

Preference is given to letters commenting on contributions published recently in the *JRSM*. They should not exceed 300 words and should be typed double spaced

Biochemical investigations in geophagia

Woywodt and Kiss' historical review of geophagia¹ prompts us to report a study illustrating how, through absorption or liberation of essential minerals, earth when consumed habitually can be either harmful or, possibly, nutritious. The amount of material ingested probably contributes as well.

An African woman admitted to hospital with limb paralysis had a serum potassium of 1.3 mmol/L (reference range, 3.5–5.0). Other serum electrolytes were normal. The hypokalaemia and a concurrent iron deficiency anaemia (haemoglobin 7.9 g/dL, serum iron 3.5 µmol/L) remained unaccounted for. Further enquiry disclosed a 10-year history of geophagia.

The earth she ingested was obtained from her garden. It was black with white speckles, malleable, rough in texture and composed of granular particles ('black earth'). Earth excavated locally for eating was obtained from a nearby market. This was dusky pink, firm, fine in texture and composed of flaky particles ('red earth'). Samples of black earth and red earth weighing 0.5, 1.0 and 2.0 g were mixed with 5 mL iron-enriched Ringer-lactate. Studies were done at both pH 2.0 (addition of 6 mol/L HCl) and pH 6.2. Analyses were performed on a standard system.

Black earth *absorbed* sodium, potassium and iron. It also *liberated* calcium and magnesium. These effects were present at either pH. Red earth *absorbed* potassium, slightly, at either pH. Iron was *liberated* at pH 2.0 and *absorbed* at pH 6.2. Other elements showed small differences only. Changes for black earth and for red earth were proportionate to mass concentration. (Full details can be had from RFG.)

Our patient's intake of potassium conformed to the recommended dietary allowance (RDA) and that of iron was deficient (44% of RDA). The demonstrated absorbent properties for potassium and for iron of black earth indeed could thereby have caused her hypokalaemic paralysis and contributed to her iron deficiency anaemia.

Absorbent properties for sodium of black earth, though notable, were not homeostatically significant. Intake was estimated at only 7.5% of dietary guidelines, yet the serum concentration was normal. The same applies to magnesium. This was liberated from black earth in quite large amounts, dietary intake *exceeded* the RDA (120%) and yet the serum concentration again was normal. Intake of calcium was *below* the RDA (43.5%), while the serum concentration was normal. Possibly, the calcium liberated from black earth actually functioned as a dietary supplement.^{2–4}

The local African population believes that ingestion of earth benefits women when they become pregnant. Red earth indeed had properties that might prevent iron deficiency anaemia, though the bioavailability of this (non-haem, contaminant) iron may be limited.⁵

Before attributing any adverse or beneficial consequences to geophagia, the ion-exchange capacity⁶ of the substance in question should be evaluated. That is within the scope of most hospital laboratories.

Acknowledgments We thank Prof. H Joubert for the use of laboratory equipment, and Ms R M Baloyi for providing the specimen of red earth.

M J Dreyer

P G Chaushev¹

R F Gledhill¹

Department of Chemical Pathology, MEDUNSA and ¹Department of Neurology, MEDUNSA/Ga-Rankuwa, South Africa

Correspondence to: Dr R F Gledhill, 10 The Pines, South Terrace, Dorking RH4 2BE, UK

REFERENCES

- 1 Woywodt A, Kiss A. Geophagia: the history of earth-eating. *J R Soc Med* 2002;**95**:143–6
- 2 Hunter JM, de Kleine R. Geophagy in Central America. *Geogr Rev* 1984;**74**:157–69
- 3 Reid RM. Cultural and medical perspectives on geophagia. *Med Anthropol* 1992;**33**:337–51
- 4 Johns T, Duquette M. Detoxification and mineral supplementation as functions of geophagy. *Am J Clin Nutr* 1991;**53**:448–56
- 5 Harvey PWJ, Dexter PB, Darnton-Hill I. The impact of consuming iron from non-food sources on iron status in developing countries. *Pub Health Nutr* 2000;**3**:375–83
- 6 Minnich V, Okcuoglu A, Tarcon Y, *et al.* Pica in Turkey. II. Effect of clay on iron absorption. *Am J Clin Nutr* 1968;**21**:78–86

The toll of road traffic accidents

While I wholeheartedly support the conclusion of the editorial by Rodger Charlton and Gary Smith (October 2003 *JRSM*¹) I am surprised that the authors make no mention of the reduction in road traffic accidents (RTAs) that the appropriate prescription of certain medications to car driving patients would produce. I realize there are few data investigating the role of prescription medicines in RTAs, but those that exist (e.g. Barbone *et al.*, Association of road traffic accidents with benzodiazepine use, *Lancet* 1998, **352**, 1331–6, or Currie *et al.*, The use of antidepressants and benzodiazepines in the perpetrators and victims of accidents, *Occup Med* 1995, **45**, 323–5) clearly indicate that certain prescription-only medications are implicated as causative agents in RTAs.

An easy way to help reduce the toll of such drugs is that they be clearly labelled as incompatible with vehicle operating and should therefore be avoided by road users.

Such a mechanism, an unambiguous red warning triangle on the dispensing pack, is employed in several European countries. The UK use of a label on the lines of 'if you feel affected, do not drive' is not a straightforward indication to that patient not to operate a motor vehicle. The 'red triangle' alerts physicians, pharmacists and patient, and the good news is that for every red-triangle medicine there exist several clinically equipotent compounds with no measurable effect on car driving skills.

Ian Hindmarch

HPRU Medical Research Centre, Egerton Road, Guildford GU2 7XP, UK

REFERENCE

- 1 Charlton R, Smith G. How to reduce the toll of road traffic accidents. *J R Soc Med* 2003;**96**:475–6

Guestimates

Fluorosis is one of some 90 causes of incisor teeth mottling.¹ Fluoridated toothpaste imposes such a hazard if, in under eight-year-old children, too much is used. Iain McLean and his colleagues, although in another context, (October 2003 *JRSM*²), rightly say 'the taking of true measurements is advisable'. And no more valid, I suggest, than when parents apply toothpaste to a child's toothbrush. Dentists³ ask them to judge (guess) this as 'an amount . . . no greater than a small pea, with the emphasis on small': too much and the dentition's integrity is hazarded. With use of such 'guestimates' the end product, measured by the amount of fluoride, may vary widely.

I measured the sizes of nationally marketed frozen peas in packets bearing a message that 'only the sweetest and smallest are selected': the diameter of the smallest was 0.5 cm and that of the largest 1 cm. Since the volume of a sphere is given by $4/3\pi r^3$ the larger pea's volume was eight times greater than that of the smaller. I found it difficult to relate size to volume, as perceived by diameter; had the diameter of the larger pea been three times that of the smaller, the volume would have been twenty-seven times greater. Surely we cannot expect a mother, when supervising a youngster's tooth-brushing, to judge unerringly the size of a pea. If children's toothpaste were marketed with a dispenser to take out the guesswork it would help overcome the danger of mottling.

Lord Kelvin gave us a maxim: 'When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind . . .'.⁴ Heavens preserve us from small peas.

D W Sarll

Pretoria Road, High Wycombe, Bucks HP13 6QW, UK
E-mail: donald.sarll@btinternet.com

REFERENCES

- 1 Small BW, Murray JJ. Enamel opacities: prevalence, classifications and aetiological considerations. *J Dent* 1978;**6**:33–42
- 2 McLean I, Anderson CM, White C. The accuracy of guestimates. *J R Soc Med* 2003;**96**:497–8
- 3 British Society of Paediatric Dentistry. A policy document on fluoride supplements and fluoride toothpaste for children. *Int J Paediatr Dent* 1996;**6**:39–142
- 4 Kelvin WT. *Popular Lectures and Addresses [1891–1894]*. London: Macmillan

Gastro-oesophageal reflux

The article by Mr Issing and Mr Karkos (October 2003 *JRSM*¹) brings into focus the role of gastro-oesophageal reflux in the aetiopathogenesis of many airway disorders. The supra-oesophageal complications of reflux are more common in children, especially infants, than in adults. Recurrent aspiration and reactive airway disease are particularly troublesome in children with severe neuro-disability, often necessitating fundoplication or gastrostomy. Although clinical observations have suggested a possible link between reflux and otitis media, sinusitis and other upper-airway disorders, clinical evidence is lacking.² Many infants with gastro-oesophageal reflux show improvement with age. For children, unlike adults, the optimum dosage and, more important, the safety profile of proton-pump inhibitors are yet to be established.³

S Venkatesh Karthik

Wrexham Maelor Hospital, Wrexham,
North Wales, UK

REFERENCES

- 1 Issing WJ, Karkos PD. Atypical manifestations of gastro-oesophageal reflux. *J R Soc Med* 2003;**96**:477–80
- 2 Rudolph CD. Supraesophageal complications of gastroesophageal reflux in children: challenges in diagnosis and treatment. *Am J Med* 2003;**115** Suppl3A:150S–156S
- 3 Gibbons, TE, Gold BD. The use of proton-pump inhibitors in children: a comprehensive review. *Paediatr Drugs* 2003;**5**:25–40

In the article by Mr Issing and Mr Karkos (October 2003 *JRSM*¹) I was surprised that my presenting symptom was not mentioned. Perhaps I am unique. I first experienced gastro-oesophageal reflux disease (GORD) when I was in a hotel room in a large US city. I was woken at 2 am by laryngeal spasm and stridor so severe that I was convinced I was going to asphyxiate and die. It passed off in about 25–30 s. It happened every few months after that: my terror decreasing only slightly with each episode (my wife was the recipient of 'surrogate terror', the first time she saw and heard me gasping and making that horrific inspiratory screech). It was so bad that I have since wondered whether laryngeal spasm due to reflux might be a cause of otherwise unexplained and

unwitnessed solitary deaths in bed, particularly in the elderly and those weakened by disease. After a few of these episodes I eventually did have an endoscopy and now sleep undisturbed courtesy of my proton pump inhibitors.

Justin Martin

Dept of Pathology, Royal Jubilee Hospital, 1952 Bay Street, Victoria, BC V8R 1J8, Canada

REFERENCE

1 Issing W, Karkos PD. Atypical manifestations of gastro-oesophageal reflux. *J R Soc Med* 2003;**96**:477–80

The first laparoscopic surgeons

I was surprised that Mr Agha and Mr Muir should state, in their well written and considered review (November 2003 *JRSM*¹) that the laparoscopic era was launched with the description of laparoscopic cholecystectomy by a French general surgeon. In fact it is the humble gynaecologist who should take the credit for introducing the revolution of laparoscopic surgery. Thirty years ago Clarke² described the first laparoscopic ligation and resection whilst Kurt Semm³—regarded as the ‘father of gynaecological laparoscopy’ described a variety of pelvic procedures (including hysterectomy) accomplished laparoscopically in 1980, a full ten years before laparoscopic cholecystectomy. I hope that this eliminates any confusion over which specialty pioneered the techniques now increasingly utilized in general surgery.

Tariq Miskry

Department of Obstetrics & Gynaecology, St Mary’s NHS Trust, Praed St, London W2 1NY, UK

REFERENCES

1 Agha R, Muir G. Does laparoscopic surgery spell the end of the open surgeon? *J R Soc Med* 2003;**96**:544–6
 2 Clarke HC. Laparoscopy. New instruments for suturing and ligation. *Fertility and Sterility* 1972;**23**:274–7
 3 Semm K, Mettler L. Technical progression in pelvic surgery via operative laparoscopy. *Am J Obstet Gynecol* 1980;**138**:121

Haemopneumothorax after fine needle aspiration of the breast

We must congratulate Dr Whitaker and his team for correctly diagnosing a tension pneumothorax and saving the patient’s life with subsequent needle thoracocentesis (November 2003 *JRSM*¹). The tension had arisen 32 hours

after a diagnostic fine needle aspiration (FNA) of the left upper outer quadrant of the breast. However, we disagree that the ensuing haemothorax was caused by the FNA and feel it was far more likely to be caused by the needle thoracocentesis. At operation the lesion was found to be at the apex of the lung which in the normal lung lies above the clavicle, higher than where the FNA was performed. Needle thoracocentesis for a tension pneumothorax at the 2nd intercostal space midclavicular line is much more likely to hit the apex of the lung and cause haemothorax.

R Hoey

H Russell

Accident and Emergency Department, Charing Cross Hospital, Fulham Road. E-mail: rhoey@hhnt.org

REFERENCE

1 Whitaker IS, Elmiyeh B, Siddiqui MN, Holme TC. Haemopneumothorax after fine needle aspiration of the breast. *J R Soc Med* 2003;**96**:555–6

What should the citizen know about science?

I share Professor Baron’s anxieties about public knowledge of science (October 2003 *JRSM*¹), and am particularly concerned by the prejudice and ignorance evident in media announcements on medical subjects. As an undergraduate in 1949–1952 I was fortunate in attending a course on the history and philosophy of science, and the insight it gave me into the essentials of scientific deductive thought was of more benefit than many hours spent in the laboratories. I feel that, unless we can mend matters in the secondary schools, we will descend into a new dark age. This is part and parcel of the loss of linguistic skills; for without a facility in language it is impossible to convey the arguments upon which scientific knowledge is based. I suggest that, if the natural sciences are deemed inappropriate or too difficult to be compulsory subjects for examination at this stage, a course in the history and philosophy of science might be worthwhile and attractive.

Martin Spiro

Red House, 1 Epping Road, Toot Hill, Nr Ongar, Essex CM5 9SQ, UK E-mail: spirotoothill@talk21.com

REFERENCE

1 Baron H. What should the citizen know about science? *J R Soc Med* 2003;**96**:509–11