

## Sexually Abused Children and Sexually Transmitted Diseases

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Sexual abuse of children is a complex problem that has had, until recently, only limited recognition and discussion in the pediatric literature. The reasons for this are twofold. First, the magnitude of the problem is unrecognized. Sexual child abuse is grossly underreported, with a true incidence perhaps 10-fold higher than the reported incidence [1, 2]. Second, sexual interference with a child is an emotionally loaded situation; thus, health professionals may intentionally or unintentionally overlook it or fail to consider it as a diagnosis. Since 1977, when the C. Anderson Aldrich lecture focused attention on sexual child abuse, health professionals have developed various protocols for comprehensive management of the sexually abused child. In this paper we focus on one potential sequela of sexual abuse that must be considered in overall management, i.e., sexually transmitted diseases (STDs). Using the literature available at this time, we will examine the epidemiology of acquired STDs in children, make recommendations for management, and suggest directions for future investigations.

### Definition

No uniform, adequate definition of sexual abuse of children exists in the literature. Most studies use the upper age limit of the pediatrics department of the particular institution at which the study is conducted or the legal age limit for reportable child abuse in the particular state. Few reports identify specific activities that constitute sexual child abuse. Child abuse studies use various age limits up to 18 years and include children and adolescents brought for examination by police because of undefined "alleged sexual assault." This umbrella term "alleged sexual assault" includes offenses against young children who often are not able to give a specific history and against

older children who may be too frightened or ashamed to give details of sexual activities. Some studies confuse the issue further by using a legal definition of rape or sexual assault that excludes nonviolent sexual behavior. Since children are subjected more often to genital viewing, manipulation, and fondling associated with perpetrator masturbation, and less often to penetration or attempted penetration than are adult rape victims [3], this use of a legal definition excludes most activities that comprise sexual child abuse.

For the purposes of this paper, we define sexual child abuse as the instigation, by coercion or force, of active or passive participation by a child or adolescent in any nonpeer sexual activity. This definition specifically includes viewing of genitalia, touching of breasts or buttocks, fondling of genitalia, and attempted or accomplished penetration of any bodily orifice by either the perpetrator or the victim.

We have not stipulated an upper age limit in the definition of sexual child abuse for two reasons: first, because it is not within our purview to take a stand on this controversial issue; and second, because it is not necessary for the discussion and recommendations that follow. However, we emphasize that voluntary, adolescent peer sexual activity does not preclude the possibility of sexual abuse; sexual child abuse may, therefore, appropriately be diagnosed in sexually active teenagers. On the other hand, as the age of the victim increases, the assault situation overlaps more and more with rape in adults. Thus, any operational definition for clinical or research purposes must allow for identification and management of teenage victims either as sexually abused children or as rape victims, depending on the emotional maturity of the victim, the relationship of the perpetrator to the victim, and the details of the individual case.

### Epidemiology

Data on the epidemiology of STDs in children are

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limited, and the incidence and rates of transmission of acquired STDs secondary to sexual child abuse remain uncertain. However, reports on gonococcal discharge in children have appeared increasingly in the recent pediatric literature [4-9], and these reports may encourage more and better data on all STDs in children to be sought. They may also reflect changes in the perception of, or the actual problem of, sexual child abuse, i.e., (1) an increased willingness of professionals to acknowledge STDs in children; (2) a heightened awareness of STDs in children; and (3) an increased incidence of STDs in children. If, in fact, the incidence of STDs in children is increasing, the change could be due to an increasing incidence of sexual child abuse or could reflect an increased prevalence of STDs among abusers. Unfortunately, although we do have data on incidence trends of STDs in the general population, we have no data on such trends in the abuser population, nor do we have data to explore the other possibilities mentioned.

In addition to case reports, two types of studies have been reported on the topic of STDs in children. The first type describes case studies of gonorrhea in children seen for vaginal or penile discharge [4-8]; these reports make some attempt to identify the sources of the infections. Unfortunately, the authors report no population data with which to compare the data from these series. Thus, the studies are difficult to interpret and give no information about what proportion of children with sexual contact or with sexual abuse develop disease.

The second type of study reported on this topic describes case studies of victims of alleged sexual assault. Only one study of 2,190 female victims of alleged sexual assault provides data on rate of acquisition of STDs from sexual assault [10]. Of the females in this study, 3.5% developed culture-positive cases of gonorrhea; 0.2% developed positive serologic tests for syphilis. Unfortunately, these data are of limited use in regard to sexual child abuse for two reasons. First, although >700 of the victims were girls 14 years old or younger, acquisition of STDs was not separately assessed for child victims. Second, no data on victims of ongoing incestuous relationships were included; thus, an unknown and perhaps large proportion

of sexual child abuse was excluded from consideration.

Two main difficulties arise in applying the results of studies of sexual assault (combined adult and pediatric age groups) to sexual child abuse. First, as already noted, sexual molestation of children comprises a spectrum of activities that differs in proportion, if not in content, from assaults on adults [11, 12]. Because the activities of child molesters are probably less likely to transmit STDs than are the activities of perpetrators of sexual assault in adults, overall statistics on transmission and incidence of STDs from sexual attack may not be applicable to the molested child. Second, bacteriologic, pH, and cellular changes that occur at puberty may influence the transmission of STDs in ways not yet elucidated [13, 14].

### Evaluation and Diagnosis

Sexual abuse of children may have three clinical presentations, all of which can be associated with acquired STDs. Children may come to medical attention with (1) a history of possible or confirmed assault; (2) genital, urethral, or anal symptoms or discharge; or (3) behavioral changes or problems [15, 16]. Decisions concerning medical treatment and epidemiologic investigation for STDs in children depend largely on the child's initial complaint.

Complaints that suggest STDs in children should always raise the suspicion of sexual abuse. In addition, when a child is found to have an STD of unknown origin, a working diagnosis of sexual abuse is indicated. This diagnosis can often be confirmed when interviewing is pursued aggressively [4, 8] by thorough, sensitive, and age-appropriate questioning of the child, as well as by questioning of the parent(s) [12, 15]. Recent studies [4, 8] suggest that an experienced team of social, psychiatric, pediatric, and protective services personnel is most effective in eliciting a history of sexual abuse, in pursuing an epidemiologic investigation for the source of infection, and in contact tracing.

*Reported or suspected assault.* Some children will need evaluation for STDs because of reported sexual molestation or rape. These children will

usually have a history of recent assault by a male whose STD status is unknown. Because the source of most STDs transmitted during sexual abuse is the male urethra or penis, STDs harbored by the male genitourinary tract must be sought from both the assailant (if he can be identified) and the victim. These STDs include gonorrhea, syphilis, herpes simplex, and venereal warts, all of which have been described in children, as well as infections with *Chlamydia trachomatis*, *Ureaplasma urealyticum*, cytomegalovirus, and *Trichomonas vaginalis*, which have not yet been described in children. Data on prevalence of most of these organisms are uncertain and somewhat confusing; data on transmission are nonexistent. Furthermore, treatment is not currently available for all STDs. Thus, our discussion centers primarily on prophylaxis for gonorrhea and syphilis, the diseases best characterized epidemiologically and most easily identified and treated.

Gonorrhea prophylaxis after reported sexual assault is controversial. However, we feel that such treatment is currently unwarranted for several reasons. (1) A large proportion of children would be treated unnecessarily. Assuming an overall acquisition rate of detected gonorrhea of 3.5% after sexual assault [10] and an 85% culture sensitivity rate [17], we would expect an infection rate of ~4% after sexual assault. Further assuming that all children would return for follow-up culture, <1% of children would be left infected and untreated because of the insensitivity of the culture technique. The number untreated would be further reduced by the fact that some children with acquired disease will become symptomatic and return for treatment. Thus, if all children were treated prior to cultural confirmation of disease, nearly 96% would be treated unnecessarily. (2) If adequate medical and social follow-up care is provided, reculture and therapy for culture-proved gonorrhea can be assured. (3) Transmission of incubating disease to others is of much less epidemiologic concern in a child than in an adult, since he/she usually is not sexually active. (The extent to which sexual exploration with peers contributes to the spread of STDs in children is unclear. One study of gonorrhea in children identified peer sexual activity as the source of the infection in 104 of 116 children aged 10–14 years; in

younger children this was not a source [4]. However, the study had no control group and thus gave no information as to the relative sexual activity of the uninfected 10–14-year-old population.) (4) Serious sequelae of gonococcal disease are no more frequent in children than in adults (S. T. Brown, unpublished data), and prophylaxis in adults is recommended only when the assailant is known to be infected. Syphilis prophylaxis is governed by considerations similar to those regarding gonorrhea prophylaxis; the syphilis acquisition rate for females after sexual assault is 0.2% [10].

Additional considerations arise when a culture specimen obtained just after the assault is positive for *Neisseria gonorrhoeae*. Although there are no data to confirm or refute either possibility, we suspect that a positive culture indicates either that an infected assailant's secretions contaminated the culture specimen or that the assaulted child had an infection originating before the reported assault. This situation thus demands further epidemiologic investigation and attempts at contact tracing.

On the basis of the foregoing discussion, we suggest that management of a child with a history of sexual assault include the laboratory tests listed in table 1 and that guidelines for treatment of possible acquired gonorrhea or syphilis in children with a history of molestation should generally follow those made by the Centers for Disease Control (CDC) for adult patients. (1) Routine prophylaxis is not indicated when the assailant is unknown. (2) Epidemiologic treatment is indicated when the assailant is known to have an STD.

*Symptoms suggesting possible sexual child abuse.* The second clinical presentation warranting evaluation for STDs in a child is urinary, genital, perineal, or anal symptoms or discharge. Examination of children with these complaints should include clinical and/or laboratory assessment for gonorrhea, syphilis, herpes simplex [18], condylomata [19, 20], and trichomoniasis (table 2). Chlamydiae and ureaplasmas have been identified as STD agents in adults [21, 22] and may also occur in children. Assessment for gonorrhea in children should follow several steps.

(1) Any discharge should be gram-stained and examined for gram-negative intracellular diplo-

**Table 1.** Management of child victims with history of sexual assault: guidelines for detection of sexually transmitted diseases (STDs).

## Laboratory tests

- A. Mandatory immediate tests
  1. Gram stain of any discharge from genitals, urethra, or anus for intracellular gram-negative diplococci
  2. *Neisseria gonorrhoeae* cultures from cervix/vagina, urethra, anus, and throat, as indicated by history; confirm positive cultures with sugar utilization tests
  3. Syphilis serology
  4. Pregnancy test in postmenarcheal girls
  5. Wet preparation for trichomonads
  6. Test for presence of semen
- B. Recommended immediate tests (if available)
  1. *Chlamydia trachomatis* cultures
  2. *Ureaplasma urealyticum* cultures
- C. Recommended follow-up tests
  1. *N. gonorrhoeae* cultures
  2. Syphilis serology
  3. *C. trachomatis* cultures (if available)
  4. *U. urealyticum* cultures (if available)
  5. Herpes simplex virus cultures, if suspicious lesion appears
  6. Repeat pregnancy test, if appropriate
- D. Mandatory follow-up tests
  1. Test of cure 3–7 days after treatment of proved *N. gonorrhoeae* infection.
  2. Repeat syphilis serology
  3. Follow-up culture of any previously cultured pathogen

## Treatment of STDs

- A. Treat gonorrhea on the basis of positive gram stain
- B. No prophylaxis when assailant unknown
- C. Epidemiologic treatment indicated if assailant known to have disease

## General management

- A. Report to appropriate legal and child protective services
- B. Follow-up by social worker, psychologist, etc.
- C. Interview for abuser and contact tracing

cocci. When carefully done, the gram stain can have 34%–69% sensitivity and very high specificity for gonorrhea [17, 23] and thus is a valid basis for treatment, regardless of the patient's gender. If the gram-stained smear is positive, treatment should be given immediately. If the smear is negative, therapy for gonorrhea should await positive, confirmed culture results.

(2) Genital, urethral, and anal culture specimens should be taken and swabs plated on selective media. Lesions on the buccal mucosa or pharynx should also be cultured for possible gonorrhea.

(3) Any positive cultures should be confirmed by sugar utilization or fluorescent antibody testing. Whether or not the initial smear is positive, all steps should be taken so that medical records are complete and accurate for forensic purposes.

(4) All treated children should have repeat cultures three to seven days after treatment as a

test of cure and to rule out the possibility of penicillin-resistant gonorrhea.

Serologic evaluation for syphilis should be performed at follow-up visits for any child with another STD, and therapy should be given if the serology becomes positive. Information is not available on the prevalence of syphilis in sexual abusers; however, given the low prevalence of the disease in the general population, we feel that treatment for syphilis is warranted only if the disease is identified in the child or on an epidemiologic basis if the abuser is a known syphilitic.

*Behavioral symptoms.* The third clinical presentation that may be suggestive of sexual child abuse is a child with unexplained nonspecific changes in behavior or abnormal behavior, e.g. insomnia, eating disorders, bed-wetting, and withdrawn or clinging behavior. Professionals who deal with sexually and physically abused

**Table 2.** Management of children with genital symptoms: guidelines for detection of sexually transmitted diseases (STDs) and possible child abuse.

## Laboratory tests for children with discharge

- A. Mandatory immediate tests
  1. Gram stain of discharge for intracellular gram-negative diplococci
  2. *Neisseria gonorrhoeae* cultures from cervix/vagina, urethra, anus, and throat, as indicated by history; confirm positive cultures with sugar utilization tests
  3. Syphilis serology
  4. Pregnancy test in postmenarcheal girls
  5. Wet preparation for trichomonads
- B. Recommended immediate tests (if available)
  1. *Chlamydia trachomatis* cultures
  2. *Ureaplasma urealyticum* cultures
- C. Follow-up tests
  1. *N. gonorrhoeae* cultures
  2. Syphilis serology
  3. *C. trachomatis* cultures (if available)
  4. *U. urealyticum* cultures (if available)
  5. Herpes simplex virus cultures, if suspicious lesion appears
  6. Repeat pregnancy test, if appropriate
- D. Mandatory follow-up tests
  1. Test of cure 3–7 days after treatment of proved *N. gonorrhoeae* infection
  2. Repeat syphilis serology if another STD confirmed
  3. Follow-up culture of any previously cultured pathogen

## Laboratory tests for children with no discharge

- A. Mandatory immediate tests
  1. *N. gonorrhoeae* cultures from cervix/vagina, urethra, anus, and throat, as indicated by history; confirm positive cultures with sugar utilization tests
  2. Syphilis serology
  3. Pregnancy test in postmenarcheal girls
  4. Wet preparation for trichomonads
- B. Recommended immediate tests (if available)
  1. *C. trachomatis* cultures
  2. *U. urealyticum* cultures
- C. Follow-up tests
  1. *N. gonorrhoeae* cultures
  2. Syphilis serology
  3. *C. trachomatis* cultures (if available)
  4. *U. urealyticum* cultures (if available)
  5. Herpes simplex virus cultures, if suspicious lesion appears
  6. Repeat pregnancy test, if appropriate
- D. Mandatory follow-up tests
  1. Test of cure 3–7 days after treatment of proved *N. gonorrhoeae* infection
  2. Repeat syphilis serology if another STD confirmed
  3. Follow-up culture of any previously cultured pathogen

## Treatment of STDs

- A. Treat gonorrhea on the basis of positive gram stain
- B. If gram stain negative, await culture results before treating

## General management

- A. Report to appropriate legal and child protection services
- B. Follow-up by social worker, psychologist, etc.
- C. Interview for abuser and contact tracing

children report that these types of problems may sometimes be explained by ongoing sexual victimization [15, 24]. Sensitive questioning of the child for a history of abuse should be performed at the initial visit (table 3). As part of the complete

physical examination, initial nontraumatic investigation for STDs should be performed, including vaginal and anal cultures for *N. gonorrhoeae* in girls and urethral and anal cultures for this organism in boys. Other tests, such as syphilis

**Table 3.** Management of children with suspected abuse because of behavioral symptoms: guidelines for medical and social care.

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|--------------------|---|
| Initial visit      |   |
| A.                 | Complete history and physical should include vaginal/cervical and anal cultures in girls or penile and anal cultures in boys for <i>Neisseria gonorrhoeae</i> |
| B.                 | Consider other nontraumatic tests for STD   |
| 1.                 | Syphilis serology (?)   |
| 2.                 | Wet preparation for trichomonads  |
| 3.                 | Others as appropriate and available   |
| C.                 | Consider pregnancy test   |
| General management |   |
| A.                 | Careful interviewing for history of sexual abuse  |
| B.                 | Consider social or psychological evaluation   |
| C.                 | Consider reporting to legal authorities if abuse suspected  |

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serology, wet preparations for trichomonads, etc., may be appropriate if they are nontraumatic, inexpensive, and available. Again, we emphasize that follow-up is critical to the evaluation.

### Treatment

The principles of therapy for STDs in children are, for the most part, identical to those for adults. The exceptions are (1) dosages should be appropriate to the child's weight; (2) children younger than eight years of age and pregnant teenagers should not receive tetracycline, except in life-threatening situations; and (3) oral regimens should be used whenever possible. (Injections may be construed by a sexually abused child as punishment for participating in sex. Oral therapy does not have this punitive connotation and may avoid difficulties in compliance with follow-up procedures.) Specific treatment regimens are outlined in accompanying articles.

### Summary Recommendations

We recommend that epidemiologic treatment for STDs in sexually abused children be analogous to that for adults. The following points are particularly important.

(1) If any STD is suspected or diagnosed, appropriate cultures and/or blood tests should be done prior to instituting therapy. At a minimum, cultures for gonorrhea should be taken from the vagina or cervix, the urethra, the anus, and the throat; blood should be drawn for baseline syphilis serology; and a gram stain should be performed on any discharge.

(2) If the child has a specific history of sexual

contact with an individual infected with a treatable STD, epidemiologic treatment for the appropriate disease is indicated.

(3) When a gram stain of discharge from any site shows gram-negative intracellular diplococci, or when culture results confirmed by sugar utilization tests indicate infection with *N. gonorrhoeae*, treatment for gonorrhea should be given. A positive gram stain does not obviate the need for culture or the need for confirmation of the culture results by sugar utilization tests.

(4) If the contact is unknown and there is no material available for gram stain, treatment for gonorrhea should await positive identification by culture confirmed by sugar utilization tests.

(5) For STDs other than gonorrhea diagnosed by gram-stained smear, treatment should be based on laboratory results (i.e., positive fluorescent antibody test(s), positive wet preparation for trichomonads, etc.) and on physical findings at the initial examination or at follow-up.

(6) For STD treatment in children, adult antibiotic regimens in doses appropriate to the weight of the child should be initiated [25]. A key exception is that tetracycline should not be used in children under eight years of age or in pregnant adolescents, except in life-threatening situations. To minimize the frightening or punitive aspects of therapy, oral regimens should be used whenever possible.

(7) STDs should be viewed as an epidemiologic marker for possible sexual child abuse and may be helpful as a screening device in suspected sexual abuse. Management is inadequate without a thorough investigation for the source of disease and subsequent contacts.

(8) Voluntary sexual activity of a victim of sex-

ual child abuse is an important consideration in management and in the epidemiologic investigation of sexual contacts. Recommendations for evaluation and therapy for sexual child abuse and for resulting STDs in the sexually active adolescent should overlap recommendations made for the evaluation and therapy of adult victims of sexual assault [26].

(9) STDs are an important potential complication of sexual child abuse. However, treating STDs in children is probably the easiest part of overall management. Far more challenging is the resolution of the strain in family and peer relations, the social stigma, and other related manifestations. Medical, psychiatric, and social service follow-up are essential parts of therapy. A team approach is most conducive to adequate care.

(10) In a sexually abused adolescent girl, pregnancy is a potential complication of sexual assault. Testing for the presence of semen or sperm should be done if the assault was recent. Any postmenarcheal child who is a suspected victim of sexual abuse should have a pregnancy test performed at her initial evaluation. If there is a history of ejaculation in or near the vagina, this test should be repeated at the child's follow-up examination. For recommendations on diagnosis and treatment of possible pregnancy, see [26].

### Research Suggestions

We suggest the following research to improve the data in the area of sexual child abuse.

(1) Investigators should standardize the definition of the term "sexual child abuse" to include specified activities and an upper age limit for the victim. To differentiate voluntary adolescent sexual activity from involuntary, the definition should note that sexual child abuse consists of coerced or forced nonpeer activities. We suggest 18 years as the upper age limit since it is the legal upper age limit for child abuse in most states [27] and includes the easily overlooked adolescent age group.

(2) Researchers should refine their interview techniques in order to increase the likelihood of eliciting a history of sexual abuse, if one exists.

(3) Investigations should always separate data on pediatric and adult cases of STDs and of sexual abuse.

(4) Studies should determine the prevalence of sexual activity and of gonorrhea in the United States pediatric populations.

(5) Studies should determine whether the prevalence of STDs in sex offenders is, or is not, similar to that in the general population.

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