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Eating everything except food (PICA): A rare case report and review

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Abstract

PICA is an act or habit of eating non-food items such as stone, bricks, chalk, soap, paper, soil etc., It occurs in children who actually start seeing the world through the oral cavity. There are many theories behind it such as iron and zinc deficiency etc., We as dentists should be able to diagnose and treat such conditions, as they may cause ill-effects to the developing dentition. This case report attempt to highlights the importance of proper diagnosis and treatment of pica.

Keywords: *Chalk, iron deficiency, non-food items, PICA, stones*

INTRODUCTION

The act or habit of eating things that are not food is called pica in medical and psychological textbooks. For children, who learn about the world by putting things into their mouths, pica is really fairly common. Unfortunately, some children do not have breakfast at home and they eat paper and other items just because they are hungry and need to survive.[1]

Developmentally, babies - more than elementary school kids - have a period of growth in which they put just about everything they find into their mouths, even their own feet. They usually go on to something more exciting that catches their attention and forget what they had in their mouths. When a child that has passed this developmental point and is older, but who suddenly

begins to eat non-food items once again, there may be a problem of some kind. In this case, there is likely some cause for it that can be found and eliminated.[1]

The other causes can be iron, zinc or calcium deficiency. Pica occurs variably in patients with iron deficiency. The precise pathophysiology of the syndrome is unknown. Patients consume unusual items, such as laundry starch, ice and soil clay. Both clay and starch can bind iron in the gastrointestinal tract, exacerbating the deficiency.[2] A dramatic example of the problems produced with clay consumption occurred in the 1960s with reports of iron deficiency in children along the border between Iran and Turkey (Say *et al*., 1969). These youngsters had other, peculiar abnormalities including massive hepatosplenomegaly, poor wound-healing and a bleeding diathesis. Presumably, the children initially had simple iron deficiency associated with pica, including geophagia. The soil contained compounds that bound both iron and zinc. The secondary zinc deficiency caused the hepatomegaly and other unusual abnormalities.[3]

Yet another cause can be associated with this disease. It is high level of lead. Lead exposure is a problem for many children that live or visit for extended periods of time in older houses that have lead-based paint in them. These were built mainly before the 1970s and lead paint was outlawed in 1978. However, other sources of lead include certain types of medications, some kinds of pottery and several others.[1,4]

The theories supposedly behind it can be a nutritional theory and a physiological theory. The nutritional theory suggests that appetite-regulating brain enzymes, altered by an iron or zinc deficiency, trigger specific cravings. Yet, the non-food items craved usually do not supply the minerals lacking in the person's body. The physiological theory to explain pica is that eating clay or dirt helps relieve nausea, control diarrhea, increase salivation, remove toxins and alter odor or taste perception during pregnancy.[5]

Despite the wide variety of theories, not one of them explains all forms of pica. Hence, it is very essential to diagnose and treat such cases properly. We present one such case report of pica to highlight the importance of a proper diagnosis and treatment.

CASE REPORT

The present case report is about a 7-year-old girl who reported to the department with pain in the upper right posterior region since 2 days. Medical history revealed chronic abdominal pain since 3 years. Personal history revealed that the child consumed brick pieces since 5 years. Her parents tried to stop the habit by talking to her, scolding her etc., but she paid no heed and still continued to consume brick pieces. On general examination, the patient was normal. On oral examination, the teeth 53, 54, 55, 63, 64, 65, 73, 74, 75, 83, 84 and 85 showed severe attrition. Teeth 64, 84, 85 and 75; showed caries [Figures [Figures11 and and22].

The patient was investigated for serum iron, serum zinc, hemoglobin, stool and urine test.

The reports showed the following results [Table 1].

We noticed significant reduction in serum ferritin, calcium and zinc levels indicating iron and zinc deficiency. This led to a diagnosis of pica, as the child consumed brick pieces to cope with the iron, zinc and calcium deficiency. The treatment planned was restoration of 64, 84, 85 and extraction of 75 [Figures [Figures33 and and4].4]. The patient was put on iron, zinc and calcium supplements. Along with it deworming was done.

The patient was called every month for a follow-up. The mother reported a reduction in consumption of brick pieces in the 2nd month and the habit finally stopped after 6 months. The patient is still on medications, has stopped the habit completely and has a properly restored dentition. We also referred the child to a physician for further investigations on iron, zinc and calcium deficiency.

DISCUSSION

The name “pica” comes from the Latin word for magpie, a bird known for its large and random appetite. Pica is the craving or eating of items that are not food. There are many reasons why people eat dirt or other non-food items. This practice has been described as “abnormal” and is a very misunderstood problem. Quite often, pica is only seen and recognized when it results in complications that lead someone to obtain medical attention.[5]

Such children display signs of iron deficiency, including pallor and thinned nails that are concave and have raised edges, known as spooning of the nails. The small elevations on the child's tongue may be flattened and he may have superficial erosions and fissuring at the angles of the mouth, which frequently signals riboflavin deficiency.

Pica is likely to cause effects on teeth. Chewing on stones and bricks can lead to attrition of teeth. On reviewing literature, many cases reporting ill effects of pica on dentition have been published. An unusual case report, where the tooth showed attrition due to a sand eating habit was reported by Djemal *et al*.[6] Another case reported by Johnson *et al*. showed abfraction, attrition and erosion due to a habitual and culturally adapted practice.[7] An unusual case report, where depression associated with pregnancy lead to patient adopt eating disorder. Her dental implications diagnosed her with pica and bulimia.[8] Literature shows ample evidence of dental problems associated with pica and hence we as dentists should be knowledgeable to diagnose and treat such cases.

The likely people to suffer from this disease are pregnant women, iron and zinc deficient children, mentally retarded people, malnourished children.

There are possible complications for those who have pica. The eating of non-food substances may interfere with the body's consumption of normal nutritional food. More so, since substances such as paint chips have toxic substances in them, ingesting these things can cause lead poisoning. Complications of pica can include: Malnutrition, intestinal obstruction, intestinal infections or parasites from soil, anemia, mercury poisoning, liver and kidney damage, constipation and abdominal problems.[5,9]

Fortunately, two very likely causes can be examined through a simple blood test. The first is easy to cure and if either one of them is found to be at fault, steps can be taken to correct the problems. The first of the causes is low iron in the blood (anemia) and the second cause is a high blood level of lead. The blood test for lead and anemia will help you narrow down the cause of eating paper and plastic and such.[1,10]

In the case reported by us, the patient had no such exposure of lead and so no test regarding the lead concentration in blood was measured.

If the above two investigations show negative results, the other cause can be emotional distress. Some of these unwanted behaviors accompanying pica can includes syndromes of such things as abnormal language, strange methods of play not used before and strange relationships with friends of the child's own age (peer group). A psychiatrist or pediatrician should be summoned right away.

Once the case diagnosed a proper treatment plan should follow

If the cause is iron or zinc deficiency proper supplements should be given. Although ferrous sulfate is often recommended to treat iron deficiency, frequent problems with the drug including gastrointestinal discomfort, bloating and other distress, make it unacceptable to many patients. Ferrous gluconate, which is roughly equivalent in cost, produces fewer problems and is preferable as the initial treatment of iron deficiency. Ascorbic acid supplementation enhances iron absorption.[10]

The parent and the child should be asked to make a diary or a daily log of the times when he or she chews on non-food items and when he/she does not. They should also be asked to write down anything that they think is important about each particular instance of pica behavior.

CONCLUSION

Hence, as literature suggests that pica is a common problem in children than in adults. Children between the ages of 2 and 7 years of age have been known to have pica. Hence, we conclude, that a thorough medical and personal history of children, helps in a better diagnosis and an appropriate treatment plan.

Footnotes

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Figures and Tables

Figure 1

Pre-operative maxillary arch

Figure 2

Pre-operative mandibular arch

Table 1

Test	Normal levels	Patient report
Serum ferritin ng/ml	10–55	8
Serum zinc µg/10 ml	66–194	40
Haemoglobin g/dl	Above 11.5	8
Calcium mg/dl	7.6–10.8	8.3

Levels of serum iron, serum zinc, hemoglobin, stool and urine test in patient compared with normal levels

Figure 3

Post-operative maxillary arch

Figure 4

Post-operative mandibular arch