



Pergamon

Child Abuse & Neglect 26 (2002) 645–659

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Child Abuse  
& Neglect

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## Children referred for possible sexual abuse: medical findings in 2384 children

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### Abstract

**Objective:** The goal of this study was to compare rates of positive medical findings in a 5-year prospective study of 2384 children, referred for evaluation of possible sexual abuse, with two decades of research. The prospective study summarizes demographic information, clinical history, relationship of perpetrators, nature of abuse, and clinical findings. The study reports on the results by patterns of referral and the medical examination.

**Results:** There were 2384 children evaluated in a tertiary referral center between 1985 and 1990 for possible sexual abuse. Children were referred after they disclosed sexual abuse, because of behavioral changes or exposure to an abusive environment, and because of possible medical conditions. A total of 96.3% of all children referred for evaluation had a normal medical examination; 95.6% of children reporting abuse were normal, 99.8% who were referred for behavioral changes or exposure to abuse were also normal. Of the 182 children referred for evaluation of medical conditions, 92% were found to be normal at the time of examination by the Child Advocacy Center. The remaining 15/182 (8%) that were found to be abnormal were diagnosed with sexually transmitted diseases, acute or healed genital injuries, and were 17% (15/88) of the total cases found to have medical findings diagnostic of abuse. Interviews of the children indicated that 68% of the girls and 70% of the boys reported severe abuse, defined as penetration of vagina or anus. Penetration was associated with a higher percentage of abnormal findings in girls (6%) compared to 1% of the boys. The relationship of the abuser impacted on the severity of the abuse.

**Conclusion:** Research indicates that medical, social, and legal professionals have relied too heavily on the medical examination in diagnosing child sexual abuse. History from the child remains the single most important diagnostic feature in coming to the conclusion that a child has been sexually abused. Only 4% of all children referred for medical evaluation of sexual abuse have abnormal examinations at the time of evaluation. Even with a history of severe abuse such as vaginal or anal

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penetration, the rate of abnormal medical findings is only 5.5%. Biological parents are less likely to engage in severe abuse than parental substitutes, extended family members, or strangers. © 2002 Elsevier Science Ltd. All rights reserved.

*Keywords:* Sexual abuse; Medical findings; History

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## Introduction

In 1988, Richard Krugman waved the “yellow flag” in the race to diagnose child sexual abuse (Krugman, 1988). This caution flag was raised in the midst of the wave of research published in response to escalating rates of child sexual abuse reports. Dr. Krugman called on medical professionals to pause and remember that “the initial goal of the race was to protect abused children.” However, the dramatic rise in reports of child sexual abuse and an enhanced investment in criminal prosecution overwhelmed the job of protection. He asked that all legal, social, and medical professionals commit adequate resources to unravel the complexity of the job that joins protection with criminal investigation to understand better the process and to investigate more thoroughly the science. With this knowledge we could then measure outcomes and assess the impact of intervention and investigation on the child.

Over the past 20 years, there has been a growing body of medical literature on the diagnosis of sexual abuse of children. Research included studies of genital anatomy in children selected for nonabuse (Berenson, Heger, & Andrews, 1991; Berenson, Heger, Hayes, Bailey, & Emans, 1992; Gardner, 1992; Heger et al., in press; McCann, Wells, Simon, & Voris, 1989, 1990; Pokorny, 1987) and reports on anatomical variations in children referred for possible sexual abuse (Adams, Harper, Knudson, & Revilla, 1994; Berenson, 2000; Bowen & Aldous, 1999; Cantwell, 1983; Emans, Woods, Flagg, & Freeman, 1987; Dubowitz, Black, & Harrington, 1992; Hobbs & Wynne, 1987; Kellogg, Parra, & Menard, 1998; Orr & Prieto, 1979; Palusci, 1999; Pugno, 1999; Rimsza & Niggermann, 1982; Teixeira, 1982). In addition, there have been a few reports of healing trauma (Finkel, 1989; Heger, Emans, & Muram, 2000; McCann, Voris, & Simon, 1992). Based on these studies, recommendations for diagnostic criteria or standards as well as classification schemes have been developed (Adams, 2001; Adams, Harper, & Knudson, 1992; American Academy of Pediatrics, Committee on Child Abuse and Neglect, 1999; American Professional Society on the Abuse of Children, 1998; Muram, 1989).

Over the past two decades, most research has reported on the medical evaluation of children referred for possible sexual abuse. These children were referred after disclosure of abuse or exposure to an abusive environment or because a genital examination by a primary care medical professional needed further clarification. Research starting in 1979 (Orr, 1979) reported on rates of abnormal genital findings in the child that range from >80% (Cantwell, 1983; Hobbs & Wynne, 1987) in the late 1980s to <3% in 2000 (Berenson, 2000) (see Table 1).

The first decade of research on child sexual abuse covered a wide range of clinical findings but lacked a consistency in terminology, methods, and results. Since 1989 most of the published research has relied on photodocumentation first described in 1986 (Woodling & Heger, 1986). Photodocumentation enhanced the potential for consistency and peer review.

Table 1  
Comparison of abnormal genital findings in children referred for possible sexual abuse

Investigator Publication Year	Orr 1979	Teixeira 1981	Rimsza <sup>†</sup> 1982	Cantwell* 1983	Emans <sup>1</sup> 1987	Hobbs & Wynne <sup>2</sup> 1987	Dubowitz <sup>3</sup> 1992	Adams <sup>‡</sup> 1994	Kellogg <sup>‡</sup> 1998	Palusci <sup>‡</sup> 1999	Bowen <sup>‡</sup> 1999	Pugno* 1999	Berenson <sup>4</sup> 2000
Number	100 girls/86 boys/14	33 girls/33	311 girls/268 boys/43	83 girls/83	119 girls/119	337 girls/243 boys/94	99 girls/82 boys/17	236 girls/215 boys/21	157 girls/151 boys/6	497 girls/388 boys/109	385 girls/325 boys/60	1058 girls	192 girls
Age (years)	<16 mean 9.2	<10	<18 mean 9.2	<13	<15 mean 5.6	<15 mean 8.0	<12 mean 6.0	<17 mean 9.0	<14 mean 4.6	<17 mean 7.4	<18 mean 7.1	<11	<8
Findings (%)						Boys Girls							
Normal/ nonspecific	77%	85%	39%	16%	70%	17% 42%	62%	77%	85%	83%	88%	64.7	97.5%
Suspicious/ abnormal	23%	15%	61%	84%	30%	83% 58%	38%	23%	15%	17%	8.3% other 3.6%	35.2	2.5%
Vaginal (total)													
Normal/ nonspecific	65%	85%	39%	16%	70%	42%	62%	77%	85%	N/A	N/A	64.7%	97.5%
Suspicious/ suggestive	55%		16% (trauma)	84%			10%	9%	12%				
Definitive	35% (penetration)	15% (penetration)	48% (penetration)	N/A	30% (6% trauma)	58%	28%	14% N = 213	3% N = 6	N/A	N/A	N/A	N/A
Anal (total)						Boys Girls							
Normal/ nonspecific	N/A					17% 75%	65%	93%	100%				
Suspicious/ abnormal	N/A		5.4%			83% 25%	35%	7%	0%				
STDs <sup>†</sup> forensics	7%	N/A	11.5%	N/A	2.5%	3.2%	N/A	N/A	3.1%	0%	.7%	N/A	0%

\* Hymeneal opening as criteria; † 85% in 72 hour window; N/A: not reported.

<sup>1</sup> Scars, attenuated hymen, tears, abrasions, and condyloma.

<sup>2</sup> Erythema, abrasions, edema, discharge, scars, adhesions, anal tone, tears and, venous dilatation.

<sup>3</sup> Adhesions, hymenal scarring asymmetry, discontinuity, rounding, enlarged hymenal opening, anal scarring, fissures, and gaping.

\* Used hymenal diameters.

‡ Used Adams' classification scheme (Adams, 1992).

<sup>4</sup> Acute trauma, Deep notches, transections or perforations of hymen; N/A: not reported.

The evolution of peer review improved the understanding of normal anatomy and nonspecific findings, and many of the anatomical findings that were reported as abnormal in the early studies are now considered by clinicians and researchers to be nonspecific genital variations. These nonspecific anatomical variations include enlarged hymenal diameter, narrowing of the hymenal edge, partial notching or clefts of the posterior hymenal rim, erythema or swelling, bumps or irregularities, and changes in tone or rugal patterns of the anus.

With the improved access to emergency evaluations of sexual assault, a better understanding of the importance of acute injuries has developed. Following these injuries to healing provided the basis for longitudinal studies that identified the more significant findings to be acute trauma, hymenal transections, and genital scarring. Sexually transmitted diseases and positive forensics continued to provide critical diagnostic evidence.

Photodocumentation and consensus on terminology also created a more consistent level of research and contributed to the development of classification schemes (Adams, 1992; Muram, 1989), as well as consensus papers (American Academy of Pediatrics, Committee on Child Abuse and Neglect, 1999; American Professional Society on the Abuse of Children, 1998). Standardization was also enhanced by the adoption of state protocols for interviewing children and documenting medical findings.

The standardization of terminology and development of classification schemes is reflected in the research of the 1990s. Four papers published between 1994 and 1999 (Adams, Harper, Knudson, & Revilla, 1994; Bowen & Aldous, 1999; Kellogg, Parra, & Menard, 1998; Palusci, 1999) more closely replicated rates for normal and abnormal anatomy. Mirroring this growing collection of research and knowledge, classification schemes (see Table 2) evolved and changed (Adams, 2001; Adams, Harper, & Knudson, 1992; Muram, 1989).

Diagnosis of child sexual abuse is dynamic, and the research continues to provide necessary data on the accurate diagnosis of child sexual abuse (Adams, 2001; Berenson, 2000; Heger, Emans, & Muram, 2000). This study was undertaken to evaluate a large group of children referred for possible sexual abuse and to determine the rates of medical findings by history and/or reason for the referral.

## **Patients and methods**

Over 5 years, 2742 children were referred for possible sexual abuse to a pediatric emergency department and the hospital-based Child Advocacy Center. Of the 2742 children of all ages, 358 were evaluated by medical professionals in the emergency room and are excluded from this study; 2384 children were referred to the Child Advocacy Center and were included in a prospective database that recorded demographic information, clinical history, details of disclosure, relationship of perpetrators, nature and duration of abuse, and used colposcopy for documenting all medical findings.

The Child Advocacy Center at LAC + USC (Los Angeles County + University of Southern California) Medical Center is the only 24-hour pediatric forensic assessment center

Table 2  
Evolution of classification scales

Muram, 1989	Category 3: Specific findings Lacerations of the hymen, vaginal mucosa Hymenal opening >1 cm Procto-episiotomy Bite marks (vulva) GC and syphilis		Category 4: Definitive findings Any presence of sperm
Adams, 1992	Suspicious for abuse (Class 3) Enlarged hymenal opening Immediate anal dilatation >15 mm Immediate venous congestion Distorted, irregular anal folds  Posterior hymenal rim less than 1 mm Condyloma acuminata Acute abrasion or lacerations	Suggestive of abuse (Class 4) Combination of two or more class 3 findings Scar or fresh laceration of the posterior fourchette with sparing of the hymen  Scar in peri-anal area	Clear evidence of penetrating injury (Class 5) Areas of absence of hymenal tissue (posteriorly) Hymenal lacerations or transections Perianal laceration extending beyond the external anal sphincter Laceration of the posterior fourchette extending to involve hymen Scar of posterior fourchette associated with loss of hymenal tissue between 5 and 7 Definite evidence of abuse: Positive forensics Non-accidental penetrating injury to vagina or anus (see above) Neisseria gonorrhoeae or syphilis
Adams, 2001	Category 3: Concerning for abuse Marked immediate dilation of the anus without significant medical history (in the knee-chest position) Hymenal notch/cleft extending through more than 50% of the hymenal rim in the posterior segment Acute abrasions, lacerations, bruising of genital area Bite or suction marks on the genitalia or inner thighs  Scar or fresh laceration of the posterior fourchette, not involving the hymen		Category 4: Clear evidence of penetrating trauma Laceration of the hymen, acute Ecchymosis of the hymen, acute Perianal lacerations extending deep to the external anal sphincter Hymenal transection (healed); hymen torn to the base without any tissue remaining. Also referred to as a complete cleft in adolescent girls and young women. Absence of hymenal tissue (posterior) half with an absence of hymenal tissue Definite evidence of abuse Category 4 findings Forensics Pregnancy GC and syphilis; HIV (without perinatal transmission) Photographic evidence of the actual abuse

in Los Angeles County and evaluates most pediatric acute sexual assaults nights and weekends. All children in this study were examined within 7 days of the referral (if the abuse occurred greater than 2 weeks), within 48 hours if the abuse occurred during the past 2 weeks, and immediately if the abuse occurred within 72 hours. Many of the positive examinations in this study showed evidence of acute assault that would heal quickly and completely if the examination were delayed.

Each child was evaluated in compliance with the standards and protocols of the Medical Center with the approval of the University Institutional Review Board. Parents or guardians signed appropriate consents for the evaluation of each child, and a verbal consent was obtained from each child over 3 years of age. Trained social workers or medical professionals using internal protocols that complied with both national standards (American Professional Society on the Abuse of Children, 1990) and state and local protocols interviewed both parents and children. History was classified as severe when there was penetration of the anus or vagina.

The two pediatricians participating in this study explained the examination process to both the parents and child and introduced the use of the colposcope to the patient. Each child was examined using a Cryomedic MM 6000 colposcope with 35mm camera attachment. Each subject was examined in the supine position using labial traction. Some girls were examined in the knee-chest position if the posterior rim of the hymen was not adequately visualized using only the supine position. All medical records and photographic documentation were maintained under the strict rules of evidence and confidentiality.

Demographic data were entered into the prospective database. All medical evaluations that were rated as abnormal were subsequently selected and independently reviewed and verified by the authors. The photographic review was blinded to history, and the reviewers agreed in 97% of all cases. All disputed cases were re-reviewed, and if agreement was not reached they were moved to the nonspecific group. The parameters for abnormal examination included acute trauma, transections of the hymen that extended to the base of the hymen, scarring, sexually transmitted diseases, and positive forensics. Findings such as notching, narrowing, changes in hymenal opening size, or anal tone were considered nonspecific and were not included in this study.

The medical professionals concluded that children were sexually abused if they gave a history of abuse, if there was an adult witness of the abuse, or if they had medical findings that were diagnostic of abuse. These findings included forensic evidence, sexually transmitted diseases, acute, nonaccidental injuries, and healed trauma. Healed trauma considered to be diagnostic of abuse included healed complete transections of the hymen or anal scarring. All data were then collected, reviewed, organized, and analyzed using SPSS Base 10 for Windows Statistical Software.

The authors reviewed a chronological selection of articles published over the past 22 years. This comparison literature review summarized the results of research on the anatomical variations in children referred for possible sexual abuse. The summary data relied on the diagnostic guidelines and anatomical changes described by the individual researchers. These percentages were then collected and presented in a table form for comparison purposes (Table 1).

Table 3  
Medical findings and patterns of referral

	Total sample <i>N</i> = 2384		Disclosing group <i>N</i> = 1652		Nondisclosing group <i>N</i> = 732		Nondisclosing group			
							Nondisclosing <i>N</i> = 550		Medical only <i>N</i> = 182	
Normal examination	2296		1580		716		549		167	
	96%		96%		98%		99.8%		92%	
Abnormal examination	88		72		16		1		15	
	4%		4%		2%		0.2%		8%	
Age of victim	6.6 years		7.8 years		4.5 years		4.4 years		4.4 years	
Gender	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	1963	421	1401	251	562	170	405	145	157	25
	82%	18%	85%	15%	77%	23%	74%	26%	86%	14%
Age	6.9 years	5.5 years	7.9 years	6.2 years	4.3 years	4.5 years	4.3 yr.	4.5 yr.	4.4 yr.	4.5 yr.

## Results

Of the 2384 children evaluated by the Child Advocacy Center, 1652 (69.2%) were referred after disclosing abuse, 732 (30.8%) had not disclosed abuse but were referred because of behavioral changes or exposure to an abusive environment (550), or because of anatomical variations or medical conditions (182) (see Table 3). Behaviors included sexually acting out, masturbation, regression, and fear or anger. Potentially abusive environments were defined as the disclosure of abuse by a sibling, family member, or classmate. The smallest group (182, 7.6%) was referred by medical professionals for evaluation of possible anatomical variations or medical conditions after a routine genital examination.

Of the children evaluated, 73.5% were Hispanic, 14.9% White, 10.2% African American, and 0.7% Asian, and 82% were girls. Children ranged in age from 3 months to 14 years, with Tanner staging including I to IV. The mean age for girls was 6.9 years compared to 5.5 years for the boys. There was a significant age difference between the children who disclosed (7.8 years) and those who had not (4.5 years) ( $t = 20.559$ ;  $df > 120$ ;  $p = .000$ ). In the nondisclosing group, there was no age difference between the group referred for possible abuse and those with medical referrals only.

Of the 1963 girls, 1401 (71.4%) disclosed abuse, 405 (20.6%) were referred for behavior changes or exposure to abuse but did not disclose abuse, and 157 (7.9%) were referred for possible genital abnormalities or medical findings. The 421 boys were less likely to disclose abuse than the girls were ( $p = .000$ ). Only 251 (59.6%) were referred because of disclosure, 145 (34.4%) because of behavior changes or exposure to abuse, and 25 (5.9%) because of questionable medical findings.

Regardless of the basis for the referral, the majority of the children remained free of any findings that were diagnostic of abuse. Of the 2384 children, 96.3% had a normal examination. In the disclosing group, 95.6% had a normal examination compared with 97.8% of the nondisclosing group; 99.8% of the children referred for behavior changes or possible exposure to abuse were normal. The one group that did show a higher percentage of abnormal medical findings was the group of children referred for evaluation of medical findings or conditions; 182 (92%) had normal examinations, while 8% had an abnormality

Table 4  
Abnormal Medical Findings in Disclosures of Severe and Non-Severe Forms of Abuse

Disclosing Victims	Total <i>N</i> = 1652	Girls <i>N</i> = 1401	Boys <i>N</i> = 251
Severe abuse	<i>N</i> = 1134	957	177
% of total	68.6%	68%	70%
mean Age	8.4 years		
Abnormal examination	<i>N</i> = 63	<i>N</i> = 61	<i>N</i> = 2
% of severe abuse	5.5%	6%	1%
Nonsevere Abuse	<i>N</i> = 518	<i>N</i> = 444	<i>N</i> = 74
% of total	31.3%	32%	30%
Mean Age	6.0 years		
Abnormal examination	9	8	1
% of nonsevere abuse	1.7%	2%	1%

including sexually transmitted diseases, acute genital trauma or healed hymenal trauma, such as complete hymenal transections.

Of the 1652 who disclosed abuse, 1134 (68.6%) disclosed anal or vaginal penetration (see Table 4). When medical findings were compared to the history from the child, 5.5% of cases in which the child-reported penetration were abnormal compared with 1.7% of those who denied penetration. Penetration was reported by 957 (68.3%) girls and 177 (70.5%) boys who disclosed abuse. The girls who reported penetration had abnormal examinations in 6% of cases compared with 1% of the boys. The age of the children (8.5 years) reporting penetrating abuse was significantly older than the children (5.2 years) with nonsevere abuse ( $t = -22.696$ ;  $df = 25$ ;  $p = .000$ ). The severity of the abuse also varied depending on the alleged perpetrator. Children were significantly less likely to be victims of penetrating abuse if the perpetrator was the biological father ( $p = .000$ ); 60.5% of children who described abuse by their biological father reported penetration of anus or vagina compared to 79.5% by stepfathers, 69.7% by mother's boyfriends, or 73.6% if the perpetrator was a member of the extended family.

Review of research papers provides a historical view of how both diagnosis and process have evolved over the past two decades. Some of the earlier reports based their results on a higher rate of acute trauma, sexually transmitted diseases, and positive forensic findings (Orr & Prieto, 1979; Rimza & Niggermann, 1982). Two of the articles (Cantwell, 1983; Pugno, 1999) focused solely on hymenal diameters as a significant indicator. Other studies included erythema and swelling along with changes in anal tone on their list of positive findings (Hobbs & Wynne, 1987). Over the last 10 years, research relied on photodocumentation and reported data using a classification scheme and standardized terminology. This made replication and comparison of research easier and more reliable.

## Discussion

The most startling result of this study was to find that such a small percentage of children did have genital findings diagnostic of prior trauma from sexual abuse. We were



encouraged to see that an increasing number of children were referred to this Child Advocacy Center for expert, multidisciplinary evaluations. Referrals came from a broad range of professionals who were mandated reporters of child abuse and from primary physicians after routine examinations. Two decades ago, most primary care professionals rarely entertained the diagnosis of sexual abuse nor did they evaluate the genitalia during a routine pediatric visit. As Bowen and Aldous (1999) noted in their report, one of the important roles of a referral center is to review genital findings that the primary physician feels are suspicious or concerning. But regardless of the reason for referral, disclosure, exposure to an abusive environment, or genital variations, most of the examinations remained normal.

Both gender and age influence the process of disclosure. Of the children referred for possible sexual abuse, more girls disclosed than boys; and the older children were more likely to disclose than the younger children. Penetrating abuse was described by a significantly older group of children. This may be a function of the duration of the abuse and the fact that the abuse progressed from fondling to more aggressive penetrating trauma, or perhaps older children may feel more secure or able to disclose a more violent abuse.

It can be a challenge for medical examiners to connect the history from the child with the absence of medical findings. This is particularly true when young children describe “penetration” and the examiner finds no evidence of recent or old penetrating injuries. Perhaps the best explanation is the child’s unsophisticated understanding of what happened and the misinterpretation by the child of simulated intercourse as either penile-vaginal or penile-anal penetration.

Medical examiners have learned more about injuries associated with sexual abuse and expect that a higher percentage of girls would have an abnormal examination than boys. In our longitudinal study (in preparation), when complete penetration across the hymen has occurred, the hymen does not heal completely unless there has been a surgical repair. However, anal mucosa heals quickly and completely.

Decades of research into the medical diagnosis of child sexual abuse indicate that most children remain free of any medical findings diagnostic of penetrating trauma. This finding is supported by our review of 2384 cases, where only 4% of all children presented with medical findings that were diagnostic of abuse. These findings were primarily acute injuries, sexually transmitted diseases, positive forensics, or genital scarring such as complete hymenal transections and included one child with an anal scar. There was very little difference between the disclosing (95.6% normal) and the nondisclosing (97.8% normal) groups. The single group with greater than 5% abnormal genital examinations was the 182 (7.6% of the total) children referred by a primary care medical professional with the diagnosis of a genital abnormality or medical condition. Of this group, 8% were found to have abnormal findings that were diagnostic of sexual abuse. In this group, the findings were either sexually transmitted diseases, hymenal transection, or acute genital injuries. Bowen and Aldous (1999) also reported that children referred by primary physicians (14.3%) had higher rates of abnormalities compared with their overall (8.3%) abnormal rate of all children referred for possible abuse.

There is only one published study with a higher frequency of normal examinations

(97.5%) in children referred for sexual abuse (Berenson, 2000). The population studied may explain the difference in frequency. In the Berenson study, the median length of time since the last episode of abuse was 42 days. In our study, most children were evaluated within 7 days of the last event.

The findings of early studies are difficult to replicate or to compare with recent studies because of changes in protocols and technology and recent standardization of terminology and procedures. The early studies included a wider range of anatomical variations or findings as diagnostic or suggestive of abuse, but since they did not rely on photodocumentation this material cannot be reviewed and re-evaluated.

There has been an international revolution in the process and protocols for evaluating sexually abused children. Most children are now triaged into forensic Child Advocacy Centers staffed with experts who actively participate in local and national peer review. Photodocumentation revolutionized research and made it possible to standardize language and replicate research findings. It also aided the medical professional in accurately documenting and reviewing individual cases at the time of the examination. In the past 10 years, the most consistent rates of reporting were documented in the four papers (Adams, Harper, Knudson, & Revilla, 1994; Bowen & Aldous, 1999; Kellogg, Parra, & Menard, 1998; Palusci, 1999) that relied on photodocumentation and on a classification scale (see Table 1). If these studies were revisited using the revised classification scale (Adams, 2001), the percentages might shift to a higher percentage of normal examinations in children referred for abuse and more closely resemble the results presented by Berenson (2000) and in our study.

It is not only technology that has influenced child sexual abuse research. The dramatic changes in the process of recognizing and reporting child sexual abuse have also changed the responses of medical, social, and legal professionals. Over the past dozen years, a national campaign of prevention and awareness has improved the vigilance of teachers and caretakers to the signs and symptoms of abuse and thereby increased the frequency of children disclosing earlier in the course of abuse. This early recognition enhances the possibility that children are brought to the attention of the authorities before the abuse progresses.

Regardless of when the children are evaluated, most children will have normal examinations. Both the nature of the abuse and the process of disclosure impacts on the medical examination. Most children are not abused in a way to leave permanent physical findings. Children are usually abused by an individual known to them who wants continued access to them. Any violent penetrating assault on a preadolescent child will likely result in significant trauma and discovery. In this study, we found that biological fathers were less likely to engage in vaginal or anal penetration of their children than stepfathers, mother's boyfriends, extended family members, acquaintances, and strangers.

In addition to how children are sexually abused, the vulnerable nature of the child makes disclosure difficult. Children often do not tell immediately. Genital mucosa and epithelium heal rapidly, and delays in reporting or examination can provide sufficient time for healing to occur.

The influence of the findings from the medical evaluation is felt throughout the community. Medical professionals play a unique but powerful role in the diagnosis of

child sexual abuse. The primary responsibility is to provide appropriate medical and mental health interventions that will promote the physical and psychological well-being of each child. It is true that appropriate interventions can provide safety and treatment. However, the legal and social systems rely heavily on the outcomes of the medical evaluation, and a positive examination can precipitate both the intervention of the foster care or the criminal justice systems. These interventions have a potentially harmful impact on the child and the family.

A recent study by Palusci (1999) reports that in 497 children, cases with a positive medical examination were 2.5 times more likely to result in a criminal prosecution, and positive physical findings were the single most important factor in the finding of guilt. Another study by Cross et al. (1994) confirmed that confessions and medical evidence were the strongest predictors of prosecution. Fortunately for both the child and the legal system, most cases of child sexual abuse are resolved before a courtroom trial. However, approximately 15% of cases selected for prosecution do end up before a jury (DeJong, 1998). The impact on the child of testifying in a jury trial is rarely benign (Runyan, Everson, Edelsohn, Hunter, & Coulter, 1988).

Unfortunately, we were unable to include in our study the 358 children who were evaluated in the Pediatric Emergency Room by trained staff but without photodocumentation. These examinations could have provided valuable information on the use of the Emergency Department as an effective partner in a tertiary center. In addition, at the time of this research, clinical questions had not been raised regarding the diagnostic significance of additional anatomical variations, such as hymeneal clefts, irregularities, or narrowing. Additional documentation of these variations would have added valuable data on the frequency of genital findings in children referred for possible abuse.

## Conclusions

The medical examination plays an important role in the healing of the child and the reassurance of the child and family. An appropriate, multidisciplinary evaluation by the medical professional may be the determining factor in the outcomes for the child, the family, and society. The primary goal of the medical professional is always safety and healing, but caution should be used to prevent the focus from shifting from the child to the presence or absence of medical findings diagnostic of penetrating trauma. Unfortunately, the evolution of medical knowledge and the systematic examination of children for possible sexual abuse have resulted in medical evidence as the deciding factor in many cases and as the most significant factor in the progress of a case through the legal system.

The history from the child remains the most important part of any assessment. Therefore, the medical professional begins with listening closely to what the child is saying. The medical examination should then progress with careful attention to the needs of the child with the anticipation that most examinations will be normal. The medical examination should be interpreted in the context of how children are abused, the child's perception of the abuse, and the process of disclosure. The absence of compelling laboratory evidence or clinical documentation of penetrating trauma should not preclude the medical professional's ability,

or the ability of the system charged with the protection of the child, to find healing and safety for each child.

*When the race started, we knew that we were responsible for the welfare and safety of the child. Once the race was underway, it became easy to lose sight of the purpose and become more focused on the process, the machine. As we pay tribute to Dick Krugman, let us not forget the courage it took for him to raise the yellow flag in the midst of a race rife with backlash and competition. I hope that we have the courage to continue to drive with the same degree of caution.*

Astrid Heger, Los Angeles

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## Résumé

**Objectif:** Comparer les pourcentages de résultats médicaux positifs au cours d'une étude prospective qui a duré 5 ans sur une population de 2384 enfants adressés pour évaluation de la possibilité d'abus sexuels avec ceux obtenus durant vingt ans de recherche. L'étude prospective a récapitulé les données démographiques, l'histoire clinique, la relation avec les abuseurs, la nature des abus ainsi que les données cliniques. L'étude présente les résultats d'après les modèles selon lesquels les cas ont été adressés et d'après l'examen médical.

**Résultats:** On a évalué chez 2384 enfants la possibilité d'abus sexuels dans un center de référence tertiaire entre 1985 et 1990. Les enfants avaient été référés après révélation d'un abus sexuel, soit à cause de changements observés dans leur comportement, ou parce qu'ils avaient été exposés à un environnement dans lequel ils auraient pu être abusés, soit parce qu'il semblait possible que

des constatations soient faites sous l'angle médical. Un total de 96.3% des enfants référés pour une évaluation ne présentaient pas d'anomalie à l'examen médical; 95.6% des enfants déclarant avoir été abusés étaient normaux, 99.8% de ceux qui avaient été adressés pour des changements de comportement étaient également normaux. Sur les 182 enfants adressés pour évaluation de leur état sous l'angle médical, 92% ont été considérés comme normaux au moment de leur examen au Center en faveur des Enfants. Les 15/182 (8%) restant qui avaient été identifiés comme anormaux avaient un diagnostic de maladie sexuellement transmissible, de blessures génitales aiguës ou guéries et ils constituaient 17% (15/88) du total des cas présentant un diagnostic médical d'abus sexuel. Les entretiens avec les enfants ont révélé que 68% des filles et 70% des garçons avaient révélé des abus graves, comme la pénétration par le vagin ou l'anus. La pénétration était associée à un pourcentage plus élevé de constatations anormales chez les filles (6%) en comparaison avec les garçons (1%). La relation avec l'agresseur avait un impact sur la gravité de l'abus.

**Conclusion:** La recherche montre que les professionnels médicaux, sociaux et judiciaires se sont trop reposés sur l'examen médical pour diagnostiquer un abus sexuel. Ce que dit l'enfant demeure le seul élément diagnostique d'importance majeure pour en venir à la conclusion qu'un enfant a subi des abus sexuels. Seulement 4% des enfants adressés pour une évaluation médicale d'abus sexuel présentent une anomalie à l'examen au moment de l'évaluation. Même dans les cas où il y a eu sévice grave, c'est-à-dire avec pénétration vaginale ou anale, le pourcentage d'anomalies médicalement constatées est seulement de 5.5%. Les parents biologiques risquent moins que les parents substitutifs, les membres de la famille élargie ou les étrangers d'être à l'origine de sévices graves.

## Resumen

**Objetivo:** Comparar las tasas de los hallazgos médicos positivos en un estudio prospectivo de 5 años a 2384 niños derivados para evaluación por posible abuso sexual en dos décadas de investigación. El estudio prospectivo resumió información demográfica, historia clínica, relación de los perpetradores, naturaleza del abuso, y hallazgos clínicos. Este estudio informa de resultados por patrones de derivación y examen médico.

**Resultados:** Se evaluaron a 2384 niños en un centro de derivación terciario entre 1985 y 1990 por posible abuso sexual. Los niños fueron derivados por haber revelado el abuso sexual, por cambios de conducta o exposición a un ambiente maltratante y por posibles condiciones médicas. Un total de 96.3% de todos los niños derivados para evaluación tuvieron un examen médico normal; el 95.6% de los niños que notificaron el abuso fueron normales, el 99.8% de los derivados por cambios de conducta o exposición al abuso fueron también normales. De los 182 niños derivados para evaluación por condiciones médicas, el 92% se encontró como normal en el momento del examen por el Centro de Protección Infantil. En el 8% restante, que se encontró como anormal, se observaron diagnósticos de enfermedades de transmisión sexual, heridas agudas o cicatrizadas en los genitales. En un 17% del total de casos se encontraron hallazgos de diagnóstico médico de abuso. Las entrevistas de los niños indicaron que el 68% de las niñas y el 70% de los niños notificaron abuso severo, definido como penetración vaginal o anal. La penetración se asoció con un porcentaje mayor de hallazgos anormales en niñas (6%) comparado con un 1% en los niños. La relación con el abusador impactó en la severidad del abuso.

**Conclusión:** La investigación indica que los profesionales médicos, sociales, y legales han confiado en el examen médico para diagnosticar el abuso sexual infantil. La historia del niño sigue siendo el único dato diagnóstico que permite concluir si un niño está siendo abusado sexualmente. Solamente el 4% de todos los niños derivados para evaluación médica de abuso sexual tienen exámenes

anormales en el momento de la evaluación. Incluso con una historia de abuso severo, por ejemplo, penetración vaginal o anal, la tasa de hallazgos médicos anormales es solamente de 5.5%. Los padres biológicos son menos propensos a implicarse en abuso severo que los padres sustitutos, miembros de la familia extensa o extraños.