Original Study

Anogenital Findings in 3569 Pediatric Examinations for Sexual Abuse/Assault

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A B S T R A C T

Study Objective: Accurate interpretation of anogenital examination findings in the context of suspected child and adolescent sexual abuse/assault is essential, because misinterpretation has significant child protection and criminal justice implications. A consensus approach to the interpretation of anogenital examination findings is widely used to support accurate diagnosis; however, a large-scale study using this standardized approach is lacking. The objectives of this study were to: (1) determine the proportion of anogenital examinations for sexual abuse concerns with findings diagnostic of trauma and/or sexual contact; (2) determine whether frequency of diagnostic findings varies according to age, gender, and timing of examination; and (3) characterize diagnostic findings.

Design, Setting, Participants, Interventions, and Main Outcome Measures: Retrospective records of children aged 0-18 years evaluated for sexual abuse/assault were reviewed. Case details of 3569 patients were extracted and anogenital examination findings were reinterpreted using a published consensus approach.

Results: Anogenital examination findings diagnostic of trauma and/or sexual contact were present in 173 of 3569 patients (4.8%). The prevalence of diagnostic findings was significantly higher in adolescents than in children younger than 12 years of age (13.9%, 114/823 vs 2.2%, 59/2657), in female vs male patients (5.7%, 164/2866 vs 1.5%, 9/614), and in examinations within 72 hours for children younger than 12 years (14.2%, 91/643 vs 4.5%, 45/997). Acute injuries were the most common type of diagnostic finding.

Conclusion: Diagnostic findings are present in a small proportion of children and adolescents examined for suspected sexual abuse/assault. It is essential that practitioners who interpret examination findings be adequately trained and familiar with the current consensus approach and are aware of case characteristics associated with higher likelihood of findings.

Key Words: Child sexual abuse, Examination findings, Sexual abuse diagnostic findings

Introduction

The medical assessment of children and adolescents who might have been sexually abused/assaulted has important clinical and legal implications. Accurate interpretation of anogenital examination findings in this context is essential, because misinterpretation might directly contribute to child protection and criminal justice outcomes. Therefore, a standardized, accurate, and evidence-based approach to diagnostic evaluation is essential.

Adams et al[1] examined the available literature and applied a process of expert consensus review to formulate a standardized approach to the interpretation of anogenital examination findings in the context of pediatric sexual abuse/assault. This rigorous approach has since been regularly updated to facilitate consistent, evidence-based practice for clinicians.[1–5] Although this consensus approach was developed by experts and is recommended to guide the practitioner on the interpretation of findings,[6] a comprehensive empirical documentation of the proportion of examinations that result in diagnostic findings using this consensus approach has not been published.

This study capitalizes on a large sample size (N = 3569) and a wide age range (0-18 years) to achieve the following objectives: (1) to determine the proportion of diagnostic findings of trauma and/or sexual contact resulting from anogenital examinations for sexual abuse/assault concerns; (2) to determine whether frequency of diagnostic findings varies according to child age, gender, and time of examination; and (3) to characterize the diagnostic findings.

Materials and Methods

A retrospective chart review was conducted of medical records of children and adolescents evaluated in the Suspected Child Abuse and Neglect Program Outpatient Clinic and Emergency Department for suspected sexual abuse/assault between 1995 and 2008. The Research Ethics Board at the Hospital for Sick Children approved this study.

The Suspected Child Abuse and Neglect Program at the Hospital for Sick Children provides medical assessments for approximately 300 child and adolescent victims of suspected acute or historical sexual abuse/assault annually.

The authors indicate no conflicts of interest.

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1083-3188/$ - see front matter
https://doi.org/10.1016/j.jpag.2017.10.006

Standard medical examinations, conducted by nurse practitioners, pediatric sexual assault nurse examiners, or pediatricians, include a medical history, physical examination including anogenital examination with colposcope, documentation of findings in writing, and by photographs and/or video recording. Patients were routinely examined in the supine position on the examining table. If younger children could not be examined on the examining table, they were examined in a semiseated, frog-legged position on the parent's lap. Throughout this time period, there was a standard approach to documentation of anogenital examination findings. Photo documentation was routinely completed and cases were peer-reviewed. All providers received training in pediatric sexual assault examinations, regularly participated in continuing education, and regularly reviewed the literature to maintain expertise.

The study group included all patients younger than the age of 18 years assessed for suspected sexual abuse/assault who had documented anogenital examinations. Initial examinations only were included (ie. no follow-up or secondary exams were included). Exclusion criteria included children/adolescents who did not have a genital examination and/or whose records were not found.

Child age and gender were extracted from each record. Examination findings, as documented in the medical health record, were extracted and then classified according to the "Approach to Interpreting Physical and Laboratory Findings in Suspected Child Sexual Abuse: December 2007"[1] into 3 major categories (normal, indeterminate, or diagnostic). According to this approach, normal findings include normal anatomic variants and findings commonly caused by medical conditions. The indeterminate category includes findings with insufficient or conflicting data from research studies to be clearly categorized as normal or diagnostic. Diagnostic findings include injuries, infection, pregnancy, and presence of sperm. When examinations included findings in more than 1 category, the most diagnostic category was applied. For example, examinations with findings diagnostic of trauma and/or sexual contact, as well as indeterminate or normal findings, were categorized as diagnostic findings. Medical records with ambiguous or unclear documentation, and all cases in which findings diagnostic for trauma and/or sexual contact were documented, were reviewed independently by 2 research team clinicians (M.S., T.D.S.) for accuracy, including review of the written documentation and photo documentation.

Statistical Analyses

Data analysis was performed using SPSS (version 21.0; IBM Corp). Sample characteristics were described using frequencies and proportions for categorical variables. Anogenital examination diagnostic findings that were deemed to be not due to accidental or consensual cause were collated overall and according to subtype of diagnostic finding. To examine any differences in the proportion of diagnostic findings according to age and gender, children (0-11.99 years of age) were compared with adolescents (12-18 years of age), and male were compared with female patients using unadjusted odds ratios (ORs) and 95% confidence intervals (CIs).

Results

Study Population

A total of 4987 patient encounters were reviewed, 1418 were excluded, yielding a study sample of 3569 patients. Primary reasons for exclusion were that an examination was not completed (due to patient distress, parental distress, or exam not warranted/necessary), or the medical record could not be found.

Of the study population of 3569, 2948 (82.6%) were female and 2749 (76.9%) were younger than 12 years old at the time of the examination. Reasons for referral for clinical assessment (more than 1 possible per patient) included: (1) concerns of sexual abuse (n = 2758); (2) medical concerns (such as vaginal bleeding; n = 815); and (3) sexualized behaviors (n = 190).

Anogenital Examination Findings

Anogenital examination findings diagnostic of trauma/sexual contact were documented in 173 of 3569 patients (4.8%; Table 1). In addition, 0.9% (n = 33) of examinations included findings diagnostic of trauma that were due to accidental causes, such as household or playground falls (Table 1). Indeterminate findings were present in 6.9% (247/3569) of examinations (Table 2). In total, 87.3% (3118/3569) of examination results were normal, including normal variants and findings commonly caused by other medical conditions (erythema, increased vascularity, labial adhesion, etc).

Association Between Diagnostic Anogenital Exam Findings and Child Characteristics

Adolescents 12-18 years of age had a higher proportion of examination findings diagnostic of trauma and/or sexual contact (13.9%, 114/823) compared with children younger than 12 years of age (2.2%, 59/2657; OR, 7.1; 95% CI, 5.1-9.8; Table 3). Diagnostic findings were also significantly more common in female (5.7%, 164/2866) compared with male (1.5%, 9/614) patients (OR, 4.1; 95% CI, 2.1-8.0).

Association Between Diagnostic Anogenital Exam Findings and Timing of Examination

Diagnostic findings occurred significantly more often when children or adolescents were seen within 72 hours of the

Table 1
Anogenital Exam Findings Among 3569 Examinations

Category*	Exam Findings, n (%)
Normal/findings documented in newborns/nonabused children	3118 (87.4)
Indeterminate findings	247 (6.9)
Findings diagnostic of trauma due to accidental causes	33 (0.9)
Findings diagnostic of trauma and/or sexual contact	173 (4.8)

* Categories are mutually exclusive.