CASE REPORT

Hand injuries in young children from contact with vacuum cleaners

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Objectives: To assess the incidence of injuries to young children sustained by contact with a domestic vacuum cleaner and to highlight the potential for significant injury. An increase in public awareness of these risks might result in a reduction in morbidity.

Methods: Over a period of one year, all children attending with an injury sustained because of contact with a domestic vacuum cleaner had review of their case notes by the author.

Results: Four children were identified as having sustained friction burns to a hand after contact with a vacuum cleaner. All required treatment and several review appointments before satisfactory resolution was achieved.

Conclusions: Although the number of cases seen was small, the potential for significant injury must be emphasised and public awareness increased in an attempt to reduce morbidity.

Household domestic appliances are often sources of potential hazard for young children, resulting in injury requiring attendance at accident and emergency (A&E) departments. The dangers of scalds from hot liquids spilled from kettles and pans are well known as are the risks of burns from irons and stoves. Electric shocks and sharp implements are other recognised hazards. Parents are generally aware of these dangers and usually measures are taken to protect young children from sustaining injuries from these sources.

The domestic vacuum cleaner has not been widely regarded as a source of potential hazard for young children but a recent report¹ records a full thickness burn to the hand of a young child from a dual cyclone vacuum cleaner.

We became aware that a number of small children had attended our department having sustained hand injuries from a domestic vacuum cleaner. Accordingly the aim of this audit was to confirm our suspicions that this was more prevalent than had been previously reported and to suggest ways of reducing the morbidity associated with children coming in contact with these appliances.

METHODS

An audit was undertaken over one year (March 2000 to February 2001) in the Accident and Emergency department of the Royal Aberdeen Children's Hospital. This hospital has the only paediatric A&E department in the north east of Scotland, serving a population of over half a million. The department sees over 20 000 new cases under the age of 14 years annually.

The attendance card of each child presenting with an injury relating to a vacuum cleaner was reviewed and the type and severity of each injury noted. The possibility of non-accidental/intentional injury was considered in each of the presentations, but all the injuries were judged to be consistent with the history given.

RESULTS

During the year of the audit four children (two boys and two girls) presented with a hand injury sustained by a contact with a domestic vacuum cleaner. The children were all under the age of 2 years (10 months to 23 months). The injuries were all sustained by putting a hand under a domestic vacuum cleaner that was either running or immediately after switching off of the machine when the rotors were still turning. The injuries were caused by the rapid rotation of the stiff nylon bristles on the vacuum cleaner's brush cylinder, resulting in friction burns with superficial skin loss in all four cases. All the injuries were sustained on the palmar aspect of the hand. All four injuries were superficial with no tendon, nerve or vessel damage. After cleaning, the areas of skin loss were treated according to the departmental burns policy with mupirocin 2% cream, a mepitel dressing and protective bandaging of the hand. Each case was subsequently reviewed at the A&E dressing clinics—several appointments were required for each patient until there was satisfactory resolution of the injury. None of the friction burns became infected and all healed well with this regimen. There was no long term disability in any of the four cases. Another recent case was recalled by staff when a small child had presented having sustained a superficial friction burn to the dorsum of the foot after the foot had become trapped under a domestic vacuum cleaner. Unfortunately we were unable to trace this child's clinical records.

DISCUSSION

A literature search was done (Medline and Embase from 1966) but only one paper was found reporting an injury to a child sustained by a vacuum cleaner.¹ In this case there was a full thickness burn to the hand of a young child. The only other related report was an 1984 paper² on electric burns to the mouth from defective Bakelite plugs on vacuum cleaners. There were however, several reports of injuries to adults from vacuum cleaners, most because of the use of vacuum cleaner attachments being used by adult men for self gratification!

The stiff nylon bristles of vacuum cleaner brushes and the high speed of revolution of the cylinders have the potential for serious injury. Tendon, nerve and vessel damage are all possible. There may be a higher risk of injury in the more modern cleaners, which have greater "suction power" because of the increased speed of revolution of the cylinders. All hand injuries must be taken seriously and the potential for long term disability must not be underestimated.

Virtually all households own a domestic vacuum cleaner and these are often used daily—particularly when there are young children in the family. Young children crawling or playing on the floor may be in close proximity to these appliances and parents and carers may not be aware of the potential for serious injury from such a common household appliance. We recommend that the risks of injury from domestic vacuum cleaners should be highlighted and that advice to keep children away from these appliances should be included in all injury prevention material in an effort to increase public awareness of the potential for significant injury.

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PAEDIATRIC RADIOLOGY.....

Buzz Lightyear

The radiograph of Buzz Lightyear has been used as a tool to explain to children the need for a radiograph. We often refer to Buzz Lightyear's catch phrase "To infinity and beyond" as he jumped and then fell injuring a limb. Most children are able to relate to this and it allays some of their fears regarding radiographs.

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