ORIGINAL ARTICLE

Genital injuries in boys and abuse

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Aims: To describe a cohort of boys with genital injuries in whom child abuse was suspected.

Methods: Boys with genital injury (penile and/or scrotal) and referred to paediatricians in Leeds, population 750 000, with concerns regarding possible abuse from 1983 to 2003 were identified from medical reports.

Results: 86 boys (average age 62.7 months, median age 48 months) were referred between 1983 and 2003. The injury was judged inflicted in 63, unexplained, suspicious or inconsistent with the history given in 17 and accidental in six. The number of discrete injuries ranged from one in 57, two in 15, three in 12, to more than three in two cases. Genital injuries included burns in seven boys, bruises in 27, incised wounds, lacerations or scars in 39, and other traumatic lesions in 27. Non-genital findings included anal findings in 28, >10 bruises in 17, fractures in three, burns in 12, mouth injuries in four, brain and retinal haemorrhages in one, and poor nourishment or underweight in 14. The categories of abuse were physical (eight), sexual (19), both physical and sexual (eight), physical and neglect (four), and physical, sexual and neglect (one). The category of abuse was unspecified in 39 children.

Conclusions: Genital injury in boys may be the result of abuse which may be physical or sexual in nature.

There are few published studies of genital injuries in boys in comparison to genital injury in girls which has been the subject of more extensive research. Generally there are fewer studies of boys who have been sexually abused in comparison to girls who have been abused.¹ Reports of the physical findings in boys identified as having been sexually abused have included a small proportion of boys who sustained a genital injury. Spencer and Dunklee² reviewed 140 sexually abused boys (9% of all child sexual abuse victims) and found 10 (7%) with bruising to the penis/perineum. Reinhart³ reviewed 189 sexually abused boys (16.4% of the total population of child sexual abuse victims) and found nine (5%) had genital abnormality. These included children with a bruise (two), bite mark (two), erythema (two), rash (two) and urethral discharge (one). Hobbs and Wynne⁴ reviewed 243 girls and 94 boys who had been sexually abused, including one boy who had a bruised penis and two who had scrotal burns.

Abusive genital injury perpetrated by peers was also reported from the USA in older children. Finkelhor and Wolak⁵ surveyed 1042 boys and 958 girls aged 10–16 years for a history of non-sexual genital assaults. Genital assault had been experienced by 9.2% of boys and 2.2% of girls in the preceding year. In boys 25% of assaults involved injury, of which only one in 50 needed medical attention. Assaults occurred in a variety of contexts including gang attacks, peer fights and bullying and retaliation by girls against the genitals of harassing boys.

Other authors reporting a large series of children of both sexes referred for possible sexual abuse did not report genital injury in boys. Heger *et al*⁶ examined 2384 children in a 5 year prospective study from 1985 to 1990 in California, USA. The children included 421 boys (18%) of whom 251 disclosed abuse and 177 who disclosed anal penetration. Abnormal anal physical examination findings were reported in 1% of boys disclosing penetration, but no cases of genital injury were reported. The reasons for this are not clear.

While the sexual abuse of girls has been increasingly well studied, the prevailing view has been that the sexual abuse of boys is uncommon and the outcome not severe. Prevalence studies have, with a few exceptions, indicated that the prevalence is less than for girls. In 1984 Finkelhor⁷ found that 3–4.8% of males had a history of pre-pubescent sexual contact with an adult

male in the USA. However, it has also been acknowledged that boys are more reluctant to disclose their abuse than girls. The reasons usually quoted include a fear of retribution, social stigma against homosexual behaviour, a desire to appear self-reliant and concern about loss of independence. More recent studies have found higher prevalence rates. In a later study, Finkelhor *et al*⁸ reported that 16% of males in a telephone survey gave a history of sexual abuse. However, it is generally acknowledged¹ that "the sexual abuse of boys is common, under reported, under recognised and under treated".

METHODS

Significant numbers of cases of sexual abuse in children in Leeds, a city in the North of England with a population of 750 000, were first identified in the early to mid-1980s.⁹ Anal findings have previously been described and reported in sexually abused children of both genders.^{9–10} The practice of paediatricians in assessing cases of suspected sexual abuse includes routine photodocumentation of genital and anal findings which are reviewed at monthly regional peer review meetings which have taken place for most of the time covered by this study. Boys were reviewed who had been referred to a paediatrician where the referrer had a suspicion that the injury to their genitalia had been inflicted. It is very unlikely that all cases of suspicious genital injury in boys would be seen by a paediatrician as individual clinicians working, for example, in primary care, accident and emergency medicine or paediatric surgery, would have different thresholds for suspecting and referring abuse.

Records of children referred to paediatricians with suspected abuse of any kind have been kept since 1969 as paper records and from 1990 additionally in an electronic database. Initially records were collected as a case audit from 1983 to 1995 and further cases added retrospectively to 2003. The case was included if it fulfilled specific inclusion and exclusion criteria in terms of clinical findings. Inclusion criteria included bruises, burns, tears, lacerations, incised wounds, ligatures, amputation, scars indicating previous tears/cuts etc, and bites and ulcers (if thought traumatic) of the penis or scrotum. Exclusion criteria included genital reddening only, infection (eg, wart/STI if no injury) and disclosure of injury without signs.

Table 1 History at presentation

Disclosed abuse	14
Unexplained injury	19
History of "accidental injury"	22
Incidental finding	3
Concerns regarding other abuse	8
Unrelated medical presentation	3
Self-inflicted injury	4
Injury inflicted by sibling or other child	13

Details were obtained of the clinical presentation and history for the injury including any background information. Details of the genital and anal examination findings, other evidence of injury or abuse, and the doctor's opinion of whether the injury was accidental or deliberately inflicted and if so what form of abuse the injury likely represented, were sought. The data were recorded anonymously on an access database.

Ethical approval for this work was not initially sought. No contact was made with the children or family and all information was recorded anonymously. The hospital ethics committee was notified on completion.

RESULTS

Over 21 years (1983 to 2003) 86 boys were identified (average age 62.7 months, median age 48 months, age range 1 month to 15 years) who were referred to paediatricians with genital injury and concerns about abuse. There were 28 from 1983–92 and 58 from 1993–2003.

Referral was from a variety of different agencies. Twenty boys were referred by social services or police, 62 were taken directly to the hospital accident and emergency department by their family and/or saw a general medical practitioner who referred the patient on to a paediatrician. In four cases the child's injury came to light at a routine medical contact for an unrelated condition.

The various presenting features are described in table 1. The injury was either unexplained or described by family members as "accidental" in 41 cases and a sibling was alleged to have inflicted the injury in an additional 13. These histories were questioned and not always accepted. Fourteen boys disclosed abuse and another eight children presented because they had other signs which indicated abuse. There was a single genital injury in 57 cases, two in 15, three in 12 and more than three separate injuries in two.

Examples of the histories which were not accepted after investigation as reasonably explaining the particular injury included: "5 year old who cut himself while trying to shave his pubic hair with razor", "brother accidentally pulled his penis", "toddler who burned himself with heated curtain wire", "toilet seat fell on him", "slipped from sink and fallen on protruding nail", "fell off potty and collapsed", "climbed out of window, hurt on latch", "fell into narrow gap between 2 beds", "played

with razor blade", "injured in a portaloo", "trapped in car door", "dogs licked him", and "he inserted a nail".

The sites and nature of the various injuries are shown in table 2. The injuries included burns in seven children, bruises in 27, incised wounds, lacerations or scars in 39, and other traumatic lesions in 27. Injuries affected all parts of the genitalia. Thirty seven children had an injury to the prepuce, 29 to the shaft of the penis, 17 to the base of the penis, 14 to the glans, two to the urinary meatus and 12 to the scrotum.

Other features supporting a diagnosis of abuse included abnormal anal findings in 28 children (table 3), signs which the Royal College of Physicians published guidance designated as either supportive or diagnostic of anal penetration.¹¹ Fourteen children were poorly nourished or underweight. Forty two children had a total of 372 non-genital bruises (range 1–39, 16 >10, seven with 5–9), three had fractures thought to be non-accidental and 12 burns. Other injuries in 38 included mouth injuries in four, and a brain injury and retinal haemorrhages in one child who died. The remainder had scratches and abrasions.

In many cases where abuse was recognised it was not possible to identify a perpetrator. Table 4 indicates what information was available at presentation.

Using all possible information available at the time, the paediatrician provided an opinion as to whether the injury was deliberately inflicted (63 cases), accidentally caused (six cases) or classified as unconfirmed, unexplained, suspicious or inconsistent with the history given (17 cases). In those cases in which there was a positive identification of abuse, the type of abuse recorded was physical in eight, sexual in 19, both physical and sexual in eight, physical and neglect in four and physical, sexual and neglect in one. The type of abuse was unspecified in 22. Accidental injury was diagnosed in six cases; two of these cases were investigated by social services and abuse was not confirmed. The details of these cases are given in table 5. There were inadequate data in some of these cases, for example only four had received an anal examination, but the cases were included because they had been referred to a paediatrician because abuse had been suspected.

DISCUSSION

There are few published studies which include cases of male genital injury resulting from child abuse. In the experience of the authors, these injuries are not always recognised as possibly suggesting child abuse. A wide range of injuries was encountered in this study including bruises, burns, lacerations, incised wounds, and scars as well as tears of the foreskin including the frenulum. In each case the judgment as to the likely cause of the injury was based on the clinician's opinion after considering all available details and in particular on assessment of the injury in relation to the history.

It is not possible from this study to draw any conclusions about the incidence or prevalence of genital injury in boys from whatever cause. However, it would appear that the number of cases being referred to paediatricians with suspicions of abuse

Table 2 Total number of children with various injuries and sites of injury (n=86)

	Glans	Prepuce	Meatus	Shaft	Base	Scrotum	Total number of children
Burn or burn scar	1	2		3		3	7
Bruise/petechiae	9	4		14	6	4	27
Laceration or tear/incised wound or scar		16	1	7	10	2	39
Other (scratches, abrasions with or without non-infective reddening and/or swelling)	5	14	1	7	1	4	27
Total number of children	14	37	2	29	17	12	86

Numbers do not add up because a child may have more than one type of injury and injuries to more than one site.

Table 3 Anal findings

Dilated 2 cm funnel, one fissure, venous congestion, redness
Lax, thickened reddened margin, brief dilatation
Prominent vein, old healed fissure
Multiple tiny abrasions circle of veins
Marked reddening, general thickening of folds
Two abrasions, fissure, dilatation and laxity
Red, smooth, lax, funnelled, RAD >1.5 cm
Loss of symmetry, distended veins
Skin reddened, smooth, small veins
Reddened, full circle of veins (progression from previous examination 2 months before)
Smooth, reddened, veins, partially dilated
Perianal dermatitis, broken skin/abrasion, disclosed anal abuse
Reddened and large area of dilated veins at 6 o'clock
Venous distension, lax and twitching
Reddened, slightly oedematous margin, few dilated veins
Red, post veins
Purple discolouration, tyre, fissure
Halo veins, twitchy
Three fissures
Deep set, smooth, dilated 0.7 cm
Reddening, excoriated, swelling, blue discolouration
RAD 1.5 cm
Gaping sphincter, six deep fissures, grossly dilated veins, superficial tear perianal skin posteriorly
Gaping and dilated widely, veins
Single vein at 7 o'clock
Smooth and slight reddening
Two prominent purple veins
Lax with rectal mucosa visible

RAD, reflex anal dilatation.

has increased over the years commensurate with the increased professional awareness of child abuse.

Security of diagnosis is an important issue in child abuse research. In most cases there is no absolute standard of proof that a child has been abused. Clearly a statement that the injury had been inflicted is considered very important information and was present in 27 cases including by a sibling. The diagnosis of abuse requires examination of as much information as possible. Case conference and court decisions do not provide absolute proof of abuse but offer general support to clinical opinions. Those decisions are strongly influenced by medical opinions which can be opposing and occasionally flawed.

In the case of a child presenting with an injury an important question is "does the (innocent) explanation offered by the family satisfactorily explain the injury?"

The cases which presented more difficulties were those where the family either stated that the injury was caused accidentally or provided no explanation for the injury (41 cases). In 28 cases there was no explanation whatsoever. While unexplained injury does not per se equate with inflicted injury, it is one of the more worrying presentations in child abuse. For example, in non-accidental head injury in infancy, one study¹² found only 41 out of 106 cases presented with any history of trauma whatsoever. In this study of those who provided explanations, these were

considered inadequate to explain the nature, extent or severity of the injury except in the six cases outlined in table 4.

It was not possible to provide outcome criteria of multi-agency action following paediatric reporting as no multi-agency information was available. There is ongoing difficulty in accepting that boys as well as girls can be sexually abused. Genital injuries in boys seem to us to have been perceived in some cases to be of lesser seriousness than if the victim had been a girl. Cases may be difficult to investigate. Boys are known to be reluctant to disclose sexual abuse and often the injury remained completely unexplained. The lack of a substantive literature on male genital injury made the formal multi-agency recognition of genital abuse of boys presenting with inadequately explained or inconsistent injuries difficult. Some cases were involved in children's court proceedings or child protection registration, but usually there were other non-genital injuries which professionals were more comfortable identifying as due to abuse. Isolated genital injuries were generally not investigated with confidence by investigating officers from the statutory agencies.

It must be acknowledged that it is possible that one or two cases were incorrectly assigned to abuse or accident categories. However, it is very unlikely that this would affect the overall conclusion and message of this study. It is also unclear in some cases whether the paediatrician correctly categorised the abuse responsible for the injury (ie, physical or sexual). We suspect that more cases represented a sexual assault than were recognised by the clinician at the time of reporting. However, it remains difficult to be certain of the motivation for the assault in every case.

Some cases of suspected abuse were thought to be the result of non-intentional injury and are detailed in table 4; some of these injuries seemed inadequately explained although there was a lack of other information.

Research¹ indicates that the perpetrators of sexual abuse of boys are both male and female, the latter more being prevalent with older boys or adolescents. The abuse includes forced anal penetration of the child, vaginal penetration with a female perpetrator, orogenital contact (either way), and manual-genital contact by the perpetrator. The use of physical force has been reported in 10–25% of cases, with female perpetrators favouring the use persuasion or special favours.

Important injuries which should attract concern include burns to the penis or scrotum, cuts or incised wounds (usually of the penis), bruises including small petechial haemorrhages especially on the shaft of the penis and tears of the delicate fold of skin at the base of the foreskin ventrally, usually caused by forceful retraction of the foreskin. The commonest site for injury overall was the prepuce or foreskin, suggesting that forceful masturbation was responsible in many cases; this is a difficult part of the anatomy to injure accidentally.

The recognition of abuse requires a detailed and carefully elicited history of the injury, the events in the immediate aftermath including the child's symptoms, both the child's and

Table 4 Suspected perpetrator

Father	6
Mother	9
Stepfather	2
Grandfather	1
Male sibling	1
Boyfriend of mother	4
Unrelated adult male	2
Unrelated older child	8
Stranger	1
Other	1

Table 5 Accidental injury

4 year 10 month old with superficial laceration to penis from a fall on carpet
13 year old with accidental injury to foreskin
5 year old brought to A & E with laceration and history of play fighting with brother and being kicked
5 year old with circumferential tear at base of penis from brother accidentally pulling it hard
2 year old with scrotal laceration from protruding nail when in brother's care
7 year old with penile injury and bruising. Previous family concerns recorded. Child said "trouser zip and fell off bike"

What is already known on this topic

- There is very little information about genital injury and abuse in boys
- Descriptions are limited to small numbers of individuals in larger studies
- Sexual abuse of boys is under-reported

What this study adds

- This study draws attention to the relationship between genital injury in boys and abuse
- It provides information regarding the features which should lead to suspicion that the boy has been abused when presenting with genital injury
- It encourages paediatricians to consider the cause of any genital injury

carer's response and behaviour, and the means by which the injury was brought to professional attention. A detailed and full physical examination must include a search for other injuries and signs including anal abnormality as well as emotional, developmental and behavioural indications which could be linked to abuse. Inclusion of siblings and other children in close contact with the index child in similar assessments is necessary. Further investigation by specially trained police officers and social services staff may provide additional important information with which to assemble an overall picture in order to assess future or ongoing risk to the child.

CONCLUSIONS

The sexual or physical abuse of boys may include inflicted genital injury. In many cases this is related to other evidence of

physical or sexual abuse. A variety of different injuries may present in various ways and diagnosis depends on a full assessment including both a detailed history and an examination. Many injuries are of a minor or subtle nature and detailed and careful examination is indicated.

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