tion seen to be normal. This will also reduce the danger of the tourniquet being left in position by mistake.

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Injuries incurred at "roller discos"

During 1980 the staff of the accident and emergency and orthopaedic departments at this hospital became aware of an increasing number of patients attributing their injuries to dances at which they were wearing roller skates (roller discos). I therefore investigated just how prevalent these injuries were.

Patients, methods, and results

All new patients attending the accident and emergency department between 1 October and 31 December 1980 were questioned about the cause of their injury. The extent of the activity in the community was assessed. Four centres for roller disco dancing were operating regularly within the catchment area of the hospital, and many other centres—for example, youth clubs—were frequently organising similar activities. I could not assess accurately the number of participants, but estimated that upward of 1000 people may have been concerned on particular days.

During the period of the study 128 patients, mostly young females, attended the hospital after sustaining injuries at roller discos (table). Eighty-five patients had injuries to the arm, most affecting the wrist. The leg was affected in 22 patients, the ankle being the most common site of injury. The remaining 21 patients variously complained of injuries to the head (nine), back (four), chest wall (two), nose (two), coccyx (two), and neck (one), while one patient was mentally shaken after a fall but had no detectable injury.

Age distribution of patients with injuries sustained at roller discos

Age (years):	10–14	15–19	20–29	30+	Total
Female	34	42	7	7	90
Male	13	22	3	0	38
Total	47	64	10	7	128

Bony injury was present in 45 patients, 38 of whom had sustained fractures of the arm. Nine forearm fractures required manipulation under anaesthesia. Two patients had internal fixation of fractures: one with an ankle injury and one with a fracture of the lower third of the radius that could not be satisfactorily reduced by closed manipulation. Eight patients were immobilised in plaster-of-Paris because of suspected scaphoid injury.

Comment

This study confirmed the clinical impression of an appreciable number of injuries attributable to roller disco dancing. There were three apparent mechanisms of injury: simple falls on the rink, falls off the rink, and collisions. Collisions occurred between upright skaters and also between upright and fallen skaters.

Analysis of this phenomenon shows similarities with the skateboarding craze of several years ago.[1-4] Both presented with a spate of injuries from a new source, both are predominantly the preserve of the young, and in neither case has it been possible to identify a typical injury. While skateboarding is regarded as a sport, however, roller disco dancing is a social activity. This may explain the predominance of female patients in this series, a finding previously reported by Corcoran[5] and a reversal of the findings in skateboarding.[3]

Comparing this series with those in early reports of skateboarding[2-4] shows that the numbers are broadly similar: if the study is representative this hospital would see 512 patients in a year. The incidence of fractures was similar to the combined figures of two Sheffield studies[2 4] and was higher than the figure quoted by Jacobs and Keller[3] for the USA. In respect of skateboarding much thought was given to protective equipment,[3 4] though others did not find this to be of benefit.[2] Such a debate may be less appropriate for roller discos as the high speeds of skateboarding are not attained and the social nature of this activity may render protective gear less acceptable.

In relation to the number of participants the problem is not large, but its extent should be properly assessed and, if these findings are confirmed, people who go to roller discos should be warned of the potential hazard.

I thank Mr J Shaw for permission to use data from his department, his staff for their help, the orthopaedic surgeons for their encouragement during the study, and Miss K Morton for typing the manuscript.

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Pharmacological treatment for intractable sneezing

Although cases of prolonged repetitive sneezing are frequently in the news, a recent review found only 12 examples in the medical literature.[1] The prolonged duration of the sneezing in many cases—up to 194 days[2]—reflects the failure of medical treatment. The apparent response of prolonged repetitive sneezing to oral medication is therefore noteworthy.

Case report

A 60-year-old woman was referred for psychiatric advice by an ear, nose, and throat consultant. She had been sneezing every four to five seconds for the previous 139 days. The sneezing stopped during sleep and while she was talking, but was otherwise unremitting. She reported that it had developed suddenly after she had bumped the back of her neck on a wardrobe. Treatment from her doctor with nasal insufflations of sodium cromoglycate (Rynacrom) and beclomethasone (Beconase) had made no impression.

Her general health was good and she had no history of allergy or other relevant physical illness. The ear, nose, and throat consultant had found no nasopharyngeal abnormality, but a radiograph of the cervical spine showed moderate spondylotic changes affecting the fifth and sixth cervical vertebrae. Apart from having a slightly obsessional, anxious personality she showed no features of psychiatric disorder and was of average intelligence.

Working on the hypothesis that the repetitive sneezing was akin to other forms of repetitive central nervous system discharge such as tics and other types of involuntary movement, I thought it likely that a drug that often ameliorated the latter might also benefit the sneezing. Accordingly she was prescribed haloperidol by mouth,[3] and the sneezing displayed a dose-related response. With a dose of 1·5 mg twice daily the sneezing rate fell after a week to once every 30 seconds. When the dose was increased after four weeks to 5 mg twice daily the sneezing stopped completely. She did not keep her next outpatient appointment and subsequently said that, thinking she was cured, she had stopped taking her medication after four weeks of the higher dosage. She remained symptom free for the next six weeks, but the repetitive sneezing then recurred at 10-second intervals. She restarted haloperidol 5 mg twice daily, when the sneezing was reduced to paroxysms of five or six sneezes at 10-minute intervals, and it stopped altogether when the dose was increased to 5 mg three times daily. Orphenadrine 50 mg twice daily was included at this stage to counteract mild akathisia.

The haloperidol dosage was gradually reduced over a six-month period

without any recurrence of sneezing and six months later she remained symptom-free with no medication.

Comment

The graduated response of this patient to haloperidol indicates that it was the drug's pharmacological action, rather than any placebo effect, that relieved the persistent sneezing. There may also be merit in the hypothesis on which the treatment was based, with the inference that, as haloperidol is a potent dopamine-receptor blocker,[3] repetitive sneezing may depend on a disturbance in the cerebral dopaminergic transmission system.

It will be interesting to learn whether this treatment is generally applicable in this distressing syndrome and possibly the related phenomenon of intractable hiccoughing.

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Phaeochromocytoma presenting as pyrexia of undetermined origin: diagnosis using gallium-67

Paroxysmal or sustained hypertension is a presenting feature in over 98% of patients with phaeochromocytoma.[1] We describe a patient with pyrexia of undetermined origin who remained normotensive throughout investigations. Gallium imaging localised a tumour in the region of the left adrenal, which on resection was shown to be a phaeochromocytoma.

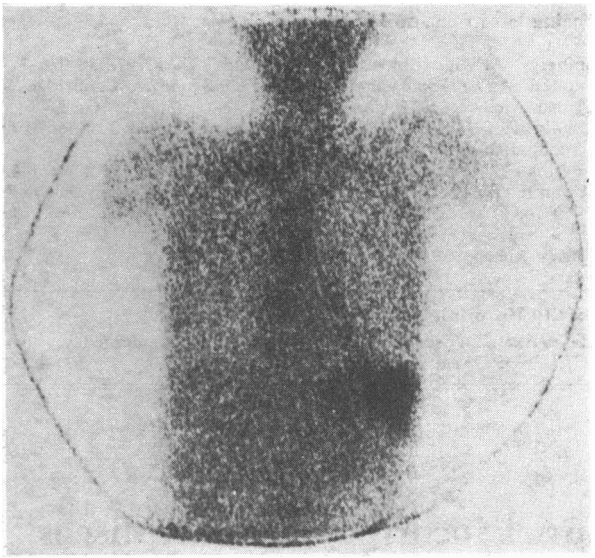
Case report

A 56-year-old woman was admitted for investigation of a six-month history of night sweats, malaise, weakness, and weight loss (11 kg). She was wasted and had a fever of 37·8°C and modest tachycardia (90 beats/min). Blood pressure was 110/70 mm Hg. Over the next six weeks she had a persistent fever, ranging between 37 and 38°C, but remained normotensive.

On admission haemoglobin concentration was 10·6 g/dl, mean corpuscular volume 73 fl (73 μm^3) and serum iron concentration 50 μmol/l (279 μg/100 ml). Erythrocyte sedimentation rate was 87 mm in first hour and white cell count $8·9 \times 10^9$/l with normal differential. Alkaline phosphatase activity was raised at 46 KA units, but all other results of biochemical screening tests were normal. Microbiological investigations were negative, as were results of full bowel radiology, cholangiography, intravenous urography, lymphangiography, abdominal computed tomography, laparoscopy, and liver biopsy. A single estimation of urinary methylated amines was within normal limits at 10 μmol (1·8 mg)/24 h. Plasma adrenaline concentrations were normal (0·49 nmol/l (0·09 ng/ml); normal range 0·1-1·1 nmol/l (0·02-0·2 ng/ml)) and noradrenaline concentrations only minimally raised (5·26 nmol/l (0·89 ng/ml); normal range 1·2-4·7 nmol/l (0·2-0·8 ng/ml). Results of abdominal ultrasonography suggested a para-aortic mass above the left kidney. Gammacamera pictures of gallium distribution (figure) confirmed abnormal uptake in this region.

At surgical exploration a single well-encapsulated tumour arising from the left adrenal gland was found. The cut surface of the tumour was yellow-white with areas of haemorrhage. Histology showed a fine vascular connective tissue network supporting sheets of highly plenomorphic cells with fine basophilic stippling of the cytoplasm. The nuclei were vesicular with numerous bizarre or giant forms and occasional mitoses. The appearances were typical of a phaeocromocytoma. After operation the patient recovered well, the fever remitted, erythrocyte sedimentation rate returned to normal, and haemoglobin concentration rose to 15 g/dl.

Six months later symptoms recurred, gallium pictures again indicated a tumour, and a recurrence histologically similar to the primary tumour was removed.



Gammacamera picture 72 hours after injection of gallium citrate.

Comment

Phaeochromocytoma presenting as pyrexia of undetermined origin is rare but may occur with abdominal pain, nausea, and sweating when the tumour predominantly secretes adrenaline.[2] However, such patients typically have episodes of profound hypotension, and the plasma adrenaline concentrations in this patient were normal.

The diagnosis of phaeochromocytoma was unexpected on the basis of clinical features and the results of investigations. A possible abnormality above the left kidney was, however, shown by ultrasonography, and this was confirmed by unequivocally abnormal uptake of gallium. Gallium may be useful in localising occult tumours[3] and sites of infection.[4] There are, however, no reports of phaeochromocytoma being localised by this technique, but a neuroblastoma, which is a related tumour, has been detected in a child.[5] This case emphasises the value of gallium citrate in investigating unexplained fever when other techniques have failed.

We thank Dr M Brown for plasma catecholamine estimations, and Dr R Cockel for permission to study a patient under his care.

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Correction

Sinus arrest during treatment with amiodarone

An error occurred in this article by Dr Brian McGovern and others (16 January, p 160). The serum digoxin concentration should have read 2·2 μg/l, not 2·2 mg/l.