

Medical Evaluation of Sexual Abuse in Children Without Disclosed or Witnessed Abuse

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Objectives: To investigate why sexual abuse was suspected and what physical findings were present among children referred for the evaluation of sexual abuse without a verbal disclosure or witnessed abuse, and to determine if the reasons for requesting medical evaluation varied by referral source.

Design: Prospective descriptive study.

Setting/Patients: Two groups of consecutive children referred to a sexual abuse evaluation clinic.

Main Outcome Measure: Categorization of physical examination findings for likelihood of sexual abuse (definite, suggestive, nonspecific, normal, non-abuse-related finding).

Results: Of 393 children studied, 190 (48.3%) had a definite or probable history of sexual abuse, 130 (33.1%) had a suspicious history, and 73 (18.6%) had "no history." The no-history group was referred most

often for physical findings (42 patients [57%]). Compared with other referral sources, physicians more frequently referred patients for physical findings, parental anxiety, and behavior changes. Regardless of history, examination findings were normal or nonspecific in 83.5% to 94.4% of cases. Suggestive or definite examination findings were more frequent for children with definite or probable histories, while non-abuse-related findings were more common for the no-history group. Only 2 children (3%) with no reported history of abuse had suggestive physical findings, and none had definite findings.

Conclusions: Physicians are more likely than public agencies to refer children for sexual abuse evaluation for reasons other than disclosure by the child. For most of these children, examination is unlikely to influence the suspicion of abuse. Improved physician training and selected referrals are indicated.

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REPORTS OF child sexual abuse have been increasing for the last 20 years, exceeding 300 000 in 1993.¹ Concerns of abuse frequently are raised because of a child's verbal report, and the definitive diagnosis of child sexual abuse depends primarily on this direct history.²⁻⁶ Some children, however, are unable to provide a history because of developmental level, fear, guilt, or shame.^{7,8} For these children, suspicions may be raised because of nonhistorical factors, often behavioral.^{2,9} Still others are referred for evaluation because of abuse of a related child, for somatic complaints, or for physical findings.¹⁰ Often it is hoped that the medical evaluation can provide evidence to support or refute the suspicion.

Several agencies and individuals may refer children for sexual abuse evaluation. Child protection agencies, law en-

forcement (both police and prosecuting attorneys), physicians, mental health workers, and parents may all seek further delineation of the problem. These agencies and individuals are likely to have varying agendas for the evaluation.^{8,11} Some may seek evidence to initiate prosecution, others to determine need for services, and still others to provide a second opinion on a physical examination. Yet definitive physical findings of child sexual abuse are uncommon, even when the history is confirmed by perpetrator confession.¹²

*For editorial comment
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In this study, we sought to answer several questions about children who were referred to a specialized child sexual abuse evaluation clinic without a disclosure or witness to abuse. First, what factors ini-

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METHODS

The sexual abuse evaluation clinic staffed by pediatricians from the University of Arizona, Tucson, serves as the only specialty clinic in the region of about 780 000 population, providing nonemergency medical evaluations for suspected child victims of sexual abuse. The clinic's social worker obtains psychosocial information from the parent (if accompanying) and prepares the child for the physical examination. Historical information, whenever possible, is obtained from the referring agency or individual to avoid repeated interviews of the child about the same information. If no interview has been conducted previously or if more information is needed to clarify the extent of laboratory or other evaluation, the physician does a limited interview with the child. If the child spontaneously reports information regarding the allegations, this information is recorded in the medical record.

The physician then performs a complete physical examination including genital and rectal areas. He or she may use magnification (otoscope or culposcope) or take photographs at his or her discretion. Photographs are not used routinely in our community for either diagnostic or forensic purposes, and so pictures are taken on the basis of the clinician's judgment or if consultation with colleagues is needed. Measurements such as vaginal opening or hymenal width are made with a handheld millimeter ruler. Laboratory studies are obtained if needed in the examiner's judgment as informed by the American Academy of Pediatrics statement on the evaluation of sexually abused children.² Typically, genital, rectal, and/or throat cultures are obtained if there are symptoms or signs of infection, or there is history of genital-genital contact, and/or the alleged perpetrator has a substantial likelihood of being infected or is a stranger.

From May 12, 1992, to April 9, 1998, a computerized database (Paradox; Borland International, Scotts Valley, Calif) was kept prospectively on every patient seen in the clinic. The database was confidential, separate from the medical record, and reviewed and approved by the Human Subjects Committee of the University of Arizona College of Medicine. For most elements of the database, data were entered as yes, no, or missing (accounting for the varying number of responses for each question). Data consisted of historical, psychosocial, and medical information and included age, sex, referring agency, and report-initiating factors. Factors leading to reports were selected from the following: verbal report by the child, a related child's report of having been abused, custody issues within the family, behavior changes (eg, increased aggressiveness, school problems, withdrawal, sleep disturbance), sexualized play, physical

finding (by physician or guardian), or parental anxiety (ie, the parent suspected abuse but could not cite a specific event or observation that caused that concern). Whenever possible, the single most important report-initiating factor was the only one noted. However, if multiple factors appeared to have equal weight, they were all cited.

In October 1995, two summary questions were added to the database regarding the likelihood of abuse based on the history and physical examination, and these questions were completed by the examining physician for each child seen in the final 2½ years of the project (the "prospective group"). The charts of 100 additional sequential patients seen in the first 3 years of the study were reviewed and coded by 1 of us (K.B.) for history and physical categories as well (the "retrospective group"). The physician who completed these 2 questions categorized his or her responses as described below. This classification system was unique to our clinic and did not categorize overall risk of sexual abuse, as did a previously described classification system.^{12,13}

Question 1: Likelihood of abuse by history

- *Definite*: perpetrator confessed or eyewitness to abuse
- *Probable*: child gave a detailed history, consistent over time; multiple victims report similar history
- *Suspicious*: some but sketchy history; another child's report of abuse of this child without confirmation by the child; pronounced behavior changes, usually sexual
- *No history*: no verbal report by this child or a witness; mild nonspecific behavior changes; preverbal child without specific concerns of abuse by parent

Question 2: Likelihood of abuse by physical examination

- *Definite*: no explanation except sexual activity, eg, semen present, sexually transmitted disease without possibility of perinatal transmission
- *Suggestive*: findings often associated with sexual activity, such as acute trauma without known accident, narrowing (≤ 1 mm) or sharp angular deformities of the posterior hymen
- *Nonspecific*: findings that could result from either abuse or other events, eg, erythema, bumps, septal remnants, labial adhesions
- *Normal*: no unusual physical findings
- *Other significant findings*: findings most often not from abuse, eg, perianal streptococcal cellulitis, lichen sclerosis et atrophicus, perineal trauma with history of straddle injury, congenital anomalies of genitourinary tract

The *suggestive* category for physical examination was characterized as *specific findings* on the data collection form. However, to more accurately describe the nature of these findings as less than *definite*, we relabeled the category as *suggestive* for the purposes of this article.

tiated concern about sexual abuse? Second, do these report-initiating factors vary by referral source, suggesting different needs and expectations from these various sources? Third, how often do the children in this "no-history" group have abnormal physical findings, and what is the nature of these findings?

RESULTS

During the 2 study periods, 411 children were examined for possible sexual abuse. Of these, 11 were excluded be-

cause the medical record was unavailable (retrospective group) or the categorization of the likelihood of abuse by history was missing. In addition, 2 cases were excluded because the examination was refused or deemed inadequate because of poor cooperation, and 4 were excluded because the "perpetrators" and "victims" were prepubertal children less than 3 years apart in age. Finally, 1 case was excluded because most of the database was missing, including the details of the physical examination; in this child, the likelihood of abuse by history was rated "suspicious" and the examination was rated "normal."

Table 1. Factors Leading to Sexual Abuse Evaluation According to Level of Suspicion by History

Initiating Factor	Classification of Abuse History, No./Total (%)*			P†
	No History	Suspicious	Definite or Probable	
Physical finding	40/70 (57.1)	30/123 (24.5)	14/177 (7.9)	<.001
Parental anxiety	18/70 (25.7)	12/123 (9.8)	6/177 (3.4)	<.001
Behavior change	17/69 (24.6)	35/124 (28.2)	24/178 (13.5)	<.01
Custody issue	14/69 (20.3)	15/125 (12.0)	1/177 (0.6)	<.001
Other child's report	15/68 (22.1)	24/124 (19.4)	40/177 (22.6)	.79
Sexualized behavior	12/69 (17.4)	26/124 (21.0)	20/178 (11.2)	.07
Verbal report	3/69 (4.3)	66/125 (52.8)	137/179 (76.5)	<.001

*More than 1 initiating factor is possible in each case; therefore, column totals exceed 100%. Total indicates total number with nonmissing data.
†By χ^2 heterogeneity test with 2 df.

Thus, the study sample included 393 children (95.6% of the original group), 96 in the retrospective group and 297 in the prospective group. Of the 393 children studied, 82.7% were girls; 46.6% were white non-Hispanic, 35.1% white Hispanic, 9.9% American Indian, 4.1% African American, 0.5% Asian, and 3.8% of mixed or unknown racial or ethnic group.

The probability of sexual abuse as judged from the history was characterized by the examiner as definite in 31 children (7.9%), probable in 159 (40.5%), suspicious in 130 (33.1%), and no history in 73 (18.6%). The definite and probable history groups were combined for this analysis, because we and the examiners believed that the great majority of children in both groups had indeed experienced sexual abuse.

Compared with those in the prospective group, the 96 children in the retrospective group were referred more often by Child Protective Services and less often by physicians. The histories in the retrospective group were more likely to be definite or probable (54.2% [52/96] vs 46.5% [138/297]) or no history (25.0% [24/96] vs 16.5% [49/297]). However, the categorization of physical examination findings was similar between the 2 groups, and the relationship between history classification and physical examination findings was the same in each group. Therefore, the results of the 2 groups are presented together.

The mean age of 392 patients (age missing for 1 child) was 7.1 years, with a range of 7 months to 18.7 years. Children with a definite or probable history of sexual abuse were significantly older (mean \pm SD, 8.8 \pm 3.5 years) than children with a suspicious history (5.9 \pm 3.6 years) or no history (4.9 \pm 2.9 years) (Scheffé multiple range test, α = .05).

The most frequently cited factor initiating a report for the no-history group (N = 73) was physical findings (40 [57.1%] of 70 patients), followed by parental anxiety (18 [25.7%] of 70), behavior changes (17 [24.6%] of 69), another child's report (15 [22.1%] of 68), custody issues (14 [20.3%] of 69), and sexualized behavior (12 [17.4%] of 69) (Table 1). A verbal report was by far the most common report-initiating factor in the children with definite or probable histories of sexual abuse.

Table 2. Factors Leading to Sexual Abuse Evaluation According to Referral Source

Initiating Factor	Referral Source, No./Total (%)*			P†
	Child Protective Services	Law Enforcement	Physician	
Physical finding	41/206 (19.9)	11/87 (12.6)	30/71 (42.3)	<.001
Parental anxiety	17/207 (8.2)	4/86 (4.7)	12/71 (16.9)	.02
Behavior change	38/207 (18.4)	12/87 (13.8)	21/71 (29.6)	.04
Custody issue	16/207 (7.7)	3/87 (3.4)	7/71 (9.9)	.26
Other child's report	53/206 (25.7)	24/87 (27.6)	2/70 (2.9)	<.001
Sexualized behavior	38/207 (18.4)	8/87 (9.2)	8/71 (11.3)	.08
Verbal report	114/208 (54.8)	58/88 (65.9)	32/71 (45.1)	.03

*More than 1 initiating factor is possible in each case; therefore, column totals may exceed 100%. Total indicates total number with nonmissing data.
†By χ^2 heterogeneity test with 2 df.

Table 3. History Classification According to Referral Source*

History Classification	Referral Source, No. (%)		
	CPS	Law Enforcement	Physician
Definite or probable	117 (52.5)	54 (59.3)	18 (24.7)
Suspicious	68 (30.5)	32 (35.2)	29 (39.7)
No history	38 (17.0)	5 (5.5)	26 (35.6)
Total No.	223	91	73

*Child Protective Services (CPS) vs law enforcement: $\chi^2_2 = 7.3$; P = .03. Law enforcement vs physician: $\chi^2_2 = 30.8$; P < .001. CPS vs physician: $\chi^2_2 = 19.5$; P < .001. Overall $\chi^2_4 = 33.7$; P < .001.

Physical examination findings, parental anxiety, behavior changes, and custody issues were all significantly more likely to be initiating factors for evaluation in cases with no history suggesting abuse than in cases with more substantial histories.

Report-initiating factors also differed among referral sources. Physical findings, parental anxiety, and behavior change were significantly more likely to be initiating factors in cases referred by physicians than in those referred by Child Protective Services or law enforcement (Table 2). In contrast, disclosure by the victim or another child was significantly less likely to be the initiating factor among children referred by physicians compared with other sources. Nevertheless, the most common factor initiating referrals from all 3 sources was a verbal report of sexual abuse.

Patients referred by Child Protective Services and law enforcement had similar types of histories: 54.5% of patients had definite or probable histories, 31.8% had suspicious histories, and 13.7% had no allegations of abuse (Table 3). In contrast, patients referred by physicians had significantly less suggestive histories; only 18 (25%) of 73 had definite or probable allegations and 26 (36%) of 73 had none.

In all 3 history groups, the large majority of children (83.54% to 94.4%) had normal or nonspecific examination findings (Table 4). (Numerical differences

Table 4. Specificity of Genital Examination Findings by History Group*

History Classification	Physical Finding Category, No. (%)					Total
	Normal	Nonspecific	Specific	Definite	Other Significant Finding	
Definite or probable	93 (49.5)	64 (34.0)	24 (12.8)	3 (1.6)	4 (2.1)	188
Suspicious	50 (39.7)	69 (54.8)	3 (2.4)	0	4 (3.2)	126
No history	38 (53.5)	25 (35.2)	2 (2.8)	0	6 (8.5)	71

*Overall $\chi^2_8 = 33.2, P < .001$.

between the text and the table are due to rounding error in the combined groups.) Nevertheless, the categorization of physical findings varied significantly among the 3 history groups ($\chi^2_8 = 33.2, P < .001$). Children with no history of alleged abuse were more likely to have genital findings not caused by sexual abuse (6 [8.5%] of 71 patients) than were children with more suggestive histories (4/188 [2.1%] to 4/126 [3.2%]). Children with definite or probable abuse histories more often had definite or suggestive findings on genital examination (14.4% [27/188] vs 2.5% [5/197] in the less suggestive history groups). All 3 children with definite genital findings of sexual abuse were in the definite or probable history group, and in each case the definite physical finding was a sexually transmitted disease. These included a 9-year-old girl with genital erythema and *Chlamydia trachomatis* cultured from the rectum and vagina, and 2 girls, aged 3 and 5 years, with vaginal gonorrhea and moderate hymenal narrowing (1-2 mm at the posterior rim). The referring physician obtained the latter 2 cultures.

Physical findings suggestive of abuse were noted in 2 children without a disclosed history of sexual abuse. One child had erythema and a narrow posterior hymen, and the other had an irregular hymen edge and a laceration on the perineal body.

Notable findings not related to abuse were seen in the probable, suspicious, and no-history groups and were mostly skin changes or anatomic variants. Skin changes included various types of dermatitis and postinflammatory changes. Anatomic variants included bilateral masses in the labia majora, imperforate hymen, atretic vaginal canal, and absent urethral orifice with possible urethral-vaginal fistula. One child with an abnormality caused by trauma was placed in this category because a known non-abusive straddle injury accounted for the described finding (a tiny adhesion between vestibule and labia minora). Only one third of children with significant findings unrelated to abuse were referred because of a physical finding.

Of 28 physician-referred children with physical findings as report-initiating factors, 22 (78.6%) had normal or nonspecific results of examinations, 2 (7.1%) had other, non-abuse-related diagnoses, and only 4 (14.3%) had findings suggestive of sexual abuse.

COMMENT

In the absence of a direct verbal report from the child victim, the recognition and diagnosis of child sexual abuse

is difficult. Many other symptoms and signs raised concerns among families, physicians, child protection services, and law enforcement in our study. Among our patients without a verbal disclosure, we found that the indirect factors that most often initiated a concern were physical findings, parental anxiety, and behavior changes. Behavior changes and sexualized play have been described as early warnings of child sexual abuse,² and physicians and others have been urged to consider the possibility of sexual abuse as a cause.⁹ Our data indicate that these factors are being recognized and raise concern in our community.

Perhaps our most interesting result was the high prevalence of physical findings as report-initiating factors. Reinhart¹¹ stated that the purpose of the physical examination in child sexual abuse is to detect adverse health consequences, reassure the child and family of normality and health, and identify and collect forensic evidence. For our patients, we can add another purpose: to provide consultation for physicians confronted with puzzling physical findings. Just as primary care physicians refer children with congenital heart disease to cardiologists and children with leukemia to oncologists, they are using specialists in the field of child sexual abuse. Many authors have encouraged the use of this model,^{14,15} and specialized centers for the diagnosis of sexual abuse have appeared in part to provide this specialty service.^{5,8}

Kellogg et al¹⁶ reported that 4% of children seen in their sexual abuse evaluation clinic were referred for anogenital symptoms or signs with no disclosure of abuse and no behavioral concern suggesting abuse. In our clinic, 7.6% (30/393) of children met similar criteria. In that study, 15% of such children had examination findings suggestive of, probable for, or definitive for sexual abuse, while in our clinic, only 2 (7%) of 30 of similarly selected children had findings suggestive of abuse. The difference in these proportions is likely caused by the fact that we do not usually see acute cases, so children with transient lesions or acute bleeding are underrepresented in our study. Despite this difference, both studies show that only a small minority of physical examinations in the absence of allegations of abuse provide evidence suggestive of abuse. We agree with these authors that many children referred to specialists for abnormal findings have, in fact, normal anatomy, and that there is a need for better education on normal genital anatomy in pediatric and family practice residencies.

While children were referred for a variety of reasons, the majority of children referred by Child Protective Services and law enforcement made a verbal disclosure of abuse, and they were rated as having a definite or probable history by the examiner. This may mean that these agencies were not notified until later in the disclosure process after other warning signs were evident. Alternatively, it may mean that they limited medical evaluations to children with an already large body of evidence of victimization. Because the result of the physical examination is likely to be normal or nonspecific regardless of history and the cost is substantial for each examination, this is understandable. However, our data indicate that younger children in particular are less likely to provide a clear history, and caution must be used in investigating reports involving these children. Cases with a lesser amount of evidence may at times warrant multidisciplinary evaluation, although the emphasis might best be placed on counseling and family support services.

Our study once again confirms that the most likely physical finding in nonemergency medical examinations for sexual abuse is normality, followed by nonspecific abnormalities. Among our patients, this held true regardless of whether the patient had a definite or probable history or had no history, and physical examination rarely (3%) supported concerns about victimization when there was no specific history. Physical examination was helpful in diagnosing conditions probably not related to abuse, but this also represented a small proportion of patients.

Longitudinal follow-up of these children in the no-history group to determine the outcome of the current investigation and future reports of victimization would be interesting. In addition, surveys of parents and referring agencies to discover how they used the information obtained from the physical examination could be helpful. Although these families were told that a normal examination finding by itself could neither confirm nor refute the possibility of sexual abuse, it would be interesting to determine how they subsequently interpreted the results of their clinic visit.

What then is the role of expert medical evaluation for children without a verbal disclosure of sexual abuse? Children with worrisome or uncertain physical findings will continue to need expert examination to clarify the importance of such findings. Obtaining such consultations before notification of Child Protective Services will frequently alleviate concerns about child sexual abuse and obviate the need for reporting. However, it is clear that the great majority of these expensive and stressful evaluations provide neither evidence of sexual abuse nor any tangible health benefit to the child. The only way to de-

crease the number of such unnecessary examinations is to decrease the prevalence of uncertainty regarding genital findings through greater education about normal childhood genital anatomy in clinical training. Examination of children with somatic complaints or behavior changes in the absence of disclosed sexual abuse continues to challenge clinicians. Better understanding of the likelihood of useful information from expert medical evaluations should allow better-informed decisions as to when such examinations are necessary.

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REFERENCES

1. Sedlak AJ, Broadhurst DD. *Executive Summary of the Third National Incidence Study of Child Abuse and Neglect*. Washington, DC: Administration for Children and Families, US Dept of Health and Human Services; 1996.
2. Committee on Child Abuse and Neglect. Guidelines for the evaluation of sexual abuse of children. *Pediatrics*. 1991;87:254-260.
3. Coulborn-Faller K, Corwin DL. Children's interview statements and behaviors: role in identifying sexually abused children. *Child Abuse Negl*. 1995;19:71-82.
4. Heger AH. Twenty years in the evaluation of the sexually abused child: has medicine helped or hurt the child and the family? *Child Abuse Negl*. 1996;20:893-897.
5. Lamb ME. The investigation of child sexual abuse: an interdisciplinary consensus statement. *Child Abuse Negl*. 1994;18:1021-1028.
6. Paradise JE. The medical evaluation of the sexually abused child. *Pediatr Clin North Am*. 1990;37:839-862.
7. Hewitt SK. Preverbal sexual abuse: what two children report in later years. *Child Abuse Negl*. 1994;18:821-826.
8. Jaudes PK, Martone M. Interdisciplinary evaluations of alleged sexual abuse cases. *Pediatrics*. 1992;89:1164-1168.
9. Wells RD, McCann J, Adams J, Voris J, Ensign J. Emotional, behavioral, and physical symptoms reported by parents of sexually abused, nonabused, and allegedly abused prepubescent females. *Child Abuse Negl*. 1995;19:155-163.
10. Keary K, Fitzpatrick C. Children's disclosure of sexual abuse during formal investigation. *Child Abuse Negl*. 1994;18:543-548.
11. Reinhart MA. Medical evaluation of young sexual abuse victims: a view entering the 1990s. *Med Sci Law*. 1991;31:81-86.
12. Adams JA, Harper K, Knudson S, Revilla J. Examination findings in legally confirmed child sexual abuse: it's normal to be normal. *Pediatrics*. 1994;94:310-317.
13. Adams JA, Harper K, Knudson S. A proposed system for the classification of anogenital findings in children with suspected sexual abuse. *Adolesc Pediatr Gynecol*. 1992;5:73-75.
14. Ashworth CS, Fargason CA, Fountain K, Cutter G, Centor R. Impact of patient history on residents' evaluation of child sexual abuse. *Child Abuse Negl*. 1995;19:943-951.
15. Wissow LS. Child abuse and neglect. *N Engl J Med*. 1995;332:1425-1431.
16. Kellogg ND, Parra JM, Menard S. Children with anogenital symptoms and signs referred for sexual abuse evaluations. *Arch Pediatr Adolesc Med*. 1998;152:634-641.