Pica as a persistent eating disorder associated with iron deficiency anaemia: two case reports

Azan A Nyundo[a], Godfrey Mwasada[b] and Bonaventura C.T Mpondo[c]

a Department of Internal Medicine(Division of Psychiatry), School of Medicine and Dentistry, The University of Dodoma, Dodoma, Tanzania
b Paradise Specialized Clinic, Mbeya, Tanzania
c Department of Internal Medicine , School of Medicine and Dentistry, The University of Dodoma, Dodoma, Tanzania

Correspondence: Azan A Nyundo azannaj@gmail.com

Submitted: December 2017 Accepted: April 2018 Published: August 2018

Introduction: Pica is a mysterious condition characterised by patients developing cravings for non- nutritive substances that may escalate into serious medical complications. We present two case reports with a somewhat unusual nature of presentation attributed to iron deficiency. The first is a 25-year old African woman with abnormal uterine bleeding presenting with a fondness for eating clay, cold drinks, and icepacks. The second is 15- year old African girl who presented with bleeding from the nose, habitual smelling of soil, consuming ice packs and chewing rubber bands. Both presented with haematological parameters diagnostic of iron deficiency anaemia.

Conclusion: Despite being practised for centuries, the clinical significance of pica symptoms is often not recognised particularly among the younger physicians. Both our patients responded well to managing the primary cause of blood loss and iron supplementation. We are convinced that pica is an important pointer to iron deficiency and clinicians should suspect occult blood loss in a patient presenting with pica symptoms.

Keywords: pica, eating disorder, iron deficiency anaemia, case report.

INTRODUCTION

Pica is typically defined as the persistent ingestion of non-nutritive substances for at least one month at an age when this behaviour is developmentally inappropriate. The definition is occasionally broadened to include the chewing non-nutritive substances. Pica may be benign, or it may have life-threatening consequences [1]. The condition is more frequent in those with autism and intellectual disabilities. It has been reported in all ages, and both sexes, and is particularly prevalent among young children, people of low socio - economic status, and pregnant women as well as in cases with micronutrient deficiencies such as iron and zinc [1–4].

Although the condition has been documented since antiquity [5], many sufferers are diagnosed with life-threatening complications such as intestinal obstruction, electrolyte imbalances, renal and liver damage [4,6].

Pica may present in many forms including the ingestion of ice cubes (pagophagia), clay (geophagia), dried pasta (amylophagia), chalk, paste, starch, kayexalate resin (resinphagia), lemons, tomatoes, cigarette butts, hair, lead, and laundry starch [2,3,7,8].

Most physicians believe pica is an effect rather than a cause of iron deficiency [9]. Pathogenesis of pica is not well understood through the risk factors are well documented. The recognition of pica is often missed so it is important to have a high index of suspicion when people with known risk factors show suggestive signs and symptoms [10].

We describe two patients who presented with a habit of ingesting non-nutritive substances which was associated with iron deficiency and blood loss. All patients met criteria for pica under the DSM-5 criteria [1] and they all responded well to treatment.

CASE SERIES

Case 1:

A 25-year old female college graduate presented with a six-month history of abnormal uterine bleeding. The pattern of menstrual bleeding was irregular, prolonged with up to 14 days period between cycles. She had no lower abdominal pain, per vaginal discharge, dyspareunia, or dysmenorrhea and did not use any contraceptives.

Over the past two months she had progressively increased the habit of eating clay, cold drinks and ice packs: behaviour that was accompanied by dizziness and awareness of her heart beat.

Physical examination: a young female who was pale and wasted but fully conscious without jaundice or lower limb oedema. The systemic examination was normal except for a blood pressure of 170/100 and an ejection systolic murmur. Vaginal examination revealed a blood-stained glove.

Laboratory investigations: haemoglobin (Hb) was7.8g/dl. A peripheral blood smear showed anisocytosis and pencil-shaped red blood cells. Abdominal ultrasound and stool analysis was done from a collection of a freshly voided stool which was then processed using direct technique (saline and iodine mounts) to identify intestinal parasites about which all the findings were all unremarkable.

Case 2:

A 16-year-old school girl presented with a history of intermittent epistaxes. On arrival she had profuse bleeding that required etamsylate injection and adrenaline nasal pack. She reported a history of periodic dizziness with an episode of fainting. There was no history of bleeding from the gums, easy bruising or familial bleeding disorders.

Over the course of these symptoms she had uncharacteristically been fond of the smell of soil and consuming ice packs followed by chewing rubber bands.

Examination showed that she was pale with active bleeding from the nose. All vital signs were stable. The rest of the systemic examination and mental status evaluation were unremarkable.

Full blood count revealed normal platelet counts but the Hb was 6.8g/dl; the peripheral blood smear showed anisocytosis with pencil-shaped cells. Clotting time was 5 minutes under simplate II technique skin bleeding.

She was discharged on etamsylate tabs and haematinics containing iron and vitamin C. Follow-up two weeks later she was no longer complaining of bleeding, but she was still chewing rubber bands. Hb was 8g/dl. The treatment continued for further two weeks by which time the Hb had risen to 11g/dl, and all the symptoms had subsided.

DISCUSSION

Pica remains a challenging clinical condition despite being documented for centuries [5]. The condition is often associated with iron deficiency with the majority of cases responding well to iron replacement [9]. It is proposed that the pica behaviour is possibly a mechanism to compensate for a nutritional deficiency. However the nature of some of the ingested items such as ice, rubber, or dirt lack any nutritional value [12]. A plausible hypothesis regarding pica suggests that the appetite-regulating brain enzymes, being altered by an iron or zinc deficiency, trigger specific cravings. Another idea is that eating clay or dirt helps relieve nausea, control diarrhoea, increase salivation, remove toxins and alter odour or taste perceptions during pregnancy [13].

Our cases fuel the debate on the role of iron in the onset of pica. Iron deficiency is usually considered a symptom rather than a cause. However, the beginning of pica symptoms in our cases were preceded by a history blood loss and this may suggest otherwise. These two cases vary from the traditional presentation of pica by exhibiting an uncommon form of eating ice packs and even a rarer form of chewing rubber bands. It is held that swallowing of ice cubes maybe explained by the analgesic properties of ice cubes to relieve glossal pain associated with iron deficiency but it is not clear why a patient would develop a preference substances that have no analgesic properties such as the rubber bands [9].

Eating behaviour patterns suggestive of pica are also commonly associated with people suffering from schizophrenia, obsessive-compulsive disorder and at times of family stress [14, 15]. Alternatively, the behaviour may just be a preference and enjoyment of the taste and texture of the items being consumed [12].

Pica symptoms usually go unnoticed until a physician inquires explicitly about them or when the associated complications occur [4]. Interestingly, though, for our cases, the pica behaviour was noticed by caretakers who thought the behaviour had a medical significance and sought medical attention. It is thus crucial to inquire about pica especially in the presence of any form of bleeding, malignancies, and in cases of pregnancy, where the condition is not uncommon and if not properly managed, may put both the mother and the foetus at risk [16].

Consent: Written informed consent was obtained from the patients

Conflict of interest: None

Acknowledgments: We acknowledge the staff of Paradise specialised clinic for their support.

References

1. American Psychiatric Association. Pica. In: Diagnostic and statistical manual of mental disorders.5th edition. Washington DC, London England: American Psychiatric Publishing; 2013. p. 329–31.
2. Khan Y, Tisman G. Pica in iron deficiency: a case series. J Med Case Reports. 2010;4:86.
3. Lacey EP. Broadening the perspective of pica: literature review. Public Health Rep Wash DC 1974.1990 Feb;105(1):29–35.
4. Edwards CH, Johnson AA, Knight EM, Oyemade UJ, Cole OJ, Westney OE, et al. Pica in an urban environment. J Nutr. 1994 Jun;124(6 Suppl):954S–962S.
5. Parry-Jones B, Parry-Jones WL. Pica: symptom

or eating disorder? A historical assessment. Br J Psychiatry J Ment Sci. 1992 Mar;160:341–54.

6. Internet Scientific Publications[Internet]. [cited2016 Oct 9]. Available from: http://ispub.com/IJHNS/2/2/3860
7. Kathula SK. Craving lemons: another form of pica in iron deficiency. Am J Med. 2008 Jul1;121(7):e1.
8. Grivetti LE. Culture, Diet, and Nutrition: Selected Themes and Topics. BioScience.1978 Mar1;28(3):171–7.
9. Kettaneh A, Eclache V, Fain O, Sontag C, Uzan M, Carbillon L, et al. Pica and food craving in patients with iron-deficiency anemia: a case-control study in France. Am J Med. 2005Feb;118(2):185–8.
10. Sugita K. Pica :pathogenesis and therapeutic approach.Nihon RinshoJpn J ClinMed. 2001Mar;59(3):561–5.
11. Ukaonu C, Hill DA, Christensen F. Hypokalemic myopathy in pregnancy caused by clay ingestion. ObstetGynecol.2003 Nov;102(5) Pt 2):1169–71.
12. Mohave County US. A lesson on pica. Mohave county WIC website.2007.
13. Dumaguing NI, Singh I, Sethi M, Devanand DP. Pica in the geriatric mentally ill: unrelenting and potentially fatal. J Geriatr Psychiatry Neurol. 2003 Sep 1;16(3):189–91.
14. Bhatia MS, Gupta R. Pica responding to SSRI: An OCD spectrum disorder? World J Biol Psychiatry.2009 Jan 1;10(4–3):936–8.
15. Khoushabi F, Ahmadi P, Shadan MR, Heydari A, Miri A, Jamnejad M. Pica practices among pregnant women are associated with lower hemoglobin levels and pregnancy outcome. Open J ObstetGynecol.2014 Aug 5;04(11):646.