Accidents happen: an unusual case of neonatal burn

N.K. Patel, C.A.T. Durrant and M. Jawad

Greater London Burns Service, Chelsea & Westminster Hospital, London, UK

Corresponding address: N.K. Patel, Greater London Burns Service, Chelsea & Westminster Hospital, 369 Fulham Road, London, SW10 9NH, UK.
Email: niravpatel@doctors.org.uk

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Abstract

We report an unusual case of partial thickness contact burns to a neonate after he accidentally urinated on an electrical lamp causing the bulb to explode. We recommend that lamps should be covered and located away from children. Providing parental education on burn injury prevention and improving clinician awareness is vital.

Keywords

Neonate; burn; accident; explosion; lamp; prevention.

Case history

A 5-day-old male was referred to our burns service having sustained mixed depth burns to the right side of his chest and flank from hot glass. In the early hours of the morning, the baby was having his nappy changed on a 60-cm high trunk. The child urinated over his shoulder and the urine stream directly landed onto a standard electrical table lamp located on the floor 90 cm away. The father described a popping sound as the lamp exploded and the baby immediately began to cry in some distress. There were several pieces of glass, the largest measuring approximately 1.5 by 1.5 cm, on the right side of the baby’s chest and arm under which appeared to be skin burns. He quickly removed the glass and placed cold water on the area. The bulb of the lamp was broken and the lamp itself was intact; he suspected that the urine had caused the bulb to explode resulting in hot glass landing on the baby. At the burns centre, the baby had approximately 1.5–2% partial thickness burns over the right anterolateral chest wall (Fig. 1) and right arm (Fig. 2). The injuries were felt to be consistent with the history and there was no concern of non-accidental injury. He was given analgesics and a tetanus booster. The burns were managed conservatively by firstly de-roofing the blisters and debriding the loose skin. Following normal saline lavage and wound swabs, non-adherent dressings were applied. The burns had regular reviews and change of dressings, with complete healing by 3 weeks.

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Clinical evidence and unusual features

In developed countries, injuries are the leading cause of morbidity and mortality and the majority of injuries occur in pre-school children occur at home. Burns and scalds are particularly important examples of such injuries and prevention is the key.

We report a rare case of accidental urination onto an electrical lamp causing the bulb to explode and injury to our patient. To our knowledge, there are no previous reports of this in the literature. It nevertheless highlights a number of important issues. The projectile nature of the urine stream, the low height and proximity of the baby to the lamp and the exposed nature of bulb all contributed to this highly unusual sequence of events. It is unclear whether it was the rapid cooling of the bulb causing the glass to shatter or a short circuit within the lamp itself. The lamp may also have been faulty and therefore at greater risk of bulb explosion although this was not noticed beforehand. The actual mechanism, however, remains academic. Appropriate home safety advice to parents with young children should be provided regardless since it is a preventable cause of injury. Our recommendations are based on using safety-orientated lighting equipment, providing parental education to implement this and improving clinician awareness of the problem and solutions.

First, we recommend that all electrical table lamps should be located well out of reach of young children to minimize the risk of any fluids being spilt onto them. Specifically, a distance of at least 1.5 m at a high level is suggested. Lamps with exposed bulbs should be covered with appropriate housing or a lamp shade. Low energy light bulbs may be theoretically safer because...
they require less voltage and have thicker glass although this is not a reported safety feature. Second, we advise vigilance when caring for babies or when children are playing to minimize the proximity of these lamps and other live electrical sources. Furthermore, these lamps are a source of heat and older children may inquisitively touch them and suffer contact burns. We therefore advise the use of either main ceiling lights or child-safe lights (lights that can be physically moved while still connected to the mains according to British Standards)\[3\] in such situations.

Randomized controlled trials on home safety education provided either at home or in a clinical setting (e.g. by a general practitioner) with the provision of safety equipment have been shown to increase the use of safety practices and equipment\[1,4,5\]. However, there is limited evidence regarding the effect of these measures on child injury rates. A single home visit to promote the use of safety measures was found not to affect long-term uptake of the recommendation but interestingly did decrease the overall incidence of injuries\[6\].

It is important to raise awareness of this case and general prevention measures amongst the medical profession because of the morbidity involved. Midwives, health visitors, community nurses and general practitioners are particularly important because they are in a position to advise parents when electrical lamps are found to be unsafe with regard to exposure and location. In addition, health care professionals need to be aware that the simple presence of any hazard in a home (e.g. a baby walker) may indicate an increased overall risk for childhood injuries\[7\]. Various socioeconomic factors have been shown to be associated with increased risk of burns specifically. They include ethnicity (non-white), low income, large families, single parents, low maternal education and unemployment, which may help health care professionals target prevention strategies for maximum benefit\[8\]. There is a paucity of research on community-based prevention programmes in preventing burns and scalds in children. Further safety trials are therefore needed to prevent further harm to children in the future.

**Teaching points**

This was a highly unusual case of neonatal burn occurring from an inappropriately placed electrical lamp raising various health issues. Prevention of these types of injuries requires the use of equipment such as covered ceiling lights and child safety lights along with parental education and health care professional awareness.

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**References**