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An unusual case of severe iron deficiency anaemia

Abnormal iron absorption is a well recognised feature of subtle non-bleeding gastrointestinal conditions, such as coeliac disease or atrophic body gastritis, without otherwise gastrointestinal symptoms. We recently observed a patient with severe iron deficient anaemia mimicking impaired iron absorption in the absence of gastrointestinal pathology.

A 47 year old woman was admitted to hospital in 2005 because a haemoglobin level of 6.4 g/dl had attracted attention when she was donating blood. She complained of fatigue and occasionally frontal headaches. On physical examination she appeared to have a normal nutritional condition but her skin was pale and she had brittle nails. Despite the severity of the anaemia she appeared well. Pulse frequency and blood pressure were normal. Blood smear showed a strikingly microcytotic hypochromic red blood cell morphology (mean corpuscular volume 56 fl, mean corpuscular haemoglobin 15.5 pg/cell, mean cell haemoglobin concentration 27.5 g/dl) (fig 1). According to this, serum iron was below 5 µg/l, serum transferrin was elevated to 3.97 g/l and less than 10% saturated, and serum ferritin concentration was 3 mg/l. Erythrocyte count was normal ($4.14 \times 10^{12}/l$),

Figure 1 Red cell smear at the time of admission, with typical features of severe iron deficiency. Erythrocytes are smaller in size (microcytosis) and show expansion of their central area of pallor, thereby appearing to have only a thin rim of haemoglobin (hypochromia). Insert: type of purchasable crayon ingested. Each pack contains 12 pieces.

indicating enduring iron deficient erythropoiesis rather than bleeding. In fact, the guaiac smear test was negative and endoscopies of the gastrointestinal tract revealed no abnormalities. Gynaecological examination excluded uterine bleeding. Exploring her food patterns she confessed to regular eating of crayons for more than nine years to compensate for a sulky taste. She had such a craving for clean white crayons that she had increased her intake to 20 packages per month (fig 1). Three days after cessation, oral iron absorption tests were normal. Starting treatment with an oral iron preparation resulted in reticulocytosis with a peak of 7.8% after 10 days.

This exceptional case of severe iron deficiency anaemia related to long term ingestion of large amounts of purchasable crayons clearly meets the diagnostic criteria of adult pica. Pica comes from the Latin word for magpie, a bird known for its large and indiscriminate appetite, and implies a qualitative eating disorder defined by oral ingestion of non-food items for at least one month.¹ Pica is most common in those with developmental disabilities, including autism and mental retardation, and in children. Apart from sporadic cases due to a specific underlying psychiatric disorder, pica also features a culture bound syndrome worldwide. Iron deficiency is one peculiar finding quite commonly associated with pica. Anaemia, dwarfism, and hypogonadism have been related to clay eating among children and women from rural areas in Turkey and Iran.² Eating of chalk among children and Black pregnant and non-pregnant women in middle Georgia reflects another example of a socioculturally transmitted form of pica without other apparent psychopathology.³ The basis of the bizarre behaviour in pica still remains obscure. Specific nutritional deficiencies of particular trace elements may trigger the unusual cravings for non-food items.⁴ Some of these materials bind iron in the gastrointestinal tract, worsening the deficiency. Pica has recently been identified as a predominant risk factor for anaemia in pregnant women in a large case control study from the Sudan.⁵ The type of crayon ingested by our patient consisted of pure calcium sulphate. It is conceivable that the bioavailability of dietary iron was markedly impaired in the presence of abundant calcium sulphate.

Albeit a rare condition in Central Europe, adult pica should be considered for differential diagnosis of chronic iron deficiency anaemia,

particularly if other causes of abnormal iron absorption have been excluded.

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NOTICE

Second ESPGHAN Capri Meeting. Genetic factors in functional and structural GI disorders: scientific advances and clinical implications

This meeting will be held on 12–15 October 2006 at the Grand Hotel Quisisana, Capri, Naples, Italy. The scientific programme highlights new insights into the contribution of genetic factors to a wide range of GI diseases, including the functional GI disorders (FGID). Speakers are instructed to translate scientific advances into meaningful information for the clinician. The meeting is expected to promote 1) further research into disorders wherein genetic aspects have a recognised or newly appreciated impact, as well as 2) improved management of patients with these disorders. The discussed scientific advances may have broad relevance, extending to GI diseases in which genetic factors remain poorly recognised. Susceptibility factors for FGID (host and environment) will be revealed along with their effects on clinical management. For more information please contact: Professor Annamaria Staiano or Riccardo Troncone, Department of Pediatrics, University of Naples 'Federico II', Via S. Pansini, 5-80131 Naples; tel: +39 0817462679 ext 3383; fax: +39 0815469811; email: staiano@unina.it or troncone@unina.it; website: <http://www.messaggi-events.org/>.