to baseline values within seven days; creatinine clearance was slightly but not significantly reduced (from 81 (9) to 77 (12) ml/min) two days after embolisation but seven days after embolisation was 92 (9) ml/min. Serum creatinine concentration and creatinine clearance were unchanged from baseline values throughout the follow up.

Comment

The aim in managing renovascular hypertension is relief of the lesion causing hypertension. Recent reports have suggested that percutaneous renal embolisation is useful in treating severe hypertension in patients receiving haemodialysis and after transplantation.^{1,2} We performed percutaneous renal embolisation in eight patients with renovascular hypertension and then monitored their blood pressure and renal function for a mean of 26 months (maximum 59 months). In all patients percutaneous transluminal dilatation and surgical bypass of the renal artery could not be performed because of arterial lesions. Total or partial surgical nephrectomy was too risky because of severe chronic hypertension, severe damage of target organs, and, in some patients, widespread atherosclerosis. Hypertension was not under control in any of the patients despite sustained treatment. The percutaneous renal embolisation was successful in all patients: systolic and diastolic pressures rapidly fell to normal. Severe hypertension returned in only one of the patients, five months after the embolisation.

Our study shows that percutaneous renal embolisation is a safe and successful treatment of severe renovascular hypertension in cases that are unsuitable for percutaneous angioplasty or surgical bypass. The result is usually long lasting, but blood pressure should be measured for many months as hypertension may recur.

- 1 Nanni GS, Hawkins IF, Orak JK. Control of hypertension by ethanol renal ablation. *Radiology* 1983;148:51-4.
- 2 Fletcher EWL, Thompson JF, Chalmers DHK, et al. Embolisation of host kidney for the control of hypertension after renal transplantation. *Br J Radiol* 1984;57:279-84.
- 3 Reuter SR, Pomeroy PR, Chuang VP, Cho KS. Embolic control of hypertension caused by segmental renal artery stenosis. *AJR* 1976;127:389-92.
- 4 LiPuma JP, Dresner I, Alfidi RJ, Yoon YS. Embolization of an occluded segmental renal artery via collateral circulation in a child. *AJR* 1981;136:603-4.
- 5 Dal Canton A, Russo D, Iaccarino V, et al. Scleroembolization for treatment of hypertension caused by intrarenal fibrodysplasia. *Clin Nephrol* 1984;21:138-9.

(Accepted 8 December 1987)

Department of Nephrology, Second Faculty of Medicine, University of Naples, 80131 Naples, Italy

DOMENICO RUSSO, MD, vice director
VITTORIO E ANDREUCCI, MD, director of the chair

Department of Radiology, Second Faculty of Medicine, University of Naples

VITTORIO IACCARINO, MD, vice director
RAFFAELLA NIOLA, MD, assistant

Chair of Nephrology, University of Reggio Calabria at Catanzaro

ANTONIO DAL CANTON, MD, director of the chair
GIUSEPPE CONTE, MD, associate professor

Correspondence to: Dr Russo.

Letterbox finger

I report two cases of what seems to be an unusual cause of injury to a finger. The prevalence of the injury is probably much greater than expected, though the degree of severity varies.

Case reports

Case 1—A 36 year old postman presented to the casualty department having injured his left middle finger on a letterbox during his morning delivery round. He had posted several letters through a letterbox with his left hand. When he withdrew his hand, having released the letters, the tip of his left middle finger had become trapped between the letterbox flap and frame. Further movement had resulted in amputation of the distal half of the distal phalanx of the digit at the level of the nailbed. The finger was successfully treated by trimming the exposed phalangeal bone and achieving soft tissue cover, which allowed healing by secondary intention.

Case 2—A 55 year old man presented to the casualty department having injured his right middle finger while posting letters to his neighbour that had wrongly been delivered to him. When he withdrew his hand his finger had become caught between the flap and the frame, causing a deep 2 cm laceration of the pulp of the finger. This was treated by suturing.

Comment

Letterboxes are produced with two different flap mechanisms. One, with a heavy metal flap, uses gravity to remain closed and opens outwards. The other has a lighter metal flap with a spring hinge mechanism to close the flap and opens inwards.

Both of the injuries described were caused by spring hinge type letterboxes, each of which was fitted with a rather firm spring.

Unusual causes of injury to fingers have been reported¹⁻³ in addition to other commoner causes.^{4,5} The type of injury described here has, however, been reported, only in the national press when a parliamentary candidate sustained a similar injury while canvassing.

The postman in the first case reported that the injury was common among his colleagues, though most of these injuries were minor lacerations that did not require medical attention and therefore passed unnoticed.

The spring hinge mechanism of letterboxes with lighter flaps is necessary to stop the flaps being blown open by wind. I would suggest, however, that a lighter spring should be used, which can easily be overcome by the fairly weak finger extensors.

- 1 D'A Fean CB. Wellie thrower's finger. *Br Med J* 1986;293:1645.
- 2 Wicks AC. Fly fisher's finger. *Br Med J* 1984;289:1741.
- 3 Rappoport RJ. Pop top finger. *Ann Intern Med* 1979;90:441.
- 4 Lunn PG, Lamb DW. Rugby finger. *J Hand Surg* 1984;9:69-71.
- 5 Carruthers R. Ampule snapper's thumb. *Lancet* 1976;i:1412-3.

(Accepted 7 January 1988)

Department of Surgery, Westminster Hospital, London SW1

D MENZIES, MB, FRCS, registrar

Head injuries, helmets, cycle lanes, and cyclists

The number of injuries to cyclists is increasing,¹ yet the United Kingdom lags behind other countries in trying to remedy the problem. We report the incidence of head injuries in a study by the Accident Service, Oxford, of accidents to cyclists and comment on the effects that wearing helmets and separate cycle lanes might have on the incidence of injuries in this group of road users.

Patients, methods, and results

A review of all patients injured in road accidents who attended our accident service from 1 January 1983 to 31 May 1985 showed an average of 63 accidents to pedal cyclists each month. Cyclists represented 28% of all road accident victims.

Injuries to the head or face, or both, occurred in 958 (52%) of 1831 accidents. Head injuries were classified by the abbreviated injury scale¹: 178 were cuts and grazes (score 1), 314 mild concussion (score 2), and 37 severe head injuries (patients unconscious for more than 15 minutes; score 3-5); six patients died. Of 742 patients under the age of 16, 322 (43%) had craniofacial injuries and an additional 92 (12%) had only facial injuries, while 441 (40%) of 1089 patients aged 16 and over had craniofacial injuries and another 102 (9%) had only facial injuries. Only 12 (0.7%) of the cyclists had been wearing helmets.

Head injuries sustained in accidents by motorcyclists, who must wear a helmet by law, were compared with head injuries occurring in accidents to pedal cyclists aged 16 and over. To make speeds comparable only accidents in built up areas were analysed. The table shows the distribution of injuries by regions of the body. A significantly higher proportion of pedal cyclists compared with motorcyclists had head injuries (169 (33%) v 114 (15%); $\chi^2=61.1$, df=4, $p<0.001$). Of the 758 motorcyclists in this comparison group, 89 (12%) had mild concussion, 12 (2%) had severe head injuries, and 13 (2%) had cuts and grazes of the head; of the 511

Number (percentage) of injuries in built up areas to 758 motorcyclists and 511 pedal cyclists aged 16 and over, 1 January 1983 to 31 May 1985

	Motorcyclists	Pedal cyclists
Chest	58 (8)	42 (8)
Abdomen	40 (5)	26 (5)
Arm and hand	424 (56)	245 (48)
Leg and pelvis	586 (77)	260 (51)
Spine	12 (2)	13 (3)
Neck	24 (3)	17 (3)
Face	107 (14)	217 (42)
Head	114 (15)	169 (33)

pedal cyclists, 98 (19%) had mild concussion, 13 (3%) had severe head injuries, and 58 (11%) had cuts and grazes.

The Oxford ring road encloses 227 km of road and only 23 km of cycle lane, of which 8 km are part of the road and 15 km are separate. The number of injuries per kilometre was 0.9 on the road, 0.4 on the road cycle lane, and 0.3 on the separate cycle track. Another vehicle caused or was involved in 1012 (55%) of the accidents.

Comment

In accidents motorcyclists have been shown to sustain more severe injuries to the body and pedal cyclists more severe head injuries,² a finding confirmed by our study. Although the two groups are not strictly comparable, we suggest that if cyclists wore helmets the number of head injuries in this group would be reduced. The incidence of head injuries sustained by pedal cyclists is similar whatever their age.² Though children form the largest group of cyclists with head injuries, it would be desirable for all cyclists to wear helmets.

Our study suggests that cycle lanes are safer than ordinary roads for cyclists. After the introduction of cycle lanes on certain routes in Oxford the number of accidents remained the same despite double the number of road users (unpublished report of city engineer). It has been suggested that cycle lanes relocate bicycle accidents to the place where the lanes end³; thus special cycle routes using quieter parts of the existing road system should perhaps be developed. All the deaths in our study and 87% of those in the study by Nixon *et al*¹ occurred after an accident with a motor vehicle and could have been averted by complete segregation of cyclists. Although this aim is currently impracticable because of the dominance of cars, cycle lanes and especially separate cycle tracks are a worthwhile addition to city centres.

1 Nixon J, Clacher R, Pearn J, Corcoran A. Bicycle accidents in childhood. *Br Med J* 1987;294:1267-9.

2 McDermott FT, Klug GL. Head injury predominance: pedal-cyclists vs motor-cyclists. *Med J Aust* 1985;143:232-4.

3 Anonymous. Motorcycle and bicycle accidents. *Br Med J* 1979;i:39-41.

(Accepted 12 February 1987)

Nuffield Department of Orthopaedic Surgery, Accident Service, John Radcliffe Hospital, Oxford OX3 9DU

A H R W SIMPSON, MA, FRCS, orthopaedic registrar
P S UNWIN, BSC, research assistant
I W NELSON, FRCS, clinical lecturer

Correspondence to: Mr A H R W Simpson, Nuffield Orthopaedic Centre, Oxford OX3 7LD.

Increased prevalence of non-secretors in patients with Graves' disease: evidence for an infective aetiology?

Graves' disease is associated with HLA-B8 and HLA-DR3 on chromosome 6. The abnormalities of humoral immunity causing the production of antibodies that stimulate thyroid stimulating hormone receptors, and the role of cell mediated immunity, are well known, but the trigger that allows predisposed people to develop the disease is not. Environmental influences such as stress and infection have been proposed.¹ An inability to secrete the water soluble glycoprotein form of the ABO blood group antigens is associated with increased susceptibility to several infections, particularly in children in the time between their losing maternal antibodies and developing their own active immunity. This characteristic does not alter with age or environment. The secretor gene is on chromosome 19 and is not linked to sex or the HLA markers. There is a significantly higher proportion of non-secretors in patients with insulin dependent diabetes mellitus² and ankylosing spondylitis³ than in the general population. These conditions are closely associated with HLA markers, and an infective aetiology has been suggested for each. We examined the secretor state of patients with organ specific autoimmune thyroid disease. This group of diseases is not uncommon in patients with insulin dependent diabetes mellitus and their first degree relatives.

Patients, methods, and results

We studied 77 patients with Graves' disease, 33 with spontaneous primary atrophic hypothyroidism, and 26 with Hashimoto's thyroiditis. ABO and Lewis blood groups were determined by agglutination and the secretor state from saliva by the haemagglutination inhibition method.⁴ Secretor state was confirmed by the Lewis blood group. The results were compared with those from local blood donors with the χ^2 test. The table shows that the proportion of non-secretors with Graves' disease was significantly increased compared with that in the control population ($p < 0.005$). This was not true for patients with primary atrophic

Blood group and secretor state of patients with autoimmune thyroid disease and controls. Values are numbers (percentages) of subjects

	ABO blood group				Secretor state	
	A	B	O	AB	Non-Secretor	Secretor
Graves' disease (n=77)	28 (36)	6 (8)	40 (52)	3 (4)	43 (56)	34 (44)
Spontaneous primary atrophic hypothyroidism (n=33)	11 (33)	3 (9)	18 (55)	1 (3)	23 (70)	10 (30)
Hashimoto's thyroiditis (n=26)	5 (19)	1 (4)	19 (73)	1 (4)	19 (73)	7 (27)
Controls (n=334)	104 (31)	42 (13)	173 (52)	15 (4)	245 (73)	89 (27)

hypothyroidism or Hashimoto's thyroiditis. There was no significant difference in the distribution of ABO blood groups between any of the categories of thyroid disease and the control population.

Comment

Our results show that the inherited susceptibility to Graves' disease is associated with genetic markers on chromosome 19 as well as on chromosome 6. As some patients with Graves' disease eventually develop hypothyroidism it might have been expected that patients with primary atrophic hypothyroidism would show the same increased proportion of non-secretors. This was not so, but the number studied was small.

The increased susceptibility of non-secretors to infection raises the possibility that an infective agent may play a part in the development of Graves' disease. A striking association has been shown between the prevalence of antibodies against the enteric pathogen *Yersinia enterocolitica* and autoimmune thyroid disease, particularly in Scandinavia.⁵ This organism, in addition to *Escherichia coli* and other Gram negative bacteria, has been shown to contain a binding site for thyroid stimulating hormone, and this is recognised by immunoglobulins from patients with Graves' disease.¹ Possibly the increased susceptibility of non-secretors to bacterial infection might result in the production of antibodies to microbial antigens that then cross react with the receptor for thyroid stimulating hormone and trigger the onset of hyperthyroidism.

1 Heyma P, Harrison LC, Robins-Browne R. Thyrotrophin (TSH) binding sites on *Yersinia enterocolitica* recognised by immunoglobulins from humans with Graves' disease. *Clin Exp Immunol* 1986;64:249-54.

2 Blackwell CC, James VS, Weir DM, *et al*. Secretor state of patients with insulin dependent or non-insulin dependent diabetes mellitus. *Br Med J* 1987;295:1024-5.

3 Shinebaum R, Blackwell CC, Forster PJG, *et al*. Non-secretion of ABO blood group antigens as a host susceptibility factor in the spondyloarthropathies. *Br Med J* 1987;294:208-10.

4 Mollison PL. *Blood transfusion in clinical medicine*. Oxford: Blackwell Scientific Publications, 1979:414-82.

5 Shenkman L, Bottone EJ. *Yersinia enterocolitica*. Florida: CRC Press, 1981:136-55.

(Accepted 18 January 1988)

University Department of Medicine, Royal Infirmary, Edinburgh EH3 9YW

A COLLIER, MRCP, medical registrar
A W PATRICK, MRCP, medical registrar
A D TOFT, MD, FRCPED, senior lecturer

University Department of Bacteriology, Medical School, Edinburgh EH8 9AG

C C BLACKWELL, PHD, lecturer
V JAMES, FIMLS, research technician
D M WEIR, FRCPED, professor

Correspondence to: Dr Toft.