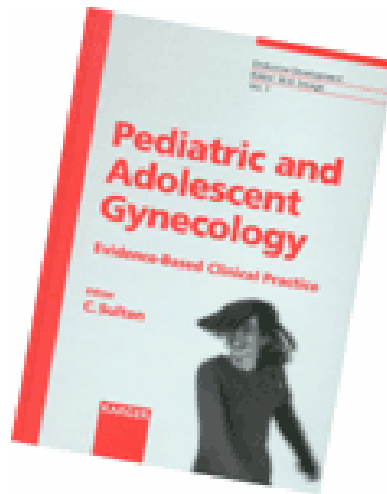


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SEXUAL ABUSE IN PREPUBERTAL CHILDREN AND ADOLESCENTS

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Introduction

Child sexual abuse has been and continues to be a diagnostic challenge. Only for little more than two decades has medicine been involved in the diagnosis, treatment and management of sexually abused children and adolescents. Child sexual abuse (CSA) is no longer „another hidden pediatric problem“ as Kempe (1978) stated more than 20 years ago. In the United States of America and - to a lesser amount - in Great Britain, many physicians have integrated knowledge about the recognition of CSA into their medical education and practice. A great number of specialized referral centers evolved and developed a significant expertise in evaluating abused children in a qualified and non-traumatizing manner.

A number of recent reports have summarized the results of numerous studies and research and of the accumulating clinical experience. They have also described the shortcomings and limitations of our current knowledge and outlined the emphasis of further research (Bays 1993, Navratil 1995, 1997, Herrmann 1997, 2002, Kerns 1998a, Atabaki 1999). The American Academy of Pediatrics has published guidelines to facilitate the management of CSA for health care providers (AAP 1999, 2001a). A couple of recently revised handbooks and a very instructive CD-ROM atlas give an excellent overview of all aspects of medical involvement in child sexual abuse evaluation (Finkel 2001, 2002, Heger/Emans 2000, McCann 1999, Hobbs 1999a, Monteleone 1998).

The situation in most countries in Europe seems to be far less satisfying, concerning Pediatrics as well as Gynecology, not speaking of General Practice (for Germany: Herrmann 1999). We feel an urgent need for **all** physicians caring for children to develop a basic understanding of behavioral and physical indicators of CSA. Furthermore the need for specialized referral centers is evident. Child abuse examinations should preferentially be performed by specialists in pediatric and adolescent gynecology. Nevertheless even those specialists will need supplementary qualification and training in the evaluation of sexually abused children and adolescents. The same goes even more for general pediatricians and gynecologists who engage in this specialty. Given the inherent risk of both under and over diagnosis of child sexual abuse, both with devastating consequences for children and their families, a thorough understanding of the medical approach is crucial. Performing medical examinations requires sound knowledge about the specifics of anogenital findings in abused and nonabused children as well as knowing the potentials and limitations of medical diagnosis in CSA (Adams 1999). This knowledge needs to be contributed and blended into a multiprofessional approach. Especially in Europe physicians frequently still need to find and define their role within the child protection system. In contrast to the emotional and often unqualified public debate on CSA medical professionals have a significant responsibility to contribute a rational and objective approach to the multidisciplinary assessment, diagnosis, management and treatment of sexually abused children and adolescents („Cool science for a hot topic“ - Kerns 1989). Nevertheless child sexual abuse is an emotionally disturbing and troubling event even for medical professionals and requires emotional balance and commitment. The first step to the diagnosis of CSA and of utmost importance is being aware and acknowledging that the problem exists. Recognition of sexual abuse requires a high index of suspicion and familiarity with the historical, physical, and behavioral indicators of abuse.

General considerations on CSA

Although there is no universal definition, **sexual abuse is generally defined** as the involvement of developmentally immature children or adolescents in sexual activities that they do not fully comprehend, to which they are unable to give informed consent and that violate social taboos of family or other adult-child relationships. Adults take advantage of the power and age differential which removes meaningful consent. The adult's intention to use children for his (or her) sexual arousal and gratification is an important element of the definition. Other definitions describe the unwanted, manipulative, and exploitative character of the interaction and recognize the importance of age difference (mostly 4-5 years). Developmental asymmetry and the use of coercion differentiate abuse from normal sexual play (Kempe 1978, AAP 1999, Hobbs 1999a, Friedrich 2001, Finkel 2001).

Sexual abuse includes a **spectrum of sexual activities** ranging from non-touching to invasive penetrative abuse. In contrast to the general public opinion CSA is mostly a **chronic sexualized relationship** over months and years between fathers, step-fathers, other relatives or known individuals and the child. Abuse may start in early childhood and continue into adolescence.

Strangers as **offenders** make up approximately 10 % of all cases. These occurrences tend to be rather single events and often are more accurately characterized as „sexual assault“. Most of sexual abuse is committed by men (approximately 90%), with higher numbers of female perpetrators when boys are victimized (up to 25%). At least 20-25% of perpetrators are juveniles. This underscores the importance of early intervention including perpetrator treatment. Probably this is the most effective measure of prevention of further abuse of other children. Offenders appear to be „normal“, socially well adapted people essentially of all social backgrounds. Many, but not all, have been sexually abused as children, and many abuse more than one child.

Victims are girls in 70-80% of the subjects including all age groups, peaking in the prepubertal school age. Adolescents make up at least 25% of sexual abuse victims and tend to be victimized by peers („date rape“). Lower socioeconomic status is not consistently demonstrated in the research and may be caused by assessment bias. However unstable social conditions may predispose a child to sexual abuse. Single-parent homes and step-parents seem to be significant risk factors (Finkelhor 1994, Leventhal 1998, Finkel 2001). Although not reported in all studies developmentally disabled or handicapped children appear to be at higher risk for sexual abuse particularly when the disability affects communication (Elvik 1990, AAP 2001b).

Current research indicates a **prevalence** of CSA way in the percent range. That makes CSA for example far more prevalent than all malignancies in childhood together (for Germany: 0.2 % - Gutjahr 1993). Finkelhor summarized 19 prevalence studies and concluded that a prevalence of 15-20% of women and 5-10% of men having experienced sexual abuse as children would be a reasonable conservative estimate (Finkelhor 1994). **Incidence** studies do not report the true occurrence, but only those cases that are recognized. Substantiated reports of CSA to US American Child Protection Agencies increased dramatically from 6000 to 132000 from 1976 to 1986, being relatively stable until 1994 and declining since then for unknown reasons (Leventhal 1998, Atabaki 1999, Jones 2001, Finkel 2002).

Because of possible devastating short and long-term effects child sexual abuse has marked but varying effects on children's health and well being. A large variety of **short term behavioral abnormalities and symptoms** have been reported as indicators and presenting symptoms of CSA. They include nearly all emotional, psychosomatic, self-destructive and anti-social behaviors in children and adolescents, focussing on age inappropriate sexualized behavior, especially when coercive. However there is no single diagnostic criterion or specific syndrome within the variety of symptoms which proves CSA by itself. A basic understanding of normative sexual behavior is important to distinguish normal and abnormal sexual play and activity. Inadequate sexual behavior should be interpreted as indicator but not as proof of child sexual abuse and its absence does not rule out abuse.

Masked presentations of CSA are common and include the whole range of psychosomatic disorders, with gastrointestinal complaints being most prevalent in younger and chronic pelvic pain in older victims. Feelings of guilt, shame, isolation, lowered self-esteem, criminal behavior and self-injuring behaviors are prevalent among victims of abuse (Hunter 1985, Beitchman 1991, 1992, Berkowitz 1998, Koverola 2000, Friedrich 1998a, b, 2001, Drach 2001). The abnormal behavior frequently is an important coping mechanism of the victim, well described by Summit as „Child Sexual Abuse Accommodation Syndrome“ (Summit 1983). The difficulty in evaluating a history and the nonspecific complaints of an individual has been widely discussed in the psychosocial literature (Jones 1987, Everson 1997).

CSA is associated with substantial increased risk of subsequent psychopathology. Several factors contribute to the great variety of **long-term outcomes** of victims of former CSA from severe to asymptomatic. Sexual abuse varies significantly in severity and extent, the amount of physical force used, the relationship with the offender, frequency and duration of the abuse, the age of the child, preexisting psychosocial problems and positive or negative effects of professional intervention. Other important factors that influence the outcome are preexisting adverse psychological circumstances, co-existing physical abuse or neglect in terms of additional vulnerability potentially compensated by resilience factors (intra- or extra-familial support) (Paradise 1994).

A variety of reports have highlighted mental health problems (e.g. depression, suicide, multiple personality disorders, post-traumatic stress disorder, eating disorders, anxiety disorders, substance abuse), physical health problems (e.g. functional gastrointestinal disorders, chronic pelvic pain, dysmenorrhea), and psychosexual dysfunction (e.g. sexual dysfunction, promiscuity, adolescent pregnancy, re-victimization, prostitution). Interpersonal, close relationships are often difficult for abuse victims. They tend to have problems with issues of control, anger, shame, trust, dependency and vulnerability (Beitchman 1992, Berkowitz 1998, Dickinson 1999, Koverola 2000, Molnar 2001).

General considerations on medical aspects of CSA

The majority of abused children show no physical evidence. The frequency of normal findings varies from 23 to 94 %, based on differences in definition of abuse and findings (Adams 1994, Bays 1993, De Jong 1989, Kellog 1998, Bowen 1999). A metaanalysis by Bays and Chadwick reported normal findings in more than 50% of abuse victims (Bays 1993). In a study by Adams with the subtitle „It's normal to be normal“, she examined 236 children with perpetrator conviction for sexual abuse who had normal genital examination findings in 28%, nonspecific in 49%, suspicious in 9%, and abnormal findings in 14% (Adams 1994). In case of perpetrator confession of penile-vaginal penetration still 39% of the victims presented with normal findings in another report (Muram 1989a). In a recent study by Berenson and coworkers only 2% of 192 girls between 3 and 8 years who reported digital-vaginal or penile-vaginal penetration had hymenal transections, perforations or deep posterior notches. The majority of girls were not examined acutely however (Berenson 2000). Heger and coworkers examined 2384 children and found normal exams in 95 % of children who had disclosed and in 92 % in girls who reported penetration (Heger 2002).

The most important reason for the **paucity of abnormal findings** is the nature of the abuse itself. Frequently it does not involve physical contact sufficient enough to produce physical sequelae (fondling, oral abuse, masturbation, pornographic photography and others). Therefore the „absence of evidence is no evidence of absence“ (of abuse). Furthermore smaller children often do not have sufficient knowledge about their anatomy in order to appropriately describe what exactly has occurred. They may interpret any diffuse pain in the anogenital area as invasive or penetrative. There are no data at which age children are developmentally capable of differentiating „on“ from „in“. Medically „penetration“ is defined as the introduction of an object beyond the hymenal membrane into the vagina. In a jurisdictional view however even slight penetration between the labia majora constitutes the legal term „penetration“. Finally, the outcome and traumatizing nature of child sexual abuse is not primarily affected by the fact if penetration has occurred or if medical signs of trauma are evident (Finkel 2001, 2002).

A significant difference exists between CSA and rape and contributes to the diagnostic difficulties. Children are seldom forcibly raped and in the majority of cases force and restraint are not used. Therefore only some children have obvious sequelae caused by more serious injuries. And those who do, seldom present acutely so that the retrospective interpretation of healed trauma constitutes the major difficulty in evaluating these findings. Those children and adolescents who are victims of stranger assaults or rape will rather present acutely with evident findings, due to familial support and immediate action taken. Acute findings are easier to document but children seldom disclose in this phase.

Besides the absence of findings due to a physically non-traumatizing abuse the enormous potential of rapid and often complete healing of most anogenital injuries contributes to the paucity of specific findings. In selected cases even transections of the prepubertal hymen have been demonstrated to heal to integrity. A single incomplete hymenal rupture may heal as early as 9 days after trauma. More typically

though complete transections to the base of the hymen lead to permanent disfigurements of the hymenal membrane in form of a cleft or concavity (Teixeira 1981, Bays 1993, McCann 1992, 1998, Finkel 2001, 2002).

The frequency of findings related to abuse will also depend on variables inherent to the health care system: qualification and willingness of the examiner to acknowledge CSA as a possible differential diagnosis, the timing of the examination, qualified and empathetic preparation of the child (in order to obtain consent and cooperation), a good lighting source, good documentation for peer-review or second opinion and to a smaller amount the availability of technical support (generally a colposcope for magnification, lighting and documentation).

Potentials and limitations of the medical approach

As a normal physical examination is frequent in victims of CSA, the forensic aspect of the evaluation cannot be the primary or exclusive goal. A medical approach to CSA has to reflect the potentials but also the limitations and possible risks of the medical evaluation. It is crucial that the needs of the child have absolute priority over the desire to collect forensic evidence. The physical examination of sexually abused children has the potential to be an emotionally invasive and distressing procedure („re-victimization“) if not performed in a qualified and empathetic manner. Although scientific data to support this view is lacking, the possibility is evident and appears to be a concern for referring non-medical professionals, possibly influencing referral patterns and selection of patients for medical evaluation (Bowen 1999). This again underscores the paramount importance of interprofessional communication and cooperation. An essential prerequisite of examining possibly abused children in a non-traumatizing manner is to avoid any force or coercion. The experience of specialized child protection centers indicates that well documented examinations help to avoid repetitive examinations and thereby may even prevent further potential trauma.

The **emotional response to the medical examination** is probably not only influenced by factors inherent to the examination situation itself, but also by multiple other variables, such as pre-existing factors (e.g. general anxiety, previous experiences with the medical system, the age and developmental status of the child) and on the other hand the characteristics and severity of the abuse (Finkel 1998, Britton 1998). Several studies with small samples and the impression of experienced experts in the field, indicate that most children seem to cope well with the examination (Lazebnik 1994, De San Lazaro 1995, Steward 1995, Gully 1999, Waibel-Duncan 2001, Palusci 2001).

Children who have disclosed sexual abuse should be evaluated for injuries, anogenital infections, sexually transmitted diseases or pregnancy and treated accordingly. Because a majority of abused children have an altered and distorted body image (Joraschky 1997) it is of paramount importance to reassure the child that its body is normal, physically undamaged, and intact or that it will heal. Doctors,

especially Pediatricians, who define disease or well-being in other medical settings are powerful authorities in this respect. They can help to relieve feelings of physical abnormality and initiate the process of recovery ("**Primary therapeutic aspect of the medical examination**"). Thus the medical examination has an enormous potential to incorporate a therapeutic message into the diagnostic procedure.

In cases of suspected CSA the **cooperation with other professions** is crucial. The medical examination may contribute valuable aspects to a multidisciplinary approach. Due to evident reasons mentioned above however, a **medical examination can never exclude the possibility of CSA**. Therefore child protection professionals need to know each other and cooperate in mutual respect. They also need to know their respective potentials and limitations. Medical involvement in CSA cases does not only depend on the clinicians engagement and skills but also in the confidence the child-protection and law-enforcement system develops in the clinician (Finkel 2001).

History

History taking should avoid further trauma to the child and still gain a maximum of information. Depending on a possible previous historical evaluation it is not always necessary to repeat questioning on all details of the abuse, which is often difficult and embarrassing for the child. In some cases however information on the specifics of what has happened will contribute to interpreting physical signs in the light of history. It is advisable to take a separate history from the child and the caretaker if possible. A gentle and open attitude of the examiner and a quiet and accepting atmosphere are essential. The use of anatomically correct dolls is controversial and should be reserved only to very experienced examiners in this field (Leventhal 1989).

History taking should also be interjected with certain therapeutic messages like „it was good to tell”, that many children experience abuse, and that children are never responsible for the abuse. Questions directed to the child should be simple, non-leading and not suggestive of the answer. Scrupulous and verbatim documentation is crucial for further court proceedings and the credibility of the child (Levitt 2000, Finkel 2001, Horowitz 1987). In selected cases children may disclose sexual abuse during the medical examination, for instance if they are asked if someone has ever touched them „in this area“ while the anogenital examination is performed (Palusci 1999).

Physical examination

The preparation and conduct of the physical examination of sexually abused children requires „time, patience and a gentle manner...“ (Horowitz 1987).

Appropriate timing of the examination is the first step. Most examiners agree to perform immediate examinations due to forensic reasons if the alleged contact took place less than 72 hours ago. The same goes for acute bleeding anogenital injuries. Due to typically delayed disclosure most examinations are non-emergency. The issue of **sedation or anesthesia for the examination** remains controversial. Although some argue in favor because of a reduction of immediate stress, it is not routinely warranted. General anesthesia is usually required in cases of acute bleeding anogenital injuries (Harari 1994, Rogers 1994, Sury 1994, Hogan 1996, Leventhal 1998).

Anticipating and addressing children's fears concerning the medical examination are crucial for a successful exam. Younger children rarely have problems with issues of shame. They rather are fearful of painful and unknown procedures. **Any form of force or coercion is strictly contraindicated.**

The child should be given as much choices as possible in the procedure to ensure a sense of control. It is important to explain all steps of the examination in an age appropriate terminology. The child should be reassured that the purpose of the examination is to check if everything is "alright", that it is healthy and "okay". Clinical experience indicates that at least for prepubertal children the style and gentleness of the exam are far more important factors for the emotional impact than the gender of the examiner (Horowitz 1987, Lazebnik 1994, Leventhal 1998).

The sense of control may be enhanced by examining a „fearful“ doll which expresses all the potential fears which children might have in this situation. Asking the child to help the doctor examine the doll lets them anticipate their own examination, gain a sense of control and power and actively cope with their own fears by comforting the doll (personal experience B.H.).

Even for non-pediatricians a **complete head-to-toe examination** is mandatory. It should always precede the anogenital examination in order not to focus on the anogenital area (like the abuser has done). The implicit message is that the whole child is important. It also allows estimating the developmental stage and avoids missing extragenital signs of sexual or physical abuse.

The **anogenital examination** in cases of suspected sexual abuse of the prepubertal child is principally an external visualization by varying techniques of separation, traction and positioning. It does not require anal or vaginal palpation or the use of specula. In adolescents the use of specula is appropriate but not mandatory. Stirrups may be used in older consenting children, while often increasing unfamiliarity and fear in younger children (Emans 2000, Horowitz 1987, Finkel 2001).

The genital examination begins in the most comfortable and least frightening position, the **supine position** with abducted legs ("frogleg position"). Especially younger children may prefer to be examined on the caretaker's lap. The **separation technique** of the labia majora allows an overview over the

external genital structures. The **traction technique** is the mandatory next step and markedly improves visualization and opening of the hymenal orifice, especially when redundant hymenal tissue is present. In this technique the labia majora are grasped between thumb and index finger exerting slight traction down and outwards. Meanwhile most examiners agree to routinely include the **prone knee-chest position** into the examination except in those cases when visualization in the supine position is complete and satisfactory. In cases with unclear or suspicious findings in the supine position the knee-chest position is invaluable as it markedly improves unfolding of the hymen due to gravity. The examiner's hands rest on the buttocks with thumbs pointing inwards and slightly pulling upwards and laterally. The persistence of suspicious findings in the knee-chest-position improves their validity. Also the visualization of the inner vagina up to the cervix can be achieved without specula in a significant number of cases. Children who have experienced anal penetration may feel uncomfortable and frightened in this position. The response and affect of the child have to be carefully monitored when requesting this position (Finkel 2001).

The **inspection of the anus** is mandatory and can be performed in the prone knee-chest position or in the left lateral decubitus position. The latter is preferable in boys who tend to be abused anally (Horowitz 1987, McCann 1990a, Emans 2000).

Pubertal children are preferably examined in the lithotomy position. Visualization of the redundant pubertal hymen can be difficult. Running behind the inner aspect of the membrane circumferentially with a moistened cotton swab can help to identify traumatic changes of the hymenal rim.

Explaining each step of the examination and talking with the child throughout the examination on non-abuse related issues, or motivating the child to tell a story, allows the child to relax. This enhances cooperation and improves visualization by less muscular tension to the genital tissues (McCann 1990a). Generally all visualization and photo documentation should be done before taking swabs. The unestrogenized prepubertal hymen is very sensitive. In cases when screening for sexually transmitted diseases is indicated the use of small urethral swabs which are moistened with sterile saline helps to avoid a potentially painful contact with the hymen. Large cotton swabs should be avoided in prepubertal children. Alternatively a small urethral catheter can be used to irrigate the posterior portion of the vagina with a small amount of saline which then is aspirated again for further processing.

The **colposcope** is nowadays frequently used for the external visualization of the anogenital area of possibly abused children and adolescents. Mostly equipped with a 35 mm camera or a video system it enhances visualization by incorporating a powerful lighting source, fixed or variable magnification and the possibility of accurate documentation. Photo- or video documentation of all abnormal findings allow preservation of visual evidence, later detailed reviewing and discussion of findings and a second opinion or peer-review. It also lays the foundation of any research and is an excellent tool for education of students, residents and colleagues. Documented visual evidence may be presented in court and may help to avoid potential further emotional trauma by repeated examinations. Although colposcopy improves the incidence of positive findings only slightly and the unaided examination is sufficient in most cases it has become a valuable tool in the evaluation of possibly abused children (Teixeira 1981, Muram 1989b, 1999, Adams 1990, McCann 1993, Finkel 1998).

Forensic evidence collection and interpretation

Forensic evidence is infrequently found in child sexual abuse cases due to reasons discussed earlier (delayed disclosure etc.). However in selected cases the medical expert in child abuse may be asked for a competent forensic work-up in an acute assault which is usually done at the same time as the physical examination. This requires coordinating specific details of collection, labeling, and packaging with the forensic laboratory. Handling of the specimens must be documented with scrutiny to maintain the chain of evidence. Pregnancy and sexually transmitted diseases have forensic significance but are usually not classified in this category.

The decision to perform a forensic exam mainly depends on the time of presentation after the assault. The recommendation of a 72 hour time frame is based on experience in adult victims that semen, seminal fluid and other products are rarely recoverable after this time. In spite of certain limitations, exceptions and little research in abused children this serves as a reasonable compromise. A recent study by Christian and co-workers however did not find any positive swabs for sperm or semen later than 9 hours post contact in 273 children. No forensic evidence was collected after 24 hours except for the clothing or linens of the children. Christian concluded that guidelines for forensic evaluation of adult victims may not be appropriate for children (Christian 2000).

Sperm may be present on a wet mound for only ½ hour, in the adult vagina for 12 to 20 hours, rarely up to 48 to 72 hours, in the cervix up to 5 days. Survival time of sperm in the pre-pubertal vagina is significantly shorter. Dead or immotile sperm is detectable longer. Dry specimens however are quite stable and sperm in stains has been detected up to 12 months (Finkel 2001).

The Wood's lamp or ultraviolet light has traditionally been recommended to identify semen on a victim's skin. Recent research has shown significant limitations and shortcomings: semen and urine were not distinguishable, urine fluoresces considerably longer, and a number of child care products will equally fluoresce undistinguishable from semen (Gabby 1992, Santucci 1998). Keeping these limitations in mind the Wood's lamp may serve as a screening aid where to take swabs from a victim's body.

The marked elevation of acid phosphatase in the vagina indicates sexual contact within 24 to 48 hours, but it may also turn to normal within 3 hours in some cases. P 30, a semen glycoprotein of prostatic origin and MHS-5, an antibody against a vesicle protein, are male specific and improve sensitivity markedly. Negative results of all tests do not exclude sexual abuse however.

Semen, blood, saliva, body hair and other materials found on the victim may help to prove the identity of the offender by several methods. They include ABO blood group antigens, subtypes of the enzyme phosphoglucomutase (PGM), the enzyme peptidase A and most sensitive DNA profiling. Bite mark identification by a forensic odontologist may also determine the offending person by analysis of good quality photographs taken with a ruler. Swabs from acute bite marks may be analyzed for genetic markers (Finkel 2002, Jenny 2000).

Anogenital findings

Normal findings - anatomy and terminology

For professionals involved in the evaluation of children for possible sexual abuse it is crucial to develop a thorough understanding of the appearance of the anogenital anatomy both in abused and nonabused children. It is difficult to describe a finding as abnormal without fully understanding the range of normal at each developmental level. The increasing knowledge on medical diagnosis in sexual abuse has gone from early imprecise and misleading work (Cantwell 1983, 1987) to detailed macrophotographic analysis of subtle anogenital findings (Kerns 1992). As a result of this evolution, the range of findings now interpreted as normal or unspecific (abnormal but not related to abuse) has continuously increased while the number of findings which clearly indicate abusive trauma has decreased (Kerns 1998, McCann 1998, Ricci 1998, Berenson 1998, Adams 2001). In the first decade of medical child sexual abuse research many previously undescribed findings were interpreted as related to trauma in the light of a child's history suggesting abuse. Many of these findings later were demonstrated in studies of nonabused children, mainly by McCann and Berenson (McCann 1989, 1990b, Berenson 1991, 1992, 1993a+b, 1995). Although there are methodological considerations and limitations to non-abuse studies, this work has greatly enhanced our knowledge. A main concern is the question if the screening tools are specific enough to exclude undisclosed sexual abuse (for discussion of limitations and methods of research: Berenson 1998, Ricci 1998).

The evaluation and description of anogenital findings should be done on the basis of a **descriptive and standardized terminology** of normal structures. Clinicians involved in describing findings of abused children should speak the same language and describe normal variations and pathologic changes in the same terminology. Although specialists in pediatric and adolescent gynecology are expected to be familiar with the specific terminology it is worthwhile to have a look at the concepts developed in the recent child abuse literature (APSAC 1995, Pokorny 2000). The documentation in the medical record should be as specific as possible and avoid general terms as „normal genitalia“, not reflecting the great variety of normal. „Vulva“ and „pudenda“ also lack specificity. „Virgo intacta“, „virginal introitus“, „marital hymen“, „gaping vulva“ or „enlarged vaginal opening“ are insufficient, unprecise and not descriptive terms and should be avoided.

The term „posterior fourchette“ may not be familiar in Europe. It describes the posterior joining of the labia minora (frenulum labiorum pudendi minorum), an area which is especially vulnerable to trauma by attempted penile penetration. Sometimes the area from the frenulum to the commissura posterior (posterior joining of the labia majora) is also subsumed under the expression „posterior fourchette“. The description of genital findings should begin with the external, superficial structures and move on to the inner structures according to the conduct of the examination.

Much of medical research on genital changes in CSA has focussed on the **hymen**. This was especially true in the first decade of research in the 1980s, when considerable efforts were made to attribute the

probability of sexual abuse according to measurements of the hymenal orifice's transverse diameter (Cantwell 1983, 1987). Paradise summarized the debate at the end of the decade in a report titled „Predictive accuracy and the diagnosis of sexual abuse: a big issue about a little tissue.“ She pointed out that ”the diagnosis of sexual abuse inevitably rests not on a genital measurement but on descriptive statements made by a child” (Paradise 1989). The size of the hymenal opening increases with age and depends on a wide variety of factors like examination position, examination technique, amount of traction used and the degree of relaxation of the child, thus potentially varying within the same examination. Genital measurements have considerably lost significance in the evaluation of children being allegedly sexually abused (Berenson 1992, 1993a, McCann 1990a, 1998, Ingram 2001a, Berenson 2002). There even have been reports on posttraumatic scarring leading to entirely closing off the hymenal opening, resembling an imperforate hymen (Berkowitz 1987a, Botash 2001). With the exception of complex genital abnormalities all girls are born with hymens -several studies have failed to document a single case of an absent hymen at birth in more than 26000 newborn girls. Thus an entity known as „congenital absence of hymen“ does not exist as a sole congenital abnormality (Bays 1993).

The **appearance of the hymenal membrane** is quite variable and is strongly influenced by the factors mentioned above but also by age and hormonal factors. The whitish-pink hymen of newborn girls is mostly annular, rather thick and redundant due to maternal estrogen influence. The appearance changes markedly due to withdrawal of estrogen thus creating the typical and most prevalent crescentic, semilunar configuration mostly found in children over 3 years of age. The hymen becomes a thin, more translucent and reddish membrane due to vascularization until pubertal raise of estrogen again creates a paler, redundant and fimbriated appearance. Hymenal configurations observed in children are:

- *Annular* (circumferential, concentric) - mostly in newborns and infants.
- *Crescentic* (semilunar, posterior rim type) - most frequent in prepubertal girls.
- *Fimbriated* (denticular) - mainly in newborns, small infants and puberty.
- *Normal variants* include: *sleeve-like* (hymen altus, *septate*, *microperforate* (= *cribriform*) or *imperforate hymen*. An asymmetric appearance is frequent, not abnormal and often results from asymmetric traction (Berenson 1991, 1992, 1993a, 1995, McCann 1990b, Berenson 1998, Emans 2000). The hymen is an elastic tissue, unlike the common lay misconception of a piece of paper irrevocably „broken“ by penetration or the idea of an impermeable membrane. The degree of elasticity is difficult to quantify, although penetration of a digit may occur without sequelae. The use of tampons may cause enlargement of the hymenal opening but no disruption of its integrity. Masturbation in prepubertal girls is clitoral and does not cause injury of the hymen, especially because the prepubertal hymen is well innervated and quite pain susceptible. Also physical activities like gymnastics, running, jumping or splits do not lead to hymenal damage (Bays 1993, 2001, Emans 1994, Finkelstein 1996).

Among the **hymenal variations** a „*notch*“ is an angular or v-shaped indentation on the edge of the hymenal membrane. It is referred to as „*concavity*“ when its appearance is curved or u-shaped. Superior

(also referred to as „anterior „) notches in the supine position are common in non-abused children. The withdrawal of estrogen in infants and resulting involution of tissue in the periurethral area may lead to formation of new superior notches. Notches that extend to the vestibular or vaginal wall have only been reported in abused children and have then been referred to as „*transections*“. No notches between 4 and 8 o'clock have been found in nonabused children, making it a finding consistent with penetrating trauma (Bays 1993, Berenson 1998, Finkel 2002).

Other hymenal variations include „*external ridges*“ on the external surface of the hymen. They are frequently found in newborns and tend to resolve in most children until 3 years of age. They have previously been misinterpreted as new scar formation. „*Longitudinal intravaginal ridges*“ or columns were reported in 25% to 89%, a variance maybe reflecting age or racial differences in the studies. „*Bumps*“ or „*mounds*“ (also referred to as „*projections*“) mostly occur when an intravaginal ridge attaches to the hymenal rim, but may also exist as isolated finding. They have been found in 7% to 34% of the non-abused population and also are no indicators of abuse as misconceived in earlier studies. „*Tags*“ or elongated projections of the hymenal rim are often incorrectly referred to as polyps. The latter are benign mucosal tumors growing into a lumen, while tags may result from previous vaginal septa or intravaginal ridges protruding from the hymenal rim. Their prevalence ranges from 2% to 25%. *Vestibular and periurethral supporting bands* also have been misinterpreted as scar formation while being found in 50% to 90% of non-abused girls (Emans 1987, Berenson 1991, 1992, 1995, 1998, McCann 1990b). Other variations of normal described in McCann's study were *erythema* of the vestibule (56%), *labial adhesions* (39%), *lymphoid follicles* in the fossa navicularis (34%), and *urethral dilatation* with labial traction (15%). A posterior fourchette midline avascular area also called „*linea vestibularis*“ is found in up to 25% and has the potential to be confused with scar tissue (McCann 1990b, Kellog 1991, 1993).

Normal perianal findings in both sexes include *erythema* (41%), *increased pigmentation* (30%), *venous congestion* (73%), *midline skin tags* (11%), and smooth midline wedge shaped areas referred to as „*diastasis ani*“ (26%). The latter results from a congenital anomaly of external sphincter muscle fibers. This finding also has a considerable potential for misinterpretation as scar tissue (McCann 1989). A recent study found significant differences in perianal anatomy between boys and girls as well as between different examination positions. The authors interpret the differences as a result of of anatomical and muscular differences between boys and girls (Myhre 2001).

Findings in abused children

The reasons for the paucity of specific findings in sexual abuse victims have been discussed earlier in this text, the abusive physical contact producing no injury being the most prominent reason. The timing of the examination crucially determines the frequency of abnormal findings in those cases where injury has been produced, mainly because of the rapid and often complete healing of anogenital injuries and typically delayed disclosure. The range of findings varies considerably, involving superficial mucosal

abrasions and scratches to clear transecting lacerations of anogenital tissues. As the offender frequently uses little physical force, many resulting injuries tend to be superficial and heal rapidly. Most of these findings resolve within 2-3 days after trauma, which is consistent with the characteristics of wound healing. Tissue damage heals by a predictable pathologic process. Superficial damage will heal completely within 5 to 7 days by regeneration without producing any scar tissue. Serious lacerating wounds heal by repair, leaving a scar of much lesser extent than the primary injury (Finkel 2001). Thus the kind of findings vary considerably with the nature of the abuse, hereby involved objects, the degree of force used, the age of the child and the frequency of the abuse. The time since the last incidence and a history of pain and/or bleeding were the only two factors which significantly increased the likelihood of detecting abnormal physical findings in two studies (Kerns 1993, Adams 1994).

Female genitalia

The majority of studies describe findings of female genitalia. **Minor trauma** is frequently caused by genital fondling, rubbing or vulvar coitus (rubbing of the penis between the labia). It mostly leads to unspecific changes like erythema or superficial abrasions of the inner aspects of labia minora, periurethral area, vestibule or the clitoris which heal to integrity within a few days. In cases of digital manipulation these findings are frequently found in the superior-anterior region in supine position (between 9 and 3 o'clock). A history of dysuria is a valuable corroborating history of this type of sexual abuse. Dysuria may also follow coitus however. Penetration of the hymenal orifice with a small object like a finger may possibly leave no physical sequelae due to the elastic nature of the hymenal tissue (Finkel 2001).

When an **object forcefully penetrates** into the vagina residual signs are obvious when examined acutely. The extent of injury increases with lower age. The majority of abuse related findings are found in the posterior area involving the posterior part of the hymen, fossa navicularis, posterior fourchette, the posterior commissure and the lateral walls of the vagina. In rare cases a perforation of the posterior fornix into the peritoneum may occur. A penile penetration causes disruption of the hymenal rim especially between 5 and 7 o'clock but can be found anywhere between the 3 and 9 o'clock position. This results in incomplete or complete transections and v-shaped notches or clefts of the hymenal membrane. Within a few weeks the notches lose their clear-cut and sharp appearance and develop into a smoother, u-shaped aspect, referred to as concavities. In some cases a narrowing of the posterior rim develops. The edges of the hymenal rim may become thickened or rolled and intravaginal structures may be more readily exposed. Even if repeated penetration may lead to an enlargement of the hymenal transverse diameter it is no longer considered to be a reliable diagnostic sign as an isolated finding (Paradise 1989, 2001, Kerns 1992, McCann 1992, 1998, Bays 1993, AAP 1999, McCann 1999, Adams 2001, Finkel 2002).

Repeated irritation of genital mucosa may result in chronic inflammation (recurring vulvovaginitis) or in labial agglutination (labial synechia) as an acquired post-inflammatory condition. Both findings may

gain significance with a corroborating history (Berkowitz 1987b, McCann 1988, Vandeven 1993). Due to their unspecific nature and prevalence in the prepubertal child caution should be used when they present as supposed isolated and sole indicators of possible sexual abuse.

Anal findings

The interpretation of anal signs of abuse (sodomy) in boys and girls is far more controversial than genital signs of trauma. The frequency and significance of findings are subject to substantial disagreement in the literature (Hobbs 1989b, 1999b, McCann 1989, Finkel 2001, 2002). The ability of the external sphincter to dilate considerably when passing large bolus of fecal matter without any injury to the anal tissues is a major contributing factor. Variables influencing the presence of physical signs include the size of the object introduced, the amount of force used, the age of the victim, the use of lubricants, frequency of episodes and time elapsed since the last episode.

Again, **acute and extensive findings** are not very problematic to interpret. Deep lacerations and significant trauma to the anus are obvious results of anal penetration. In these cases anoscopy may be helpful for identification of internal injuries like bruising, petechiae, or lacerations and for collection of seminal products (Ernst 2000). In the absence of acute findings anoscopy is not indicated. The significance of **chronic anal signs** remains more problematic. Hobbs and Wynne reported a high incidence of 40-50% of abnormal anal findings in abused children (Hobbs 1986, 1989a). A significant number of findings seen in allegedly abused children in their study have been demonstrated also to occur in a nonabused population evaluated by McCann (1989).

Anal fissures may result from constipation, but are not frequently reported in constipated children. Flattened anal folds should arouse some concern beyond the diaper age. Anal skin tags are frequently seen in the midline in nonabused children but may result from healed trauma if present outside the midline (Finkel 2001, 2002, Hobbs 1999b). Special controversy has evolved about the sign of „**reflex anal dilatation**“ (RAD). Although having confidence about the significance of this finding („dilatation over 0.5 cm“) in earlier studies (Hobbs 1989a) in the recent revised edition of „Child Abuse and Neglect –A Clinicians Handbook“ Hobbs and Wynne state that „further research is needed to improve the understanding and ... significance of the association of RAD with respect to age, constipation, general anesthesia, post-mortem change and neurologic disorders...“ (Hobbs 1999b). Especially the absence or presence of stool in the rectal ampulla when interpreting this finding is subject to controversy. The paucity of studies to date does not allow final conclusions on the significance of chronic anal findings. In the opinion of the authors they may be overestimated in British studies (Hobbs 1986, 1989a, 1999, RCP 1997) and underestimated in American overviews (Finkel 2001). There is only one article in the American literature specifically examining findings after anal abuse (Muram 1989c). As an isolated sign we do not interpret RAD as diagnostic of child sexual abuse. A dilatation more than 15-20 mm without visible stool however is concerning and warrants further evaluation.

Extragenital signs of sexual abuse

Those signs are infrequent and rather seen in the context of rape: hematomas and bite marks in the so called erogenous zones, especially the inner thighs, breasts, neck and buttocks; bruising, hematomas and strangulation marks of the neck, the extremities or the flank in the kidney region (due to forceful sodomy); petechiae of the sclerae caused by strangulation; petechiae of the soft palate or tear of the labial frenulum due to forceful oral penetration (Hobbs 1999b, Finkel 2001).

Classification of findings

In order to categorize anogenital findings different authors developed classification scales which intend to relate the findings to the probability of their abusive origin. Especially the newest revision of a scale developed by Adams is a comprehensive categorization schema for analyzing and interpreting findings. It consists of two parts, the classification of physical findings alone and the overall assessment of the likelihood of abuse. It is of particular value as it inter relates both the physical findings and the historical findings into a diagnostic decision. After measurements of the posterior rim had been removed in a prior version, this version removed enlarged hymenal opening as a criterion for abuse (Adams 1992, 2001). In a recent review of Adam's paper Ricci cautioned the use of the schema as „...it is important to recognize however, that this schema is a suggestion, a way of organizing one's thoughts about a constellation of findings. Although...in line with much of the current research ... it is important to recognize that any schema must be interpreted within the context of each individual case.“ (Ricci 2001). A revised version of the classification is distributed by the author but not yet published (Adams 2003, personal communication). Guidelines for decision making, especially in respect to mandated reporting of sexual abuse have been published by the Committee on Child Abuse and Neglect of the American Academy of Pediatrics (AAP 1999). Classification scales help to assess probabilities but must never be misinterpreted as rigid instructions how to interpret anogenital findings. The current state of knowledge and its limitations have to be kept in mind and updated continuously as in all other medical disciplines (Kerns 1998, McCann 1998).

=> **Table: Adam's classification system 2001**

Table: Adam's classification system 2001 (modified after Adams 2001)

Part 1: Anogenital Findings on Examination

<p>Category Ia: Normal¹ Periurethral (or vestibular) bands Longitudinal intravaginal ridge or column Hymenal tag Hymenal bump or mound Linea vestibularis Anterior (superior) Hymenal cleft/ notch (above 3 to 9 o'clock line) External hymenal ridge</p>	<p>Category 3: Concerning for abuse or trauma³ Marked (>1.5-2 cm) immediate dilation of the anus (no stool in rectum) Hymenal notch/cleft extending through more than 50% of the hymenal rim, persisting in different positions and techniques) Acute abrasions, lacerations, or bruising of labia, perihymenal tissues, penis, scrotum, or perineum (DD accident, physical abuse) Bite marks or suction marks on the genitalia or inner thighs Scar or fresh laceration of the posterior fourchette Perianal scar</p>
<p>Category Ib: Normal variants Septate hymen Failure of midline fusion (perineal groove) Groove in the fossa in a pubertal girl Diastasis ani Perianal skin tag Increased perianal pigmentation</p>	<p>Category 4: Clear evidence of blunt force or penetrating trauma Acute laceration of the hymen Ecchymosis (bruising) on the hymen Absence of hymenal tissue (confirmed in knee chest position) Hymenal transection („complete cleft“) Perianal lacerations extending deep to the external anal sphincter</p>
<p>Category Ic: Other conditions Genital hemangiomas (labia, hymen, perihymenal area) Lichen sclerosus et. atrophicus Beçet's Disease (genital ulcers, DD HSV) Anogenital streptococcal cellulitis Molluscum contagiosum, Verruca vulgaris Vaginitis (enteric organism, streptococci) Urethral prolapse Vaginal foreign body</p>	<p>Category 2: Nonspecific findings² Erythema of internal or external anogenital tissues Increased vascularity of the vestibule Labial adhesion (synechiae) Vaginal discharge Vesicular lesions in the anogenital area (DD HSV, syphilis) Anogenital warts Thickened hymen (DD posttraumatic swelling, infection, estrogen) Anal fissures Flattened anal folds Anal dilatation of any size (if stool is present in the rectum or after 30 seconds in knee chest position) Vaginal bleeding (broad DD) Notch or cleft in the posterior (inferior) portion of the hymen, less than 50% of the hymenal rim</p>

Part 2: Overall assesment of the likelihood of abuse

<p>Class 1: No indication of abuse Normal exam. no history, no behavioral changes, no witnessed abuse Nonspecific findings with known or likely explanation, no history, no behavioral changes Child considered at risk for sexual abuse but gives no history, only nonspecific behavior changes Physical findings of anogenital injury with clear and believable history of accidental trauma</p> <p>Class 2: Possible abuse Category 1 or Category 2 finding in combination with significant behavior changes. Especially sexualized behaviors, but child unable to give a history of abuse Herpes Type I anogenital lesions, in the absence of a history of abuse and with an otherwise normal examination Condyloma accuminata. With otherwise normal examination; no other STD present, and child gives no history of abuse (Condyloma in a child older than 3-5 years is more likely to be from sexual transmission) Child has made a statement, but not sufficiently detailed, not consistent or was obtained by leading questions)</p> <p>Class 3: Probable abuse Child has given a spontananeous, clear, consistent, and detailed description of being molested, with or without abnormal or positive physical findings on examination Positive culture for Chlamydia trachomatis from genital area (prepubertal child). or cervix (adolescent); no perinatal transmission Positive culture for Herpes Simplex Type 2, (genital or anal lesions) Trichomonas infection (wet mount or culture); no perinatal transmission</p> <p>Class 4: Definite evidence of abuse or sexual contact Category 4 physical findings with no history of accident Finding of sperm or seminal fluid in or on a child's body Pregnancy Positive, confirmed cultures for N. gonorrhoea (vaginal, urethral, anal, or pharyngeal) Syphilis, no perinatal transmission Cases where photographs or videotapes show a child being abused HIV infection with no possibility of perinatal transmission or via blood products or contaminated needles</p>
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Annotations DD = Differential diagnosis

1 Found in newborns and nonabused children

2 Findings that may be the result of CSA but frequently have other causes

3 Findings that have been noted in children with documented abuse and may be suspicious for abuse but for which insufficient data exist to indicate that abuse is the only cause; history is crucial in determining overall significance

Sexually transmitted diseases

Sexually transmitted diseases (STD) are discussed in a different chapter of this book. We only refer to a few important characteristics with regard to child sexual abuse.

STD may be the only medical indicator of sexual abuse in selected cases. The American Center for Disease Control (CDC) states that the diagnosis of a sexually transmitted disease in a child beyond the neonatal period suggests sexual abuse (CDC 1998). The interpretation differs according to the respective disease. STD are diagnosed in 1-5 % of abused children. The differences result from factors like type and frequency of the abuse, the age of the victim, the methods for testing and varying regional prevalence. Cultures and smears for STD should only be obtained in selected cases as the yield of positive cultures is very low in asymptomatic children (Ingram 1992, Siegel 1995, AAP 1999, Muram 2000). Proposed selection criteria for STD screening include genital discharge at examination or in the recent history, a perpetrator with a known or suspected STD or with high risk behavior, anogenital findings indicating penetrative abuse, a history of genital-to-genital (or –anal) contact or penetration, concern of the patient or its caretakers or specific genital lesions. The screening includes vaginal and anal cultures for gonorrhea and chlamydia and a vaginal smear for trichomonas vaginalis. Prepubertal gonorrhea and chlamydial infections are localized vaginal infections. Swabs should be taken from the vaginal wall beyond the hymen. Cervical swabs are not indicated before adolescence. Extending the screening to syphilis, Hepatitis B and HIV should be done on a case to case decision. Adequate and optimal technique of obtaining specimens, choice testing methods and cultures are of paramount importance due to the forensic implications of positive results. Recently the use of nucleic acid amplification methods has become increasingly popular in testing for STDs. Specific considerations and limitations have to be kept in mind when used for possible prepubertal sexual abuse (Hammerschlag 2001).

Except in documented congenital infections confirmed positive cultures for *Neisseria gonorrhoea* in a prepubertal child or serologic proof of an acquired *syphilis* are definite evidence of sexual abuse. Perinatally acquired infections with *Chlamydia trachomatis* have been demonstrated to persist as long as 2 years in the genital area and up to 3 years in the pharynx. Infections appearing after the first two years of life are strong indicators of child sexual abuse. Infections with *Trichomonas vaginalis*, *Herpes genitalis* and *Condylomata acuminata* should raise the suspicion of sexual abuse and warrant further screening (AAP 1999, Beck-Sagué 1999, Muram 2000, Ingram 2001b).

Differential diagnosis

Beside the normal findings, normal variants and unspecific findings there are a number of important differential diagnoses to consider when evaluating children with abnormal anogenital findings for possible sexual abuse.

One of the areas of concern is *accidental genital injuries*. The pattern of injury and accompanying history however frequently provide sufficient information for differentiating them from abusive trauma. Most accidents result from straddling, referring to children falling on hard objects like a bicycle bar or a furniture arm with their genital area. Usually this causes an injury of the external genital structures which are crushed between the object and the underlying bones. The injuries involve the labia majora and minora and the clitoral hood and rarely involve the deep and protected structures like the hymen and the posterior fourchette. Published reports regarding accidental genital injuries describe them to be mostly minor and superficial, located anterior, external and unilateral. In most cases of accidental injuries the hymen is not involved. (Dowd 1994, Bond 1995, Pokorny 1992, 1997, West 1989). Exceptions are rare cases of accidental penetrating injuries (Boos 1999). Other types of injury reported in the literature include a case of posterior vaginal laceration near the hymen by a water slide accident (Kunkel 1998), seat belt injuries in motor vehicle accidents (Baker 1986) and midline splitting injuries with and without hymenal involvement due to inline skating accidents (Herrmann 2002b). All reports stress the overwhelming importance of the history which tends to be spontaneous, acute and dramatic. It is consistent with the injuries and does not change over time or between different caretakers or between caretakers and child. Also the immediate consultation of medical help favors the diagnosis of accidental trauma.

Dermatologic conditions which need to be differentiated from sexual abuse include erythema and excoriations in *unspecific skin irritation or infection, diaper dermatitis, lack of hygiene, irritant substances* (bubble bath, cosmetic care products), *moniliasis, genital varicella* and *oxyuriasis*. **Recurring vaginitis** is often an area of concern especially when expressed in the context of custody debates. The child returning from the separated father after a weekend visit with red genitals may as well have experienced a paternal lack of hygiene, or his aversion to properly clean the genital area because he fears allegations of sexual abuse. Although abuse is possible and parental separation may result from non-disclosed abusive family constellations research indicates much lower numbers of abused children in this context as commonly thought (Corwin 1987). *Vaginitis* is the most prevalent pediatric gynecology health problem and requires a systematic approach and broad differential diagnosis. Unclear and recurring vaginitis should warrant concern and further evaluation but is never diagnostic per se (Vandeven 1993, Bays 2001).

An infection caused by *Group A β -hemolytic streptococci* (GABHS) may cause a fiery red, edematous and tender vaginal or perianal inflammation, sometimes accompanied by various forms of discharge: thin, thick, serous, blood tinged, creamy, white, yellow or green. Cultures have to be specifically

requested as streptococci do not grow on routine media. Treatment is according to pharyngeal infections with a 10-day course of oral penicillin (Mogielnicki 2000).

A frequently mistaken diagnosis of child sexual abuse occurs in children who present with anogenital *lichen sclerosus et atrophicus*. After initial white papules that form to white plaques, the skin becomes delicate and atrophic. It is extremely susceptible to minor trauma like wiping with toilet paper, causing fissuring or alarming subepidermal hemorrhages and spontaneous bleeding. The typical presentation is a „hourglass“ or „figure of eight“ configuration of decreased pigmentation around the labia majora and the anus (Jenny 1989, Warrington 1996, Young 1993, Herrmann 1998).

Cutaneous bleeding may also be caused by *leukemia*, *disseminated intravascular coagulation*, *purpura fulminans* and other *coagulation disorders*. **Urethral bleeding** is rather caused by urethral prolapse (especially prevalent in African-American girls), polyps, hemangioma, or papilloma than by sexual abuse (Johnson 1991). **Vaginal bleeding** requires careful evaluation of the underlying causes. Most frequently it is caused by *vaginitis* (approximately 70%). Other less frequent causes include *precocious puberty*, *sarcoma botryoides* (embryonal rhabdomyosarcoma), internal or external application of *hormones*, or unspecific, *idiopathic* bleeding (Bays 2001).

Congenital conditions mistaken for sexual abuse include *hemangioma* of the hymen, vagina and labia. They may bleed or ulcerate. *Failure of midline fusion* is a congenital defect resembling scar tissue. Sometimes it is combined with an anteriorly located anus and also frequently creates confusion and misinterpretation as an abuse related finding. **Anal findings** to be differentiated from abuse are *fissures* in chronic obstipation, Morbus Crohn, *rectal prolapse* or a *streptococcal-A-cellulitis* (Bays 2001).

Overall assessment

In spite of an abundance of data on medical findings in child sexual abuse victims and their differentiation from normal, normal variants and other differential diagnoses, the medical proof of abuse remains the exception when evaluating suspected sexual abuse cases. This would be the case in massive acute anogenital trauma in the absence of a convincing history of accidental trauma, proof of gonorrhea or syphilis (after excluding a congenital infection), pregnancy, proof of semen, sperm cells, acid phosphatase or sperm specific glycoprotein p30 in or on the body of a child.

The overall assessment of the likelihood of sexual abuse and the final conclusions have to be done conscientious and need to include all physical findings, possible laboratory results and especially the history obtained from the child. The medical expert contributes a thoughtful and qualified piece of evidence to the multidisciplinary puzzle of evaluating children for possible child sexual abuse. Strictly medical interventions in child sexual abuse include treatment of injuries, infections, or STDs, and emergency contraception. Reassurance of physical intactness should be an integral part of the medical examination. The ongoing management and interventions in therapeutic, social and legal fields is no

longer the duty of the medical expert. He participates in referral to therapy, emotional guidance of the family, and assisting the legal system in cases with confirmatory findings. It is crucial to develop extensive interdisciplinary and multiprofessional cooperation and consultation in all cases.

Although we are constantly learning more about the role and significance of medical aspects in suspected sexual abuse cases the diagnosis „child sexual abuse“ primarily rests on the professionally and qualified obtained descriptive statements made by an abused child.

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