Comment

Desmopressin administered intranasally is clearly an adequate alternative to vasopressin for testing maximal renal concentrating capacity. Thus a desmopressin test makes it possible to obtain an accurate measurement of the concentrating capacity of the kidneys in a few hours, which is obviously clinically important. Jones and de Wardener thought that during dehydration there may be a factor other than the antidiuretic hormone which is implicated in urinary concentration.^{1,2} It is therefore advisable to standardise the fluid intake before the desmopressin test, and we suggest that no fluids should be allowed after 8 pm the night before the test.

We chose a dose of 40 µg of desmopressin because 20 µg has been used for children with much lower body weights and because a single dose of 30-40 µg has a greater effect on urinary flow and concentration in adults with diabetes insipidus than 20 µg.³ The administration of desmopressin intranasally is associated with minor technical difficulties and administration of a dose into each nostril increases the likelihood of giving a satisfactory dose.

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Motor-cycle scrambling injuries in boys

Motorcycle scrambling is a well-established sport among adults, but a "youth" section has now been formed for boys aged 6 to 16. Because of recent concern¹ over the fact that accidents are the commonest single cause of death in childhood after the first year,² I reviewed the injuries sustained by 14 boys in scrambling accidents in 1976-7 to see how dangerous the sport really is.

The sport

Motorcycles are raced around winding hilly circuits over rough ground. The machines are specially modified for this, and they are also made smaller for boys—80 to 125 cc depending on age. Speeds can reach 55 mph on the flat, but it is the skill in negotiating the course that really counts. Often over 100 riders take part in each event.

Patients and injuries

Records were made of the injuries sustained during motorcycle scrambling by boys who were treated in the casualty department, North Lonsdale Hospital, Barrow-in-Furness, during 1976 and 1977. There were 14 victims from a total of 30 races, in which 2766 riders took part. The incidence of injuries was therefore one in 200 rider-races.

Two patients were admitted to hospital. One, who was aged 12, had closed fractures of the tibia and fibula requiring reduction and was kept in hospital for three days. The other, aged 14, was admitted overnight with concussion. The remainder were treated as outpatients (see table). None of the 14 developed complications.

Comment

This study is of limited scale but shows that the sport is no more dangerous than other childhood activities. An Oxford study³ of 154 horse-riding injuries requiring admission to hospital showed the dangers of this sport, especially in children. Many injuries were serious and head injuries were common. Poor adult supervision and

Ages and injuries of outpatients treated in casualty department

Injury	Age (years)	Injury	Age (years)
Fractured clavicle	16	Fracture separation lower fibular epiphysis	14
Fractured clavicle	16	Laceration of chin	14
Avulsed lower lip frenulum	16	Fracture through metaphysis first metacarpal	14
Abrasions of knee and elbow	16	Soft tissue injuries to elbow	14
Minor head injury	14	Soft tissue injuries to shoulder	12
Fracture separation lower radial epiphysis	15	Laceration of chin	10

inadequate protective gear, especially headgear, were partly to blame. In an American study 21 adolescents aged 9-16 years suffered serious injuries while operating minibike motorcycles and go-karts.⁴ The victims were all untrained and unsupervised. Even pedal-cycle injuries can be serious.⁵

It is impossible to compare statistically horse riding injuries with motorcycle scrambling injuries. Nevertheless, scrambling has two factors in its favour. Firstly, virtually no height is involved in a fall; the ground is usually soft mud; and one or both feet remain close to the ground during difficult manoeuvres. Secondly, risk of injury is lessened because strict national standards apply to the supervision of races by responsible adults. Adequate instruction is given before a boy begins racing, and regulation crash helmets, riding suits, and riding boots at least protect the head and skin.

Motorcycle injuries in children have not been reported previously. The incidence obtained in this study does not justify this sport being selectively criticised in comparison with other childhood activities.

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Bubble clicking in pharyngeal aspirates of newborn babies

The idiopathic respiratory distress syndrome (RDS) is the commonest cause of death in preterm babies and is caused by a deficiency of lung surfactant. Surfactant has a low surface tension and its major component is dipalmitoyl lecithin. The lecithin : sphingomyelin (L : S) ratio of amniotic fluid¹ is now often used to predict before birth whether RDS will develop. It has also been measured in pharyngeal and tracheal aspirates.²

Bubble clicking occurs in lung foam³ and is absent in bubbles from the lungs of babies who die from hyaline membrane disease.⁴ We first observed clicking in bubbles in amniotic fluid⁵ and have now applied the same test to pharyngeal aspirates.

Patients, methods and results

Pharyngeal aspirates were obtained at birth from 102 infants; 54 were born at term and 48 at 25-37 weeks' gestation. RDS was diagnosed if two or more of the following signs were present on the first day of life and lasted longer than 24 hours: respiratory rate greater than 60 per minute; expiratory grunting; and costal, intercostal, or sternal recession. Nineteen babies had RDS according to these criteria. Five babies died and hyaline membrane disease was confirmed at necropsy. The clicking test⁵ was carried out on bubbles produced artificially in the aspirate and suspended in air-free water. The bubbles are observed through a microscope, and if the result is positive

Bubble-clicking results related to gestation, RDS, and L : S ratio

Bubble clicking result	Gestation (weeks)	No of infants	Mean L : S ratio	Cases of RDS	
				No	%
Positive	38-42	45	3.00	0	
	29-37	12	3.15	0	
Negative	38-40	9	2.19	5	56
	25-37	36	2.01	14 (5 died)	39

the bubbles appear to slowly expand and then contract suddenly. This repeats rhythmically until the bubbles disappear. If the result is negative the bubbles disappear rapidly without clicking.

Bubble clicking was not present in any of the babies with RDS. In some of these babies serial aspirates were tested and clicking was absent until after recovery. Clicking also became more common with increasing gestational age. The L : S ratios of the same aspirates showed a highly significant relationship with the bubble-clicking results ($P < 0.001$; $\chi^2 = 25.1$). Infants with birth asphyxia were less likely to have bubble clicking than infants with no asphyxia ($P < 0.001$).

Comment

The L : S ratio is a useful test for confirming the diagnosis of RDS, but it measures only the chemical components of lung surfactant. The bubble-clicking test is quick to perform and gives valuable information about the surface activity of the aspirate and thus the available lung surfactant to a newborn infant.

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Acquired double pylorus

The first case of a double pylorus was reported in 1969 by Smith and Tuttle.¹ Since then a further 30 cases have been described. The cause has been debated. Most represent a gastroduodenal fistula resulting from chronic peptic ulceration, but some workers claim that a true congenital duplication of the pylorus may also occur.

We report a case of a gastroduodenal fistula that occurred in association with a penetrating posterior benign ulcer of the gastric antrum.

Case report

A 58-year-old woman developed seropositive rheumatoid arthritis in 1950 at the age of 31. Symptoms were initially controlled with salicylates and phenylbutazone, but after 1961 she required corticosteroids. Postprandial epigastric pain responded to enteric-coated prednisolone and she received 5 mg daily throughout 1976. She was admitted in January 1977 with the sudden onset of severe epigastric pain. She was thin, weighed 38.7 kg, and was clinically anaemic. There were severe rheumatoid changes in her hands, wrists, elbows, and knees. Her pulse was 80/min and blood pressure 120/80 mm Hg. Abdominal examination showed nothing abnormal.

Investigations showed haemoglobin 7.6 g/dl, mean cell volume 78 fl, white blood count $9.3 \times 10^9/l$, erythrocyte sedimentation rate 54 mm in first hour (Westergren). Blood film showed microcytosis and target cells. Rose-Waaler titre was 1/32 and anti-nuclear antibody 1/10. Barium meal showed a 2-cm gastric ulcer on the lesser curve, which was considerably shortened. At endoscopy the ulcer was in the roof of the antrum posteriorly adjacent to a large fistula communicating with the duodenum. The

Radiological (left) and endoscopic (right) appearances of (A) pyloric canal and (B) gastroduodenal fistula.

appearances were those of a double pylorus. Biopsies showed an active atrophic gastritis without evidence of malignancy.

Treatment with cimetidine (200 mg three times a day and 400 mg at night) was begun and the enteric-coated prednisolone continued. The dyspepsia rapidly improved, and at endoscopy six weeks later the ulcer was completely healed. The appearance of a double pylorus was unchanged (see figure). The fistula was confirmed radiologically. Biopsy of gastric mucosa again showed an active chronic gastritis.

Comment

Duplication of the pylorus may take two forms: either a large fistulous communication resulting in the appearance of a pyloric band, as in this case, or a narrow irregular channel. Most cases are acquired but some have been regarded as congenital. Evidence proposed for a congenital origin has been the presence of an intact muscularis mucosae and the coexistence of another congenital abnormality.² Neither of these features are conclusive evidence of a congenital origin, and in the case reported by Sufian *et al*² the heavy intake of alcohol and aspirin might have caused a gastroduodenal fistula secondary to an ulcer that had subsequently healed. The fistula in our case was lined by gastric epithelium but the small size of the endoscopic biopsy specimens did not allow the architecture of the mucosal layers to be adequately assessed.

Rokitansky³ has suggested that the type of gastroduodenal communication associated with a large fistula may be formed by two ulcers—one on the lesser curve of the stomach and the other in the duodenum—both eroding towards each other. There is, however, only one case reported where both a duodenal and a gastric ulcer were observed. Nevertheless, most of the reported cases of double pylorus have been associated with peptic ulceration.^{3,4}

Clearly, the widespread use of upper gastrointestinal endoscopy is likely to disclose more cases of this unusual condition. Four cases were reported from 3500 consecutive fiberoptic endoscopies by Hansen *et al*, who found an additional two cases when they reviewed 500 necropsies.⁵ In none of these cases could symptoms be attributed to the double pylorus.

Our case shows that once the ulcer has healed the presence of a double pylorus is not necessarily associated with dyspeptic symptoms. Hence probably all symptomatic cases of double pylorus have associated gastroduodenal mucosal disease. Management should then be directed towards healing the mucosal disease rather than surgically correcting the anatomical abnormality.

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