LETTERS TO THE EDITOR

Radiography for head trauma in children: what guidelines should we use?

EDITOR,—I was very interested to read the paper by Moreea *et al* from the Leeds General Infirmary comparing a set of British and American guidelines for the use of skull radiography in children.[1] If statistically valid, their conclusion that we should follow the American guidelines would result in a considerable financial saving and reduction in unnecessary and potentially harmful radiation.

However, there are a couple of points of confusion which their paper introduces. Firstly, their guidelines compare British criteria for *x* ray with American criteria for NO *x* ray. The list of criteria for NO *x* ray reads: "Asymptomatic; Headache; Scalp laceration/contusion/abrasion/haematoma; Dizziness; Absence of other risk criteria."

This is clearly nonsense, as it would imply that anybody with, say, a scalp laceration does not need an *x* ray—notwithstanding any other signs or symptoms that may be present. The paper from which these recommendations are taken, by Masters *et al*,[2] divides patients into three groups: a high risk group, requiring neurosurgical consultation or emergency CT, a low risk group requiring discharge with head injury advice, and a moderate risk group in whom close observation is recommended and possibly skull *x* ray, although CT should also be considered. Masters *et al* gave a list of criteria which would indicate that a patient should be in the moderate risk group. These were not reproduced by Moreea *et al* and without them it is, of course, impossible to follow the guidelines. For the record, these criteria are:

- History of change of consciousness at the time of injury or subsequently
- History of progressive headache
- Alcohol or drug intoxication
- Unreliable or inadequate history of injury
- Age less than 2 years (unless injury very trivial)
- Post-traumatic seizure
- Vomiting
- Post-traumatic amnesia
- Multiple trauma
- Serious facial injury
- Signs of basilar fracture
- Possible skull penetration or depressed fracture
- Suspected non-accidental injury

Also, in the paper by Moreea *et al* the figures given in table 4 are completely different from those described under the paragraph beginning "table 4 shows . . ." in the text.

F L P HEYES
Accident and Emergency Department, Rotherham District General Hospital, Rotherham, South Yorkshire S60 2UD

1 Moreea S, Jones S, Zoltie N. Radiography for head trauma in children: what guidelines should we use? J Accid Emerg Med 1997;14:13–15.
2 Masters SJ, Maclean P, Arcarese JS, Brown RF, Kemball JA, Freed HA, *et al*. Skull examinations after head trauma. N Engl J Med 1987;316:84–91.

Drug doses in children

EDITOR,—Greig *et al* demonstrate the potential inaccuracies of calculating drug doses and fluids based on estimates of weight in children.[1] Weighing children is routine in paediatric accident and emergency and outpatient departments, and usually involves undressing younger children. Indeed, parents expect younger children to be undressed for weighing, based on their experience at Health Visitor clinics.

There is another important message for general departments: undressing younger children for weighing also allows visual inspection for signs of non-accidental injury, particularly in non-mobile children, and is an opportunity not to be missed.

S M HEWITT
Accident and Emergency Department, Derbyshire Royal Infirmary, Derby DE1 2QY

1 Greig A, Ryan J, Glucksman E. How good are doctors at estimating children's weight? J Accid Emerg Med 1997;14:101–3.

Bradycardia due to an eye dressing

EDITOR,—We wish to warn of the potential danger of facial dressings placed over the eye which may cause stimulation of the oculovagal reflex and produce profound bradycardia and circulatory collapse.

A normally fit young man attended the accident and emergency department following an assault with a machete. He had wounds to the left chest and a pressure dressing over his left face, which had been applied by the paramedics.

On arrival the patient was talking anxiously. He had a respiratory rate of 17/min, a central trachea, and symmetrical air entry. Oxygen saturation was 97%. Heart rate was 50 beats/min and blood pressure 109/70 mm Hg. Heart sounds were heard clearly and jugular venous pressure was not elevated. Within five minutes he became sweaty and less responsive. His pulse rate had fallen to 37/min. Review of his airway and breathing showed no deterioration. Before giving atropine his facial dressing was removed, whereupon his pulse rate rapidly increased to 80/min, his blood pressure increased to 150/60 mm Hg, and his anxiety decreased. Radiology of the chest and face was normal.

The oculocardiac reflex described by Aschner in 1908[1] involves an afferent pathway via the trigeminal nerve, the reticular formation of the brain stem, and the vagus. Compression of the orbit causes bradycardia. Bradycardias have been observed with direct pressure from a Honan balloon,[2] and during surgery of facial fractures.[3] This patient was relatively bradycardic on arrival and rapidly deteriorated. Prompt recognition of the role of the oculocardiac reflex reversed his shock. The bradycardia was caused by the pressure dressing alone and not by any underlying injury.

K LENDRUM
M W COOKE
Accident and Emergency Department, City Hospital, Dudley Road, Birmingham B18 7QH

1 Aschner B. Über einen bisher noch nicht beschriebenen Reflex vom Auge auf Kreislauf und Atmung. Wien Klin Wochenschr 1908;21:1529.
2 Arnold RW, Gould RB, MacKenzie R, Dyer JA, Low PA. Lack of global propensity in patients with oculocardiac reflex. Ophthalmology 1994;101:1347–52.
3 Stott DG. Reflex bradycardia in facial surgery. Br J Plast Surg 1989;42:595.

Injuries from broken china

EDITOR,—Injuries from broken china are commonly seen in the accident and emergency department. Often the hands are injured during the washing of crockery, although domestic altercations and enthusiastic postprandial entertainments may also be responsible.

It has long been established that all forms of glass are radio-opaque,[1 2] but the properties of china have been less well defined. Metal salts are added to silica in the manufacture of both glass and china clay but lead is added only to glass and this is thought to increase its radiodensity.

Patients who have sustained lacerations to their hands from broken china are often seen in A&E. In managing these injuries it is important to know whether china fragments are radio-opaque, and therefore if *x* rays can be expected to reveal any significant foreign body.

We conducted a simple experiment to determine whether china fragments are detectable by *x* rays when embedded in human tissue. A chicken drumstick was used as an animal model of a metacarpal or phalanx. Pieces of china and glass of various dimensions were inserted into the muscles and *x* rays taken at various exposures. Using a range of exposures we found that 45 mV, which is exactly that used for glass localisation in the hand, gave the clearest image.

As is clear from the *x* ray shown (fig 1) all forms of china are well demonstrated, even if they are small. China has a radiodensity indistinguishable from glass, and the type of china seems to be irrelevant, as does the presence of glaze, metallic or otherwise, on the china fragments.

It has long been accepted that wounds due to glass should be *x* rayed; not to do so is negligent if a retained fragment is missed. We suggest that wounds due to broken china should also be *x* rayed to reveal the presence or absence of a china foreign body.

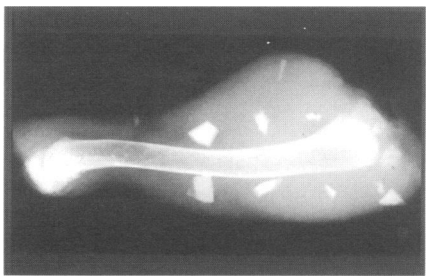

Figure 1 Radiograph of a chicken drumstick taken at 45 mV showing glass and china fragments.

These results were presented as a poster at the BAEM Conference in Durham in March 1996.

D HULBERT
A ADAMS
M BECKETT
Department of Accident and Emergency

J BROWN
Department of Radiology,
West Middlesex University Hospital, Twickenham Road, Isleworth, Middlesex TW7 6AF

1 Tandberg G. Glass in the hand and foot. Will an X-ray show it? JAMA 1982;248:1872–4.
2 de Lacey G, Evans R, Sandin B. Penetrating injuries: how easy is it to see glass (and plastic) on radiographs? Br J Radiol 1985;58:27–30.

Rollerblade injuries in children

EDITOR,—I read with interest the paper by McGrath and Beattie[1] on rollerblade injuries in children. While their paper supports many of the findings in other published reports on this subject, I would like to make several points.

Firstly, the reported operation rate is much lower than those reported by Banas *et al*[2] and Spicer *et al*,[3] of 30% and 33% respectively, although neither of these studies was confined to children.

Secondly, they suggest the need to wear protective gear but do not tell us what percentage of their patients were wearing some form of protection at the time of injury. While wrist guards probably do help to prevent abrasions and hyperextension injuries, they may not be effective in preventing injuries caused by axial loading.

Thirdly, although the upper limb is the most common site of injury, serious injuries do occur in the lower limb, including fractures of the femur, tibia, and ankle.

Finally, it should be remembered that rollerblade injuries are not the preserve of children; Spicer's study and that of Banas both included patients aged 48 years. In a personal study from Mayday Hospital, Croydon, one patient who sustained a fractured tibia was aged 53 years of age.

As the authors suggest, we are likely to see an increasing number of rollerblading injuries in the coming years as the sport becomes more popular. The only way to keep this number to a minimum is by encouraging the wearing of protective gear, and by the teaching of rollerblade skills.

RUSSELL WALKER
Orthopaedic Department, St George's Hospital, London SW17 0QT

1 McGrath D, Beattie T. Rollerblading in children: the Edinburgh experience. J Accid Emerg Med 1996;13:354–5.
2 Banas MP, Dalldorf PG, Marquardt JD. Skateboard and in-line skate fractures: a report of one summer's experience. J Orthop Trauma 1992;6:301–5.
3 Spicer DD, Mullins MM, Wexler DM. Rollerblades: should they carry a government health warning? Injury 1996:27:401–3.

Management of snake bite

EDITOR,—On two occasions recently we have been grateful for the help of London Zoo in managing venomous snake bites. Accurate identification of the snake concerned is essential in making correct decisions on antivenom use, and on these two occasions staff from the zoo visited the homes of the two patients within three hours of the incidents and identified the snakes.

In one case a 24 year old female, looking after a friend's snakes in her absence, was bitten on the hand and suffered extensive advancing pain and swelling. Once the snake responsible had been identified as an American copperhead we were able to obtain advice on the appropriate antivenom, which was duly given. The patient was discharged with almost complete resolution of symptoms after three days.

In the second case the owner of a number of snakes was bitten by one that he had bought illegally with only vague identification details. He presented soon afterwards with severe vomiting. The snake was identified as a Thailand spitting cobra. No antivenom was available for this, but we were able to anticipate the potential neurological complications and respiratory paralysis, which fortunately did not develop.

Although a licence is required by law before obtaining a venomous snake, many are kept without one, and traded illegally. Often these snakes are only vaguely identified. In 1994 the National Poisons Information Service (London) received 62 calls about bites from imported snakes, of which 44 were by identified snakes, of 13 different species, and 18 were by unidentified snakes. If antivenom is required, the correct one for the species is essential, as many different antivenoms are available. In this situation expert help from the local zoo can be very valuable.

For the United Kingdom as a whole, a comprehensive stock of snake bite antivenom is held in London for the south and in Liverpool for the north. These are the best points of first contact in the case of a venomous snake bite. In London the stock is held by the Medical Toxicology Unit of Guy's and St Thomas' NHS Trust at New Cross. In Liverpool the stock is held by Fazakerley Hospital, and the point of contact is the Liverpool School of Tropical Medicine. Further medical advice will then be sought by these units, from experts in Liverpool, or at the Centre for Tropical Medicine in Oxford:

Medical Toxicology Unit of Guy's and St Thomas' NHS Trust, tel 0171 635 9191
Liverpool School of Tropical Medicine, tel 0151 708 9393
Prof D A Warrell, Centre for Tropical Medicine, Oxford, tel 01865 221332; out of hours (mobile phone) 0385 242978

If help is needed with identifying the snake, the following zoos, which all have venomous snake collections, have the necessary expertise and are willing to help:

Chester Zoo, tel 01244 380280
Cotswold Wildlife Park, tel 01993 823006
Isle of Wight Zoo, tel 01983 403883
Jersey Zoo, tel 01534 864666; out of hours 01534 862198
London Zoo, Reptile House, tel 0171 449 6431; out of hours 0171 722 6450
Poole Serpentarium, tel 01202 686712
West Midlands Safari Park, tel 01299 402114; out of hours 01902 338916

Other zoos without venomous snakes but with expertise in this area include Banham, Bristol, Chessington, Drayton Manor, Edinburgh, Glasgow, and Whipsnade. Bangor University also keeps venomous snakes, in the Department of Biological Sciences under Professor Thorpe.

IAN M STELL
Guy's Hospital, London SE1 9RT

BOOK REVIEW

Manual of Primary Eye Care. By Narciss Okhravi. (Pp 176; £25.00.) Oxford: Butterworth Heinemann, 1997. ISBN 0 7506 2221 0.

The majority of SHOs starting in accident and emergency medicine have little or no experience of common eye problems. As stated by the author in the preface, this book is a practical guide and not a textbook, and has been written primarily for A&E department medical and nursing staff with no prior knowledge of the subject.

Initial sections cover essential eye anatomy, the measurement of visual acuity, examination of the eye, and a useful section on the mysteries of the contact lens. The main part of the text presents readable but concise information on the management of common eye problems. Each condition is laid out in a logical manner and accompanied by photographs and illustrations of excellent quality. The star rating system for outlining the need and urgency of referral for each condition is very effective and is augmented by the use of red boxes highlighting conditions requiring immediate attention. The final section includes step by step instructions on performing practical treatment techniques such as washing out the eye or removing a foreign body. The whole text is admirably clear and free of jargon, but there is a glossary of ophthalmic terms at the end which provides a common language when communicating with ophthalmological colleagues.

The author has achieved her aim with a superb practical guide which will be of value to all primary care practitioners, whether in the emergency department or in primary health care. The book is didactic, which I think is an asset and not a fault in such a guide, but the practitioner needs to bear in mind that local protocols may vary from this text. Little background information is given and an additional textbook may be required to satisfy the inquiring mind. This is an excellent book and I have no doubt that it will be much in demand.

T J UNDERHILL
St Leonards-on-Sea