when she was 11 years-old. Moreover, she has a family history of SCD on her paternal side, including two siblings who died at one and five years old due to SCD complications. She has two younger brothers also with *pica* - one eats dirt and the other soap. She has been living in Portugal since 2019 with a cousin in order to access better healthcare settings. When she arrived, she started to be monitored in the hematology department and she underwent a complete analytical evaluation that included a screening for other medical conditions (infections, autoimmune diseases, toxicology panel) and a complete blood count. The results only showed a low hemoglobin level that was corrected with a blood transfusion. Subsequently, the patient has undergone serial analytical evaluations that have not shown any significant changes including the iron levels or reticulocytes count.

Ms A was referred to psychiatric consultation for presenting with an eating disorder (*pica*). She has daily compulsions to eat pieces of mattress, chair bases, and cushions, particularly after meals, having great difficulty resisting the impulse. She presents only partial insight into the clinical condition that has a long evolution over more than 7 years. Ms A recognises that there may be serious consequences of ingesting mattresses, but she finds it very difficult to resist and ends up minimising her behaviours.

The ingestion of the mattress sponge only ceases when the patient is found by third parties, a situation that is associated with intense feelings of irritability, which tend to provoke self-harm behaviours. In this context, there was an episode of a suicide attempt by suffocation with a cable. Since 2019, she has already been medicated with fluvoxamine 100mg and amitriptyline 25mg, with no improvement, and currently is medicated with risperidone 2mg. Currently, we are also promoting strategies of behavioural therapy to teach coping mechanisms and also strategies of differential reinforcement that avoid *pica* behaviours by focusing on other behaviours and activities. Its implementation is being difficult due to cognitive limitations and lack of criticism from Ms A.

DISCUSSION

Pica is documented from antiquity and happens worldwide. However, it has most commonly been considered a symptom of another related disorder rather than an independent condition. The prevalence rates vary greatly which can be attributed to different diagnostic criteria, different

methodologies, different studied populations, different cultural practices, regional differences and underreporting.[5] *Pica* is more common than is generally appreciated either because the condition may be overlooked by physicians or under-reported by patient/parents.[6]

It is mainly described in people with intellectual disability, pregnant women, cases of iron-deficiency anemia and malnutrition. The ingestion of earth, ice, starch, ropes, wood, and other products has been observed, although some authors also include the obsessive and repetitive consumption of edible substances.[7,8]

Pica can have a wide range of effects, depending on what non-food items are ingested. For people who eat ice — a common behaviour among pregnant women — *pica* is harmless. However, it can lead to ingesting dangerous or toxic items causing death as well as other life-threatening consequences including choking, intestinal obstruction, and surgery to remove inedible item.[9,10]

Pica is a problem with a significant prevalence rate among patients with SCD. Although iron deficiency has been described in SCD, it is not usually seen in older patients with sickle cell anemia. This could be explained by iron added via the sporadic transfusion of red blood cells often needed to manage disease complications.[1] SCD is an inherited red blood disorder that alters haemoglobin, which is the protein that transmits oxygen in the body. This results in the creation of abnormally shaped red blood cells that can obstruct blood flow. Obstruction of blood flow in individuals with SCD is associated with numerous medical complications including frequent pain episodes and chronic pain, damage to vital organs, cerebral infarctions, increased risk of infections, and respiratory problems. Strokes are associated with neurological and neuropsychological deficits.[11]

The significantly higher proportion of *pica* in patients with the Hb SS genotype than those with Hb SC and Hb Sβ+ thalassemia could be explained by worse disease severity in the former genotype. However, the analysis of days in the hospital and the number of hospitalisations in *pica* and *non-pica* patients did not identify any significant differences. Thus pica may not be a specific marker of disease severity.[1]

The etiology of *pica* in SCD remains unclear, although it may also be precipitated by additional factors, such as psychosocial stressors. Many patients with SCD face multiple socioeconomic challenges, as the patient previously described.[11,12] In addition to the numerous medical complications associated with this disease, children with SCD are at higher risk for the development of emotional and behavioural problems including internalising problems (i.e., depression and anxiety) and externalising problems (i.e., oppositional behaviours, inattention, hyperactivity).[13]

Although the Diagnostic and Statistic Manual of Mental Disorders, Fifth Edition (2013) has delineated *pica* mental disorder, there are no clear clinical guidelines for the psychopharmacological treatment of *pica*.[14] Several reports describe pica as an obsessive-compulsive spectrum disorder (OCSD). Treatment with selective serotonin reuptake inhibitors (SSRIs) has been shown to reduce *pica*, which was attributed to their anti-obsessive properties.[15] In this case, the first choice was Fluvoxamine, but there were no clinical improvements.

Exacerbation of *pica* during antidopaminergic (thioridazine) treatment, and improvement with a dopamine agonist (methylphenidate) have been reported.[15] Risperidone is a potent serotonin (5-hydroxytryptamine) 5-HT2 and dopamine D2 receptor antagonist. It is described as a dopamine system stabiliser, which can play a role in substance craving.[16] In this case, despite being an off-label use, risperidone was started with the intention of having an anti-craving effect to reduce the demand for stimulus.

The main form of treatment for *pica* is psychotherapy, with different methods available depending on the situation and individual needs.[17] One of these is Aversion Therapy. This method consists of teaching people to avoid *pica* behaviours using mild aversions (consequences) to teach people to avoid non-food items and positively reinforcing (rewarding) healthy eating behaviours.[7] In differential reinforcement, people learn to avoid *pica* behaviours by focusing on other behaviours and activities.[14]

Behavioural Therapy teaches coping mechanisms and strategies to help patients change their behaviour. Some of them include removing preferred nonfood items from the home, increasing supervision so the person cannot eat the nonfood items and blocking any attempts to do so.[8,18]

Another strategy is Overcorrection. The participants must spit out a nonedible item, use a toothbrush soaked with mouthwash to clean their mouth and complete positive practice acts (e.g., floor mopping) contingent on *pica*. Overcorrection is seldom used to treat *pica* because some state guidelines ban the procedures and aversive procedures. Also, overcorrection is physically demanding, difficult, or complex at times, and requires the ongoing involvement of an expert behavioural consultant.[14]

CONCLUSION

Treatment interventions for *pica* are complex, controversial, and not clearly understood. The evidence base for treatment is poor, as it is gathered largely from single cases, case series and retrospective case reviews which have lacked controls. Treatment should be tailored to the individual. Even though cultural *pica* (clay dirt eating) is considered less harmful in moderation, it can become life threatening. However, there are very few situations where the complete extinction of *pica* behaviours is accomplished. Nevertheless, behavioural interventions have proven to be very effective for at least reducing *pica* to the near-zero level.

This report highlights the clinical importance of routine screening for pica, dysfunctional eating patterns, and psychosocial functioning in people with SCD. It is important for all health care providers on an interdisciplinary team, including nurses, physicians, and mental health professionals to be aware of the risk of pica in people with SCD and the potential biopsychosocial difficulties associated with this comorbidity. The identification of cases with *pica* can

then lead to strategies for secondary prevention, further assessment, and treatment.

ETHICAL CONSIDERATIONS

AD collected written informed consent from the patient in question for the publication of this case report.

DISCLOSURES

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AUTHOR CONTRIBUTION

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