Occasional Survey

Inflicted burns and scalds in children

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Summary

Ten children who had been burnt and six who had been scalded by parents or those caring for them were seen over three years. In no case did the thermal injury affect more than 5% of the body surface and there were no deaths. In seven the perineum or buttocks were in the burnt area. In 12 children there was evidence of other inflicted injury including six recent fractures. Staff caring for burnt children should be aware of this type of inflicted injury. *X*-ray skeletal surveys should be carried out in doubtful cases and a case conference initiated with the appropriate social work services to consider supervising the family after the child's discharge or taking legal care proceedings.

Introduction

The study of injuries inflicted on children owes its origin to Caffey,[1] who in 1946 drew attention to the occurrence of dissimilar injuries in children—namely, fractures of the long bones and subdural haematoma—and regarded them as injuries inflicted by parents or those in charge of the child. Kempe,[2] Gill,[3] and Smith and Hanson[4] have described patterns of injury or family behaviour that may lead to the recognition of families in which children are at risk from violence, and their work has led to programmes aimed at preventing serious injury.

Several workers have drawn attention to the use of heat as a means of child abuse. Gill[3] in a study of 1380 children who suffered non-accidental injury found that 10·1% were burnt, and Stone[5] reported that 10% of 245 children with inflicted injuries presented with burns. The mean age of these children was 3 years, and in 24 cases the buttocks or perineum were included in the burnt area. Phillips *et al*[6] described 25 children with inflicted burns and drew attention to some types of lesion that should attract suspicion, including burns of the hands and feet and "tub burns" of the buttocks and perineum.

British experience has been less widely reported, but Smith and Hanson[4] reported serious burns or scalds in 20% of 124 battered children studied in Birmingham and they also drew attention to the occurrence of burns of the buttocks or perineum inflicted by placing the child on a hot metal surface such as a stove. When burns or scalds coexist with other types of injury to soft tissues or with fractures an impressive parallel is seen with Caffey's original example of child abuse.

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Clinical presentation

Against this background we present the findings in 16 children seen from June 1972 to June 1975. The injuries in these children came within the criteria for inflicted injury used by the National Society for the Prevention of Cruelty to Children (NSPCC) special unit, Manchester Metropolitan District[7]—namely, the nature of the injury was not consistent with the account of how it occurred or other factors indicated that it was probably not caused accidentally. The 16 children with inflicted injuries represented 1·7% of the total of 933 children under the age of 15 who were admitted to Booth Hall Hospital with thermal injuries during the three years. They ranged in age from 8 months to 8 years (mean 26·6 months). Ten children were burnt and six scalded, the lesions often being multiple and of differing ages.

The history was often inconsistent with the appearance of the lesion, and in some cases the account varied when retold. For example, one child of 23 months suffered full skin loss burns on the buttocks, sparing the natal cleft. The first account blamed the child's urine, which "burnt her" and was said to have burnt the mother's hand. Later Germolene ointment was blamed and later again, in court, tea spilt at a party was described as the cause; a year later one parent described having placed the child on the radiant ring of an electric stove (fig 1). In other children a full thickness burn was described as a nappy rash (fig 2). In two children scalds were blamed on a younger sibling who had thrown boiling water over them, and in one case the mother blamed the father similarly but subsequently denied this. Lower limb scalds with a "stocking" distribution and clearly demarcated upper edge were seen in two children aged 15 months and 30 months (fig 3). In each case the story was given that the child had stepped into hot water, but suspicion was aroused by the absence of splash marks on either, multiple bruises elsewhere on one child, and healed burn scars on the other.

In several cases no story was forthcoming, as in the case of a child who presented with six rectangular burns each 1 cm × 3 cm (these were later thought to have been caused by a heated cigarette-lighter cap (fig 4)).

The distribution of the lesions in the 16 children were as follows (12 had injuries at more than one site): 5 had injuries to the face, 5 to the neck and chest, 5 to the arm, 2 to the hand, 7 to the buttocks or perineum, 3 to the lower trunk, 4 to the leg, and 3 to the foot. Thus a high proportion of children (40%) had lesions on the buttocks or perineum.

Twelve children in this series presented with trauma in addition to thermal injury: severe bruising without adequate explanation was present in seven and a recent fracture in six. We should probably be more ready than we have been in the past to consider that burns or scalds alone might be inflicted injuries.

The social background of these families was as diverse as might be expected, but the fact that nine fathers were unemployed (54%) might be significant.

Management and outcome

Whenever an inflicted injury was suspected a case conference was held with medical and nursing staff, social workers, and, often the, police. The NSPCC special unit for child abuse played a valuable part in these conferences. In nine cases a place of safety order was sought and granted, followed by proceedings in a juvenile court; six children were committed by the court to care, and in three cases a supervision order

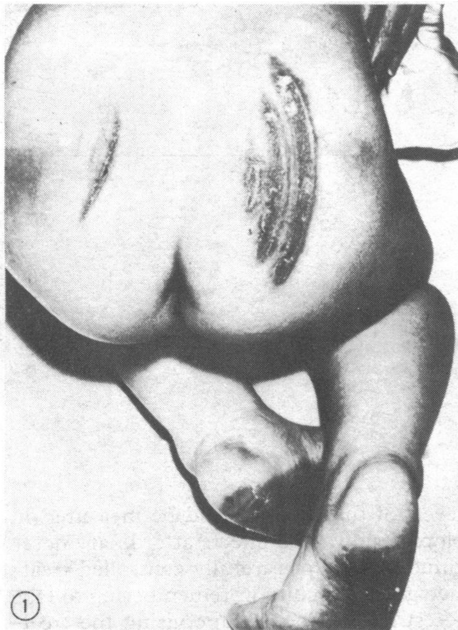


FIG 1—Burn from radiant electric ring.

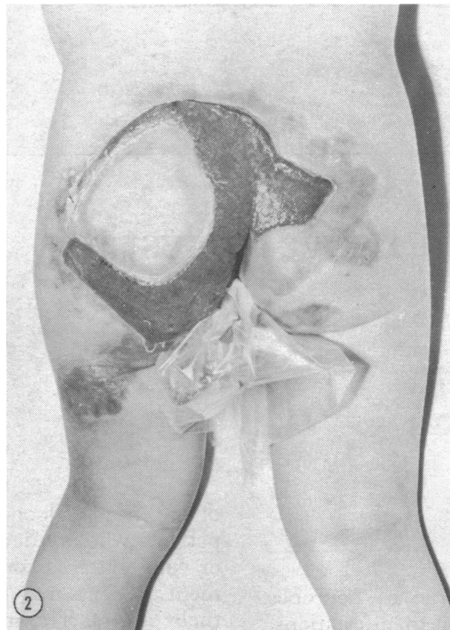


FIG 2—Burn described by parents as a nappy rash.

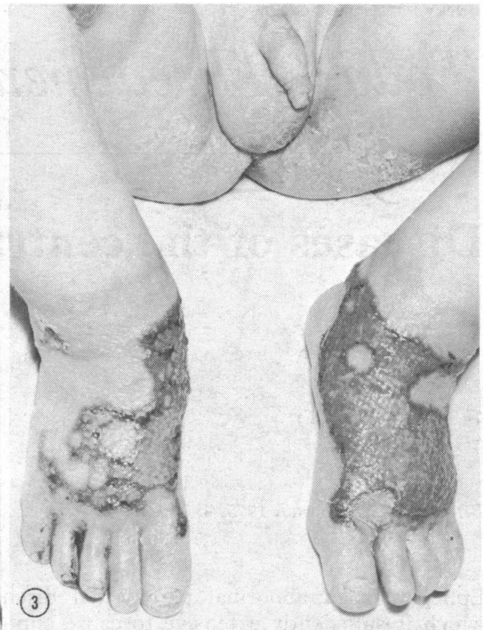
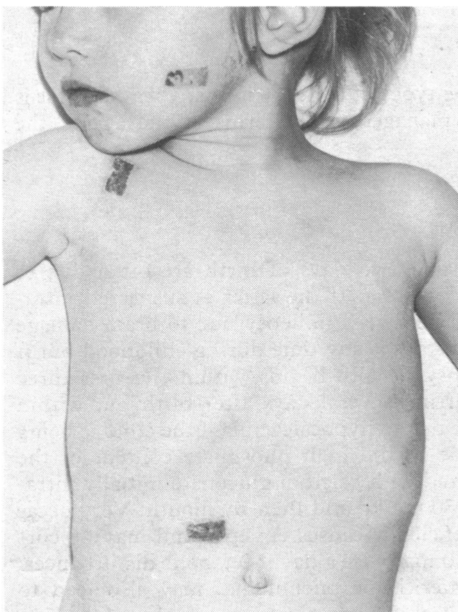


FIG 3—Dip scalds of sock distribution in child aged 2½ years.



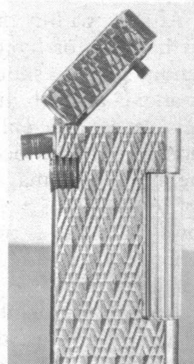


FIG 4—Burns caused by heated top of cigarette lighter in a chronically malnourished child.

was made. In the remaining seven cases supervision was by the social services or NSPCC without court proceedings.

Discussion

During the two years when these 16 children presented with thermal injuries we became more aware of burns as a form of inflicted injury. There are some particular circumstances when inflicted injury should be considered in a burnt or scalded child: (*a*) when the history is inconsistent with the lesion—for example, a common story is that a child pulled a kettle or saucepan of boiling water off a stove or table, injuring its face, neck, upper chest, and commonly the arm. Our experience suggests that when such lesions exclude the axilla or submental region the child had not been reaching up and the history is bogus; (*b*) when the history is contradictory or different on subsequent telling; (*c*) when the buttock or perineum is burnt or scalded deeply with clear margins of the type described by Phillips *et al*[6] as tub burns; (*d*) when there are dip scalds of hands or feet with a clear margin in children old enough to have jumped out of hot water or to have pulled their hands away; (*e*) when cigarette burns are seen with other thermal injuries; (*f*) when a child suffers repeated burns; (*g*) when burns or scalds are present with fractures or bruises of soft parts, especially the abdominal wall or periorbital regions.

When such features are present an *x*-ray skeletal survey is indicated. Two children who presented with cigarette burns had more major lesions, and it is worth considering that, unlike cuts, bruises, and occasional fractures, the cigarette burn is not one of the normal hazards of a young child's life.

Most parents who injure their children are insecure, under pressure, and inadequate; only a small minority suffer major psychiatric disturbance. Nevertheless, burns and scalds seem to be more calculated and premeditated than injuries produced by sudden outbursts of violence, and a higher proportion of psychopathic parents might thus be expected in this group.

The report of the Houghton Committee[8] is now before Parliament; if its recommendations were enacted the welfare of the child would be placed paramount, even above the unity of a family. This is perhaps a reasonable time to increase our awareness of the distasteful and often alarming possibility that some thermal injuries are inflicted by those caring for young children.

We thank Mr F Robinson and Mr R D P Craig who allowed us to study patients under their care and want to express our appreciaton for help throughout this work from Mr J Pickett and his staff in the NSPCC special unit (Manchester) and Miss J Pelham and her staff in the department of medical social work of Booth Hall Hospital.

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