

patient had a fracture of the phalanges and overlying cellulitis. The types of injuries were: twisting (34 patients), crushing (34), stubbing (27), vertical drop (five). Two fifths of the patients with a vertical drop injury, a stubbing injury, or a crushing injury sustained a fracture and one quarter of those with a twisting injury (table).

In 13 cases the radiographs were incorrectly interpreted. In two of the 34 patients with a fracture the radiological findings influenced the management from no treatment to treatment of the symptoms. Among the 66 patients whose radiographs were normal management was altered in only two—from treatment of symptoms to no treatment—in whom the doctor had suspected a fracture.

### Comment

The radiological findings did not influence the management of 96 of 100 patients with a foot injury, which suggests that far fewer radiographs need to be taken. Solomon commented on the inadequacy of initial radiographs of patients with foot injuries, emphasising that when an injury to the foot fails to respond to reasonable initial treatment further radiographs need to be taken for comparison.<sup>1</sup>

The results of this study suggest that all patients with an injury to the midfoot or forefoot in whom there are no gross signs and symptoms should be offered symptomatic treatment without having radiographs taken. These should be taken only if a condition fails to settle after a reasonable length of time. A radiograph should also be taken initially in patients with an injury to the hindfoot after a vertical drop. In this study nearly one in seven radiographs were misinterpreted by the casualty officer, but there

### The action of the injury and site of the fracture

Site of fracture	Action of injury			
	Twisting (n=34)	Stubbing (n=27)	Crushing (n=34)	Vertical drop (n=5)
Metatarsal:				
I				
II		2	1	
III			1	
IV				
V	7	1		
Phalanx:				
Proximal	1	7	6	
Middle		1	4	
Distal		2	4	
Calcaneum				2
Total	8	13	16	2

was no adverse effect on the patients' recovery. I suggest that doctors should give a lower priority to radiology for injuries to the midfoot and forefoot. If such a policy were implemented in this department probably over 1000 fewer radiographs would be performed each year—an appreciable saving of both time and money. The medicolegal implications of adopting such a policy are obvious, and clinicians should ensure that the history is carefully taken and the patient carefully examined.

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- 1 Solomon CD. The inadequacy of initial radiographs in the diagnosis of foot fractures. *Journal of the American Podiatry Association* 1978;68:659-63.
- 2 Griffiths HJ. Trauma to the ankle and foot. *CRC Crit Rev Diagn Imaging* 1986;26:45-105.

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## Idiopathic scrotal haemorrhage in neonates

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Undoubtedly the commonest cause of hard testicular swelling and a bruised hemiscrotum soon after birth is torsion of the spermatic cord causing testicular infarction. In rare cases, however, these may be due to other causes. Idiopathic scrotal haemorrhage may mimic testicular torsion, and we describe two cases seen in our unit in 1988.

### Case reports

*Case 1*—After an uneventful pregnancy this baby was delivered at term (birth weight 4460 g) by Neville Barnes forceps after a failed ventouse delivery. No resuscitation was required, and vitamin K was given. On day 3 the right hemiscrotum was noted to be swollen and bruised. He was transferred to this hospital at 4 days with a provisional diagnosis of torsion of the spermatic cord. The appearance of the scrotum was confirmed. There was also well defined bruising over the right superficial inguinal ring completely separate from the scrotal bruise. At operation the tunica vaginalis was filled with partially clotted blood; the processus vaginalis was patent and filled with blood to the inguinal canal. The testis was viable; its vessels and vas deferens were intact and without evidence of torsion. An area of haemorrhage adjacent to the epididymus seemed to be the source of the bleeding, though it was not bleeding at that time.

*Case 2*—This baby was born after a difficult forceps delivery with shoulder dystocia (birth weight 4200 g). After two days his right hemiscrotum was seen to be bruised and the testis was hard and tender. Before operation on that day separate inguinal bruising was seen similar to that in case 1. The surgical findings were of spermatic fascial haematoma extending up to the inguinal canal and enclosing the testis. There was no blood in the tunica and processus vaginalis; the testis, vas deferens, and vessels were vascularised and normal.

*Operation and follow up*—In both infants the processus was ligated and the haematoma evacuated. Investigations, including coagulation times and platelet counts, yielded normal results. An abdominal ultrasound scan in each case showed a normal retroperitoneum and kidneys and no evidence of free intraperitoneal fluid. In both cases the testes were of normal size and consistency three months later.

### Comment

These cases show an alternative diagnosis to that of testicular torsion in this age group.<sup>1</sup> Spontaneous idiopathic haematoma of the spermatic cord has been described in adults,<sup>2</sup> in four of whom sudden manual work was thought to have resulted in a sudden sharp rise in pressure in the spermatic vein, which led to rupture. Our two babies were difficult forceps deliveries and were above the 90th centile for birth weight. We propose a similar mechanism of high venous pressure in fairly unsupported intrascrotal veins as the possible cause of their condition.

A similar condition in neonates has been described after breech birth due to local trauma,<sup>3</sup> secondary to

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haemoperitoneum,<sup>4</sup> and, more recently, in association with adrenal haemorrhage (B Karpe, T Nybonde, 35th international congress of British Association of Paediatric Surgeons, Athens, 1988). The sign of inguinal bruising suggests blood within the spermatic cord, and leakage presumably occurs at the origin of the external spermatic fascia from the external oblique aponeurosis at the superficial inguinal ring.

These clinical features suggest that the testis will remain viable, whereas in neonatal torsion a necrotic testis is almost invariably found.<sup>1</sup> An operation should

still be done to establish the diagnosis and drain the haematoma.

- 1 Burge DM. Neonatal testicular torsion and infarction: aetiology and management. *Br J Urol* 1987;59:70-3.
- 2 Lerman SH, Lerman PH. Spontaneous idiopathic hematoma of the spermatic cord: a report of 2 cases. *J Urol* 1981;125:130-1.
- 3 Dunn PM. Testicular birth trauma. *Arch Dis Child* 1975;50:744.
- 4 Heydenrych JJ. Haemoperitoneum and associated torsion of the testicle in the newborn. *S Afr Med J* 1974;48:2221-2.

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## Ethnic differences in incidence of severe burns and scalds to children in Birmingham

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The overall incidence of severe burns among children in Birmingham has not altered greatly during the past 20 years, although we have seen apparently disproportionate numbers of Asian children with burns. We therefore examined our records for the five years 1983-7.

### Subjects and results

Details were obtained for all children living in Birmingham who had been admitted to this hospital during 1983-7 with severe burns (defined as burns covering more than 5% of the surface of the body, burns to functionally important parts of the body, and possible abuse). Because the burns unit is centrally located few, if any, such patients were treated at other hospitals; children with less severe burns, however, were often treated by local casualty or primary care services, and because of possible variation in ascertaining these minor burns they were not included.

The ethnic origin of the burned children was determined from forenames and surname; this is valid for Indian, Pakistani, and Bangladeshi but not Afro-Caribbean children (the main ethnic groups within Birmingham). Selecting children matched for ethnic

origin for comparison from the general population was therefore restricted. The ethnic origin of children aged under 15 was identified from the 1981 census, in which the head of the household was recorded. Children born into such Indian, Pakistani, or Bangladeshi households were considered Asian for this study.

The table gives details of the 600 children admitted. Asian children comprised 25% of these admissions, though they formed only 18% of the city's children. There were 2.7 scalds and 1.0 burns per thousand Asian children compared with 1.8 scalds and 0.6 burns per thousand other children. Incidence ratios and their associated confidence intervals<sup>1</sup> showed this difference to be significant (odds ratio 1.55; 95% confidence intervals 1.29 to 1.86). There seemed to be no ethnic difference by age or sex: most of the children were toddlers. The proportions of most types of injury were similar, but Asian children had a particularly high incidence of burns from fat. Cultural differences in methods of cooking were probably the main cause.

### Comment

Historically scalds were more common among deprived children, the most severe being caused by boiling water in buckets or open pans.<sup>2</sup> Provision of central heating, bathrooms, and washing machines reduced these, and most scalds are now caused by teapots or kettles. An important social gradient still exists, with environmental and intellectual poverty being the principal elements; there does not seem to be any difference in this type of injury between ethnic groups.

Immigrants traditionally enter a new community at

*Numbers of severe burns and scalds to children in Birmingham\* by ethnic origin and sex, 1983-7. Figures in parentheses are burns and scalds per 1000 children*

	Asian			Non-Asian			All cases
	Boys	Girls	All	Boys	Girls	All	
<b>Scalds:</b>							
Baths and buckets	12	7	19	37	34	71	90
Kettles	11	2	13	53	29	82	95
Teapots	11	3	14	29	14	43	57
Teacups	10	9	19	22	27	49	68
Other water spilt	12	10	22	30	16	46	68
Other hot liquids	17	9	26	30	12	42	68
All scalds	73 (3.3)	40 (2.0)	113 (2.7)	201 (2.1)	132 (1.4)	333 (1.8)	446 (1.9)
<b>Burns:</b>							
House heating	4	6	10	11	7	18	28
Cookers	1	1	2	1	3	4	6
Fat	7	6	13	8	5	13	26
Hot objects	4	2	6	7	11	18	24
House fires	1	2	3	4	2	6	9
Electrical	2		2	8	3	11	13
Flammable liquids	2	1	3	13	6	19	22
Chemicals				2	3	5	5
Other burns	2	1	3	14	4	18	21
All burns	23 (1.0)	19 (1.0)	42 (1.0)	68 (0.7)	44 (0.5)	112 (0.6)	154 (0.7)
<b>Total burns and scalds</b>	<b>96 (4.3)</b>	<b>59 (3.0)</b>	<b>155 (3.7)</b>	<b>269 (2.8)</b>	<b>176 (1.9)</b>	<b>445 (2.4)</b>	<b>600 (2.6)</b>

\*Population in Birmingham: 22 165 Asian boys; 19 936 Asian girls; 95 815 non-Asian boys; 91 309 non-Asian girls.