

Genital Anatomy in Pregnant Adolescents: "Normal" Does Not Mean "Nothing Happened"

Nancy D. Kellogg, MD*; Shirley W. Menard, RN, PhD, CPNP, FAAN‡; and Annette Santos, RN, SANES§

ABSTRACT. Many clinicians expect that a history of penile-vaginal penetration will be associated with examination findings of penetrating trauma. A retrospective case review of 36 pregnant adolescent girls who presented for sexual abuse evaluations was performed to determine the presence or absence of genital findings that indicate penetrating trauma. Historical information and photograph documentation were reviewed. Only 2 of the 36 subjects had definitive findings of penetration. This study may be helpful in assisting clinicians and judges to understand that vaginal penetration generally does not result in observable evidence of healed injury to perihymenal tissues. *Pediatrics* 2004;113:e67–e69. URL: <http://www.pediatrics.org/cgi/content/full/113/1/e67>; *child sexual abuse, genital anatomy, pregnancy, adolescent.*

A review of the medical literature over the past 15 years regarding genital findings in female children and adolescents evaluated for sexual abuse reveals a number of trends: identification and recognition of congenital anatomic variants has increased^{1–3}; identification and recognition of acute and healed findings of penetrating trauma to the hymen and vagina has decreased⁴; and the emphasis on recoverable evidence in cases of child sexual abuse has waned.^{5,6} For example, in an earlier study of sexually active adolescents, 74% had complete clefts in the posterior half of the hymen, a finding attributed to penile-vaginal penetration.⁷ However, a more recent study of 2384 children and adolescents receiving medical examinations for sexual abuse indicated that 96% of the subjects had normal or nonspecific examination findings.⁴ Similarly, findings that formerly were attributed to penetrating trauma (eg, partial clefts in the posterior half of the hymen) have now been documented in girls selected and screened for nonabuse.⁸ These recent research findings have created questions and controversies not only concerning the interpretation of medical findings but also the potential for misperceptions to occur when presenting a case of child sexual abuse in court. Individuals without medical knowledge and physicians without expertise expect physical evi-

dence to support a history of penile-vaginal penetration and believe that a doctor can determine from a vaginal examination whether a woman—or a child—is a virgin.⁹ Although some researchers have suggested that "It's normal to be normal,"¹⁰ normal or nonspecific findings on examination can be misinterpreted as meaning "nothing happened."

METHODS

The purpose of this study was to summarize the medical history and genital examination findings in 36 adolescents who were pregnant at the time of, or shortly before, their sexual abuse examination. The medical history and photocolposcopic slides were reviewed; patient age, history of consensual sexual contact, gestational age of the fetus, and written documentation of the examination findings were analyzed. All the authors reviewed all the images jointly and were blinded to medical history other than pregnancy status; reviewers indicated their interpretation as "nonspecific," "suggestive evidence of penetrative genital trauma," or "definitive evidence of penetrative genital trauma." Nonspecific examination findings included variations of normal anatomy and hymenal configurations, notches or irregularities in the hymenal rim that extended to less than half of the width of the hymenal rim, and apparently enlarged hymenal openings surrounded by normal hymenal rims. Suggestive evidence of penetrative genital trauma included deep notches in the posterior half of the hymen that extended almost to the base of the hymen and clearly visible scars. Definitive evidence of penetrative genital trauma included clefts in the posterior half of the hymen that extended through to the base of the hymen. These interpretations were based on an evidence-based classification system.¹¹ If the written documentation of the findings was not discernable in the photographs or there was a lack of consensus among reviewers, those cases were interpreted as "inconclusive."

RESULTS

The average age of the subjects was 15.1 years (range: 12.3–17.8 years). Pregnancy was confirmed during the clinic visit, before the visit by another clinician, or subsequent to the visit by a qualitative β human chorionic gonadotropin urine or serum sample or pelvic ultrasound. One adolescent was pregnant with her second infant (the first was also the product of a rape and was delivered by caesarian section), 1 had a miscarriage and dilatation and curettage procedure 2 weeks before her examination, and 1 had an abortion 2 months before her examination. All 3 of these adolescents had normal examinations. One 13-year-old adolescent, ~6 months pregnant, received the first confirmation that she was pregnant during the sexual assault examination. Fig 1 shows a normal examination in the 13.8-year-old adolescent who is 8 weeks pregnant with her second child. Overall, 22 (64%) had normal or nonspecific examination findings, 8 (22%) had inconclusive findings, 4 (8%) had suggestive findings, and 2 (6%) had

From the Departments of *Pediatrics and †Family Nursing Care, University of Texas Health Science Center, San Antonio, Texas; and §Alamo Children's Advocacy Center, San Antonio, Texas.

Received for publication Apr 28, 2003; accepted Sep 17, 2003.

Address correspondence to Nancy D. Kellogg, MD, Department of Pediatrics, University of Texas Health Science Center, 7703 Floyd Curl Dr, San Antonio, TX 78229. E-mail kelloagn@uthscsa.dcci.com

PEDIATRICS (ISSN 0031 4005). Copyright © 2004 by the American Academy of Pediatrics.



Fig 1. Normal examination in a 13-year-old adolescent pregnant with her second child.

definite evidence of penetrating trauma. All but 1 of the inconclusive cases were patients examined >4 years ago. The photographs for these patients either failed to demonstrate a documented cleft with a second examination technique such as balloon-covered swab or with the prone knee-chest position, or the documented cleft appeared to be a shallow notch in the photograph. When the inconclusive category was eliminated, 82% of the examinations were normal, 11% were suggestive, and 7% were definitive for penetrating trauma. Fifty-six percent ($N = 20$) of pregnancies were a result of sexual abuse, 41% ($N = 15$) were a result of consensual sexual contact, and in 1 patient (3%) it was unknown whether the pregnancy was a result of abuse or consensual sexual contact. By date of the last menstrual period or by pelvic ultrasound, 39% were ≤ 8 weeks pregnant, 28% were 9 to 18 weeks pregnant, and 19% were >18 weeks pregnant. The duration of pregnancy was undetermined in 5 subjects (14%). Six (17%) presented for examinations within 4 weeks of their last sexual contact; only 1 subject was examined within 2 weeks of her most recent sexual contact. Overall, the average time between the most recent sexual contact and the examination was 3.1 month for the normal group, 2.9 months for the inconclusive group, 1.75 months for the suggestive group, and 1 month for the definitive group.

DISCUSSION

Despite definitive evidence of sexual contact (pregnancy), only 2 of 36 adolescents had genital changes that were diagnostic of penetrating trauma. Possible explanations for the lack of genital findings include: penetration does not result in visible tissue damage, or acute injuries occur but heal completely.^{12,13}

A significant portion of the adolescents in this

study was pregnant as a result of their sexual assault. Although this study population is not random, pregnancy is one possible consequence of abuse that should be assessed carefully when an adolescent presents for a sexual abuse evaluation. Conversely, a pregnant adolescent should also be questioned carefully regarding the possibility of sexual abuse.

The limitation of this study is that the authors were not blinded to the pregnancy status of the patients, such that the assessment of the photographs may have been biased by this knowledge. Authors were blinded to all other information including age of subject, parity, whether abortion or miscarriage occurred, and whether pregnancy was a result of abuse.

When a child or adolescent presents with a history of sexual abuse, there are limited ways, apart from the child's history, to prove that sexual contact occurred: examination findings of penetrating genital trauma; recovery of assailant's semen or sperm from the victim's body; confirmation of a sexually transmitted disease in the victim; videotape of the sexual act in progress; and perpetrator confession. Examination findings of penetrating genital trauma can also be attributed to rare accidental trauma or surgery. Pregnancy, however, confirms sexual contact, and blood or tissue from the fetus or infant can determine the father, who may also be the sexual offender. Examination findings in children and adolescents presenting with sexual abuse histories are normal up to 96% of the time.⁴ In 1 study, the assailant's semen or sperm was recovered in 13% of the cases.⁶ In a study of children and adolescents presenting for sexual abuse evaluations, 3.2% of the prepubertal girls and 14.6% of the adolescent girls had at least 1 sexually transmitted disease;¹⁴ what is not clear in this study is the proportion of adolescents evaluated for sexual abuse that were also sexually active. For this latter group, the identification of a sexually transmitted disease cannot be considered specific to the sexually abusive contact. Recovery of videotaped or photographic evidence of sexual contact is rare. Finally, perpetrator confession is also uncommon, evidenced by the large numbers of sexual abuse cases that are processed in the courts. Therefore, most investigations and prosecutions of child and adolescent sexual abuse depend primarily on the child victim's history.

At trial, the presentation and interpretation of medical findings can be problematic. When a child gives a history of vaginal penetration people generally expect physical evidence of penetration. More than half of adult women engaging in their first episode of consensual coitus expect bleeding, pain, or both, and bleeding is attributed to "tearing of the hymen."¹⁵ In this study, 56% of women did experience bleeding with their first coitus, but none were examined subsequent to the experience.¹⁵ In a study of abused adolescent females,¹⁰ bleeding was reported by 33% (43 of 130), but examination findings that confirmed penetration occurred in 46% (20 of 43) of this group. In this 1994 study, findings that were interpreted as clear evidence of penetrating injury included hymenal transections or lacerations, lacer-

ation of the posterior fourchette, scar of the posterior fourchette associated with loss of hymenal tissue between the 5 and 7 o'clock position, and areas with an absence of hymenal tissue in the posterior half of the rim.¹⁰ Notably, 2 of these findings, lacerations and scars of the posterior fourchette, were moved from the definitive to the concerning category in the 2001 version of this classification system. The changes made in 2001 could reduce the number of examinations that were thought to confirm penetration in the 1994 study. Similarly, in this study, a number of the inconclusive examinations were conducted at an earlier time when shallow notches may have been misinterpreted and documented as clefts. However, without further photodocumentation, it was difficult to further determine the reasons for discrepancy between written and photographic documentation.

Some professionals, investigators, and lay people may reason that a child who reports vaginal penetration and pain is more likely than a larger adult to have physical evidence of the reported event. A lack of physical findings or other evidence lead some to conclude that the child's history is not accurate. Medical, legal, and social professionals as well as lay jurors need to understand that, in most cases of child sexual abuse, there will be few if any clinical findings that are diagnostic of penetrating trauma. Once professionals understand that a lack of diagnostic clinical findings is expected, they can focus appropriate attention on the importance of the child's history. This study may assist clinicians in understanding clinical evidence of sexual abuse and clarify that, even in the face of clear genital contact, ie, pregnancy, the examination may be nonspecific or "normal."

REFERENCES

1. Berenson AB, Heger AH, Andrews SA. Appearance of the hymen in newborns. *Pediatrics*. 1991;87:458–465
2. Berenson AB. Appearance of the hymen at birth and one year of age: a longitudinal study. *Pediatrics*. 1993;91:820–825
3. Berenson AB. A longitudinal study of hymenal morphology in the first 3 years of life. *Pediatrics*. 1995;95:490–496
4. Heger A, Ticson L, Velasquez O, Bernier R. Children referred for possible sexual abuse: medical findings in 2384 children. *Child Abuse Negl*. 2002;26:645–659
5. Christian CW, Lavelle JM, De Jong AR, Loisele J, Brenner L, Joffe M. Forensic evidence findings in prepubertal victims of sexual assault. *Pediatrics*. 2000;106:100–104
6. McGregor M, Le G, Marion S, Wiebe E. Examination for sexual assault: is the documentation of physical injury associated with the laying of charges? A retrospective cohort study. *Can Med Assoc J*. 1999;160:1565–1569
7. Emans SJ, Woods ER, Allred EN, Grace E. Hymenal findings in adolescent women: impact of tampon use and consensual sexual activity. *J Pediatr*. 1994;125:153–160
8. Berenson AB, Chacko MR, Wiemann CM, Mishaw CO, Friedrich WN, Grady JJ. A case-control study of anatomic changes resulting from sexual abuse. *Am J Obstet Gynecol*. 2000;182:820–834
9. Underhill RA, Dewhurst J. The doctor cannot always tell. Medical examination of the "intact" hymen. *Lancet*. 1978;1:375–376
10. 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
11. Adams JA. Evolution of a classification scale: medical evaluation of suspected sexual abuse. *Child Maltreat*. 2001;6:31–36
12. Finkel MA. Anogenital trauma in sexually abused children. *Pediatrics*. 1989;84:317–322
13. McCann J, Voris J, Simon M. Genital injuries resulting from sexual abuse: a longitudinal study. *Pediatrics*. 1992;89:307–317
14. Siegel RM, Schubert CJ, Myers PA, Shapiro RA. The prevalence of sexually transmitted diseases in children and adolescents evaluated for sexual abuse in Cincinnati: rationale for limited STD testing in prepubertal girls. *Pediatrics*. 1995;96:1090–1094
15. Whitley N. The first coital experience of one hundred women. *JOGN Nurs*. 1978;7(4):41–44

Copyright of Pediatrics is the property of American Academy of Pediatrics and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.