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RESEARCH ARTICLE

PICA AND THE IRON DEFICIENCY ANAEMIA: A CASE SERIES

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Abstract

Introduction: Pica is an unusual condition where patients develop cravings for non-nutritive substances that can cause significant health risks. We report three patients with pica, which presented with three different clinical presentations and were found to have iron deficiency anaemia with underlying cause as pica.

Case Presentation: We describe three patients who presented with symptoms of pica. The first patient is a 25-year-old man who had obsessive compulsive symptoms associated with daily ingestion of dust, sand and ice. The second patient is a 9-year-old girl who presented with abdominal pain associated with consuming brick remains. Lastly, the third patient, a 19-year-old with mild intellectual disability presented with behavior abnormality and eating cracked cement from walls. All three patients presented with hematological parameters diagnostic for iron deficiency anaemia.

Conclusion: Pica has been practiced for centuries without a clear etiology. Clinicians in their practice are not aware of the importance of complaints related to pica. None of our patients we describe here, as well as their primary care physicians, were aware of the importance of their pica related symptoms. Pica symptoms resolved gradually in these patients upon iron supplementation. We believe pica is an important sign of iron deficiency that should never be ignored, and the craving for any unusual substance should compel clinicians to consider pica as a differential diagnosis of iron deficiency.

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Introduction

Pica is an unusual craving for and ingestion of either edible or inedible substances. The condition has been described in medical journals for centuries.(1).Many cases of pica reported ingesting starch, ice cubes (pagophagia), clay (geophagia), dried pasta (amylophagia), chalk, starch, resin (resinphagia), tomatoes, lemons, cigarette butts, hair and lead.(2)Pica is most prominent in individuals of lower socio economic class, however, it has been observed in men and women of all ages and races.(3).20% are pregnant women, 10% to 15% are individuals with learning disabilities 25% to 33% of all pica cases involve small children suffer from pica.(4) A small percentage of these patients have iron deficiency anaemia.

The exact mechanism underlying pica remains unclear but its association with iron deficiency anaemia has been reported in previous studies.(4,5)Patients suffering from pica are vulnerable to electrolyte imbalance such as

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hypokalemia, metabolic disorders, lead and mercury poisoning, parasitic infestations, enamel loss, intestinal obstruction, and various problems of the gastrointestinal tract (4,6).

Surprisingly, clinicians undervalue the pica as a cause of iron deficiency anaemia. Also previous case reports have also highlighted that ingestion of excessive amounts of ice (pagophagia) is an unusual symptom, its presence has invariably been associated with documented cases of iron deficiency anaemia.(7)

Case presentation

Here we present three patients which demonstrated pica associated with iron deficiency. Each patient fully meets the criteria for pica from Diagnostic and Statistical Manual of Mental Disorders(8) and suffered from severe iron deficiency anaemia.

Our first patient is a 25-year-old man with Obsessive compulsive symptoms. He experiences repetitive urges to eat dust, sand and feels an immediate sense of relief after eating it. He also has repetitive compulsion of cleaning, checking. His hemoglobin level was 11 g/dl, mean corpuscular volume (MCV) was 69 fl and serum ferritin was 9 ng/ml. His peripheral blood smear revealed poikilocytosis and microcytosis. On repetitive prompting it was also found that he also has the habit of ice cube eating ice on a daily basis.

Our second patient is a 9-year-old girl who presented with pain in upper right abdomen. Her hemoglobin level was 8 g/dl and her serum ferritin was 11 ng/ml. Her peripheral blood smears revealed anisocytosis with microcytosis, which was characteristic of iron deficiency. Iron supplements were started. Her grandmother claimed that she consumes bricks remains. She continued to do so despite being repetitively scolded for it. She was then referred from paediatric OPD to psychiatry OPD for further management. The child was started on habit reversal techniques. Crochet knitting and monkey caps were advised.

Our third patient is a 19-year man with mild intellectual disability. He had been referred from general physician for self harming behavior. According to mother, the patient eats cracked cement from the walls and when stopped he slaps himself, bangs his hand against floor. His hemoglobin level was 10.5 g/dl, MCV was 66 fl and serum ferritin was 6 ng/ml. His peripheral blood smear revealed anisocytosis and poikilocytosis with microcytosis. This patient had been started on iron supplements and was given tab risperidone 0.5 mg gradually tapered to 1 mg for his self harming behavior. He was regularly followed up and gradual resolution of symptoms in 3 months were seen.

Discussion:-

Pica remains as a hidden cause for iron deficiency anaemia. It has been strongly associated with iron deficiency anaemia, and in the majority of cases the unusual eating and chewing behavior disappears upon iron supplementation (9). Previous literature reports exist about why iron deficiency causes pica, including physiological mechanisms; however, it still remains unclear. Pica causation has been linked to factors of age, gender, religion, culture, nutritional deficiency, stress, and mental development.(10) Pica is more considered as a symptom of pica rather than a cause.(11)

We wish to highlight through these cases the different pictures of pica in patients of iron deficiency anaemia. This may probably be the result of advances in technology and changes in culture. With the advent of technology, the disorders have also been seen in different presentations for eg earlier pagophagia was defined as the excessive ingestion of ice cubes from ice trays and the ingestion of ice scraped from the wall of the freezer but now with the advent of ice cube makers, the presentation has now changed. In this case series, we observe a case of ocd, abdominal pain, a case of intellectual disability presenting with three different presentations of pica. Another case series by Hackworth and Williams presented where patients with sickle cell anaemia readily ingested foam rubber.(12) Also in another study by Kushner et al. presented two cases where patients developed pagophagia after gastric bypass surgery.(5)

There have been several theories explaining the causes of pica. Pica practices compensate for their nutritional deficiencies, such as iron or zinc, but this idea was discarded as ice, rubber, foam and several other items, consumed by those who have pica, do not have any known nutritional benefits. Other theories suggest possible psychosocial problems, family stress, obsessive-compulsive disorders, or merely the enjoyment of taste and texture (the crunch of Argo starch out of the box or of clay cookies) of the item being consumed.(13)

Interestingly, Patients are generally secretive of their pica habits and are often reluctant to mention it out of shame and guilt. Pica symptoms will thus go unnoticed unless the physician specifically addresses them. All three of our patients, as well as their primary care physicians and academic supervisors, were actually unaware of their patient's symptoms of pica and these symptoms were considered as a part of their disorder.(14)

Earlier diagnosis of pica can prove beneficial for the patients as it unduly prevents expensive investigations, unduly multidrugs approach. Clinicians should suspect pica as a temporal causation for iron deficiency anaemia.

Conclusion:-

We hope that this case-series reminds physicians of the importance and diagnostic utility of pica symptoms associated with iron deficiency, as well as the assessment of its symptoms as a result of changing technology and advancements.

Declaration of Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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