



Patient immobilised in a Royal Air Force pattern turning frame for transfer to a spinal injury unit. Skull traction is maintained by means of the constant tension device.

Spinal injury associated with paraplegia or tetraplegia

Because of the medical complications associated with paraplegia or tetraplegia early referral and transfer to a spinal centre allows the patient to receive better overall care. Many spinal centres have intensive care units, and staff are experienced in dealing with complicated cases. Referral should be the responsibility of the orthopaedic or neurosurgical team. Routine administration of steroids, mannitol, and antibiotics in these patients is controversial. There is no conclusive evidence that surgery improves neurological outcome, but it is undertaken when there are signs of deteriorating neurological function and also to prevent deformity. The prognosis is always uncertain, and patients should therefore be treated actively.

1 Riggins R. The risk of neurologic damage with fractures of the vertebrae. *J Trauma* 1977;17:126-33.

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Lesson of the Week

Children with croup presenting with scalds

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Inhalation of steam is often prescribed for viral croup, but its benefits remain unproved and the risk of scalds must be emphasised to parents

Inhalation of mist or steam has never been proved to be beneficial in viral croup, and it is unclear whether low humidity has adverse effects. Humidity is still, however, commonly prescribed. We report two recent cases in which children sustained scalds while inhaling steam at home.

Case reports

Case 1—A 10 month old boy was admitted to the paediatric high dependency unit with croup and scalds affecting 12% of his body surface area. Stridor had developed 24 hours before admission, and the family doctor had recommended steam treatment. This had been attempted by holding the child over a bath half filled with boiling water, but he had struggled and fallen into the bath. On admission he was distraught but not cyanosed. Inspiratory stridor, sternal retraction, and subcostal recession were noted. He had scalds on his back, arms, and shoulders; these were predominantly superficial but were of partial thickness in some areas. He received albumen and crystalloid according to the Muir and Barclay formula.¹ His stridor settled over seven days, and his scalds healed without short term complications.

Case 2—A 4 year old boy presented to the accident and emergency department with scalds sustained while he was receiving steam treatment for croup; he had had stridor for 18 hours. His mother had placed a boiling kettle on the floor, and he had sat on her knee. He had worked himself free and fallen to the ground, kicking the kettle over. He had suffered superficial scalds to his hands and feet but did not require any fluid replacement. His stridor, however, worsened, and he was admitted to hospital, where he required intubation for

three days. Three days after extubation he was free from stridor and was discharged.

Discussion

The use of added humidity in croup is based on the clinical observation that in some cases some improvement occurs. The physiological basis for this is obscure, but it is generally believed that inhaled humidity prevents drying and further swelling of the inflamed laryngeal mucosa.² In one of the few studies on this subject Sasaki and Suzuki examined the response to increased humidity in kittens and cats.³ They reported a change in the pattern of breathing that enhanced respiratory airflow in partially obstructed upper airways. This response was related to age, being more prominent in kittens, and they postulated that it was mediated by laryngeal mechanoreceptors. Only one controlled trial has been performed in children, who were randomly assigned to environments with either high or normal humidity.⁴ Heart rate, respiratory rate, and transcutaneous oxygen and carbon dioxide tensions were measured over 12 hours, with no significant difference between the two groups.

Many people believe that, although the therapeutic role of humidity has not been proved, it can do no harm. Our cases show the dangers of inhaling steam at home, and we recommend that these be pointed out to parents if this treatment is prescribed.

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- 2 Henry R. Moist air in the treatment of laryngotracheitis. *Arch Dis Child* 1983;58:577.
- 3 Sasaki CT, Suzuki M. The respiratory mechanism of aerosol inhalation in the partially obstructed airway. *Pediatrics* 1977;59:689-94.
- 4 Bouchier D, Dawson KP, Fergusson DM. Humidification in viral croup: a controlled trial. *Austr Paediatr J* 1984;20:289-91.

(Accepted 25 April 1990)

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Br Med J 1990;301:113