

PAEDIATRIC BURNS DUE TO FIRE WALKING AND ITS COMPLICATIONS. EXPERIENCE AT CHENNAI (TAMIL NADU, INDIA)

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SUMMARY. Fire walking is a ritual practised mainly in India. Paediatric burns secondary to fire walking are a challenging clinical scenario and their management requires teamwork by a group of dedicated medical and paramedical professionals. This article highlights the problems encountered in the management of paediatric victims following fire walking.

Introduction

Fire walking is a religious ritual practised mainly by Indians. It is also practised in a few places in the USA and by some Chinese living in Singapore.

The only explanation for this mystifying phenomenon is that firewalkers either are in a religious trance or have been able to achieve a mind concentration of "one-pointedness", during which extraordinary control over the environment can be achieved.

In the last millennium, when leprosy was rampant in the city of Chennai and its neighbourhood, some of the firewalkers were victims of neural leprosy, walking with anaesthetic feet. In rural areas in various parts of India, fire walking is still practised as a religious ritual in which even children are made to walk on cinders. The children usually sustain partial-thickness injuries in both feet. Most of the burns are treated with native medicines (herbal concoctions, cow dung, etc.) applied over the wound.

As a result they are usually brought to tertiary care centres like ours with secondary sepsis and associated problems. One associated problem in such children is hyperpyrexia, as most of these rituals take place during peak summer months in Chennai and its rural areas (i.e. May and June). We report our experience in the management of these children in our centre.

Materials and methods

Our hospital is a tertiary care centre with a separate paediatric burns unit headed by two plastic surgeons and dedicated paramedical staff trained in managing children with burns and their complications. In the last ten years (June 1992-June 2002) we have encountered 18 children with burns secondary to fire walking against a total of 547 burn cases. These 18 case records were studied to find out the complications and problems encountered during their management.

Results

The mean age of the children (i.e. those with fire walking burns) was 4 yr and the incidence in males and females was equal. All of them were admitted in the months of May and June. Seven out of the 18 (39%) had hyperpyrexia. The mean total body surface area burned was 24%. The issues involved in the management of the children were as follows:

- * airway management (some children suffered inhalation injuries from the smoke and flame when they fell down while walking)
- * control of temperature (hyperpyrexia)
- * control of seizures (most of them developed febrile seizures and febrile status epilepticus at the height of the temperature)
- * treatment of the burn area, which was the seat of burn wound sepsis
- * treatment of sepsis/septic shock

Table I - Burns due to fire walking

Total number of fire walking burn cases: 18 Less than 30% TBSA = 7; more than 30% TBSA = 11; hyperpyrexia = 7								
Case	Age (yr)	Sex	Aetiology	TBSA	Local air temperature	Complications	Outcome	
							Mortality	Morbidity
1	2	Female	Flame ¹	31% (SPT) ²	42-43 °C	Hyperpyrexia	-	+ve ³
2	5	Female	Flame	38% (DPT) ⁴	42-43 °C	Hyperpyrexia + S ⁵	-	-ve
3	4	Male	Flame	30% (SPT)	42-43 °C	Hyperpyrexia	-	-ve
4	3	Female	Flame	32% (DPT)	42-43 °C	Hyperpyrexia + S	-	-ve
5	2	Male	Flame	30% (SPT)	42-43 °C	Hyperpyrexia	-	-ve
6	4	Male	Flame	40% (SPT)	42-43 °C	Hyperpyrexia	-	-ve
7	5	Female	Flame	31% (DPT)	42-43 °C	Hyperpyrexia + S	-	-ve
Choreo-athetoid								
¹ Flame = contact flame burns (falling on cinders) ² SPT = superficial partial-thickness burns ³ +ve morbidity = persistence of choreo-athetoid movements ⁴ DPT = deep partial-thickness burns ⁵ S = sepsis (infection in burn wound-surface cultures grew <i>Pseudomonas</i> , <i>Klebsiella</i> , and <i>Staph. aureus</i>)								

- * nutrition of the child
- * rehabilitation

Seventeen of the 18 children recovered without sequelae, while one child with hyperpyrexia as a complication developed febrile status epilepticus and prolonged hypoxia, leading to hypoxic encephalopathy (*Table I*).

Discussion

Almost one-third of all burns centre admissions involve children under the age of ten years. Caring for the burned child continues to demand the close attention of a multidisciplinary team to the patient's many needs. Paediatric burns impose enormous economic burdens on families and on society as a whole. The goal of the resuscitation of hospitalized burn victims is to restore circulating blood volume and to minimize the early stress response. This is accomplished with adequate fluid replacement, correction of hypoxia and ventilatory disturbances, prevention of hypothermia, and adequate control of pain and anxiety. Burn wounds should be encouraged to heal in the shortest possible period by a judicious combination of topical therapy, eschar excision, and skin grafting.

Although there are a few Indian reports about fire walking in adults, there are no reports on deep burns secondary to fire walking in children. Reports from the USA and Singapore are based on burns secondary to fire walking by adults, where it is performed for other purposes, such as the improvement of concentration. Children are made to walk on fire to repay tributes to God after recovery from a ma-

lor illness. In adults the burns are restricted to the feet, whereas children, owing to their unsteadiness while walking, often fall over and sustain injuries in other parts too. There are therefore more complications in paediatric patients. As most of the rituals are held in peak summer months in Chennai-Tamil Nadu (May/June), when the atmospheric temperature is usually 40-42 °C, the children are brought in with spiking temperature and sepsis. Some develop febrile status epilepticus and need prompt control of seizures and airway management to prevent them from progressing to hypoxic sequelae.

Conclusion



Fig. 1 - Feet of 2-yr-old boy made to walk on hot cinders - deep partial-thickness burns in soles of feet with infection.



Fig. 2 - Feet of same child after treatment and split-skin grafting.

RÉSUMÉ. Marcher sur les charbons ardents est un rituel pratiqué principalement en Inde. Les brûlures pédiatriques provoquées par ce rituel constituent un scénario clinique plein d'intérêt et leur gestion requiert le travail d'équipe d'un groupe de professionnels dédiés médicaux et paramédicaux. Les Auteurs de cet article focalisent les problèmes qu'ils ont rencontrés dans la gestion des victimes pédiatriques atteintes de brûlures causées par ce type particulier de lésion.

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