**Pica**

**Does your child have pica?**

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**Pica is an eating disorder involving the compulsive, irrational ingestion of nutrient or non-nutrient substances over a sustained period of time.**

**Geophagia is the most common pica in children.** Other substances ingested include clay, earth, soil, paper, ice cubes, raw rice, etc.

- Pica is often associated with iron and zinc deficiency. It remains an intriguing, little understood disorder. A number of examples of pica have been reported in Africa, the middle East and the southern United States. In these countries, children and pregnant women are frequently involved (1, 2). In the developed countries, pica is mainly reported in mental retardation or in cases of an abnormal mother-child relationship (3, 4).

**CASE REPORT**

- Sabrina, a 15-month old girl, full term infant, born by cesarean section due to maternal toxemia, with a birth weight of 2950 g, was referred to hospital because of severe anemia. She had been breast-fed up until then, and received fruits and wheat products since the age of 6 months. She did not have chronic diarrhea nor vomiting. However, her mother reported that she had been eating earth since she was 11 months old.

  - On physical examination, she appeared pale, had stomatitis, and was of normal height and weight, between –1 SD and the mean.

A complete blood count confirmed anemia. Haemoglobin concentration was 6.5 g/dL, MCV was 52fL, red blood cell count was 3 million/µL and the reticulocyte count was 24000 per µL. Iron concentration was 2.9 µmo/L. White blood cell count was 8400 per µL with 7% eosinophils. *Giardia lamblia* cysts were found in the stools. Sabrina was treated with iron supplementation for 3 months and metronidazole. Dietary recommendations were given to her mother. She was seen two months later and was doing well, she no longer ingested earth and her hemoglobin concentration was 12.5 g/dL.

- This case report is an example of pica. A diet comprised almost solely of milk and wheat products without iron supplementation can jeopardize the body’s iron stores with a secondary imbalance precipitated by geophagia.

- Pica is common in developing countries. In Africa, geophagia is practiced by 43 to 73 per cent of children 1 to 18 years of age (6). Pica is relatively rare in western and developed countries where some cases have been reported (7, 8). In one of the rarest European series, Munoz et al. reported pica in 5.3 per cent of patients with iron deficiency, with or without anemia (9). The incidence of pica probably is underestimated because of inadequate interviewing of patients (10). In fact, when investigating iron deficiency, few physicians ask about pica when the origin of the deficiency is known (11).

  - Pica is often associated with iron deficiency. Crosby reported that more than a half of patients with iron deficiency have pica (12). In Tunisia, pica is reported in a third of anemic children (13). Current literature leaves uncertain whether pica causes iron deficiency or, conversely, whether iron deficiency causes pica. Some recent data suggest that in most cases, pica is the result of iron deficiency rather than its cause (9, 11). The rapid disappearance of pica after iron supplementation supports this hypothesis (14). Iron deficiency may induce eating disorders.

- Animal studies, using radiolabelled iron, have shown that earth and starch reduce iron absorption by chelating it (15, 16). However, it has not been demonstrated that this phenomenon could by itself cause iron deficiency (11). On the other hand, in a number of patients reported to have pica and iron deficiency, another cause of the deficiency was found in 47% (17) to 96% of cases (9).

**CONSEQUENCES OF PICA**

Pica may cause many adverse effects in children:
- abdominal pain, vomiting, peritonitis, helminth infections (ankylostomiasis, ascariasis, trichiuriasis (5,18);
- delayed puberty, failure to thrive, abnormal behavior;
- zinc deficiency, vitamin deficiencies (C, B12 and folic acid) and lead poisoning.

**RECOMMENDATIONS**

Management of iron deficiency anemia in the child should include the following:
- the physician should ask if the child eats earth or other non-nutrient substances, even though the origin of the deficiency is known;
helminth infection secondary to pica should be sought and treated;
iron deficiency anemia should be treated with adequate amounts of iron and zinc supplementation. Treatment is usually followed by the disappearance of pica.

CONCLUSION

- Pica is a very common disease in children. It should be sought in all cases of iron deficiency anemia, even though the origin of the deficiency is known.
- Treatment with adequate amounts of iron is usually followed by its disappearance.
- Its prevention requires information of parents and dietary prevention of iron deficiency.

References


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