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# The prevalence of abnormal genital findings, vulvovaginitis, enuresis and encopresis in children who present with allegations of sexual abuse

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## KEYWORDS

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**Abstract** *Objective:* To assess the prevalence of vulvovaginitis, enuresis and encopresis in children who were referred for allegations of sexual abuse.

*Subjects:* A retrospective chart review of 1280 children presenting for non-acute examination after allegations of sexual abuse during a 15-year time span. Interview documentation, physical examination documentation, urinalysis, urine and vaginal cultures were reviewed.

*Results:* Of the 1280 children, 73.3% were female and 26.7% male. The ages of the children ranged from 6 months to 18 years (median age was 6 years). Interviews revealed that fondling contact was the most common allegation, followed by oral, vaginal, and anal penetration. Interviews also disclosed lower urinary tract symptoms, UTI, constipation, encopresis and enuresis. Physical examination revealed no abnormal genital findings in 44.7% of cases. Examinations of the vagina noted: erythema (18.1%); hymenal notching (posterior 16.8%, anterior 4.4%); vulvovaginitis (14.0%); laceration or transection (0.6%); and bruising (0.4%). Examination of the anus noted: anal fissure/tear (14.9%); loss of anal tone (10.6%); reflex anal dilatation (9.2%); venous congestion (3.8%); and proctitis (0.9%). Vulvovaginitis was noted in 14% (131/936) and encopresis in 2.3% (21/936). Enuresis according to age was reported in 13% of 5–9 year olds, 14.7% of 10–16 year olds and 18.2% of 17–18 year olds suspected of being abused.

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**Conclusion:** Prevalence of vulvovaginitis and enuresis were increased, and encopresis was decreased in children with allegations of sexual abuse when compared to the general pediatric population. Physicians should continue to be aware of the possibility of the presence of these conditions in children who have been sexually abused, and offer appropriate treatment.

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## Introduction

Sexual abuse of children is a prevalent reality in pediatric medicine; it is estimated to victimize 12–25% of girls and 8–10% of boys by the age of 18 [1]. A national survey in the United States of America (USA) found that 18.7% of girls were victims of sexual assault, and that 13.8% were victims of attempted or completed rape by the age of 18 [2]. The 2005–2006 National Incidence Study noted that sexual abuse cases came to the attention of investigators or community professionals in 2.4/1000 American children under the age of 18 [3]. Evaluation of children presenting after sexual abuse was included in pediatric residency programs in the United States in 1997, this included assessment for urogenital complaints such as vulvovaginitis, enuresis and dysfunctional voiding [4].

Vulvovaginitis is the most common gynecological problem in female pediatric populations [5,6]. Symptoms include: vaginal discharge, erythema, soreness, pruritus, dysuria and bleeding. Prepubertal girls are at an increased risk of vulvovaginitis because of: the vulva being unprotected, due to its close proximity to the anus; an immature labia minora; lack of labial fat pads; and lack of pubic hair. Lower estrogen levels cause a more alkaline vaginal pH, which leads to increased sensitivity to irritants and pathogenic microorganisms. Personal hygiene, obesity, choice of clothing (tights and blue jeans), transmission of respiratory bacteria via hands to the perineal area, and tendency for young children to wipe 'back to front' add to risk [7].

Vulvovaginitis etiology may include bacterial, fungal, pinworm, protozoan or viral infections, foreign bodies, localized skin disorders and irritation/contact dermatitis [8]. Characterized by pruritis and discharge, non-specific or common pathogens such as *Streptococcus pyogenes*, *Haemophilis influenza*, *Staphylococcus aureus* and *Enterobius vermicularis* are causative; fungal and viral infections are less frequent [7,9]. Sexual abuse has also been considered to be a factor. Vaginitis has been reported to be a common examination finding in children evaluated for sexual abuse [5,10].

Examinations for child sexual abuse are rarely performed in the acute stage, meaning within 72 h of the event. Many children most often delay abuse disclosure; this represents a big challenge for forensic examiners and for the use of physical exam data in court. Physical findings diagnostic of sexual abuse that may make a difference in court are seen in less than 5% of those children examined forensically for sexual abuse [11,12].

Vaginal discharge, posterior hymenal transections and deep hymenal notches raise suspicion of sexual abuse in prepubertal girls; however, these findings do not independently confirm the diagnosis. Berkoff et al. [13] noted that

presence of vaginal discharge indicated increased likelihood of sexual abuse (95% CI). Hymenal transections, deep notches and perforations prompted concerns for genital trauma from sexual abuse, but sensitivity was unknown. Deep clefts in the posterior hymen have consistently been absent in non-abused, prepubertal girls [14]. Without a history of genital trauma from sexual abuse, the majority of prepubertal girls do not have a hymenal transection (specificity close to 100%). Also noted were low or unknown sensitivity of all physical examination findings evaluated. These authors proposed that physical examination couldn't independently confirm or exclude non-acute sexual abuse as the cause of genital trauma in prepubertal girls [13].

When physical evidence is present, it is important that the child sexual-abuse examiner performs many regular exams, regularly reviews cases with experts and keeps up to date with current research [15]. In most examined cases, physical findings are normal, with no evidence of trauma. Many types of abuse leave no physical evidence; genital mucosal epithelial injuries often heal quickly and completely. Surprisingly, only 2 out of 36 pregnant adolescents who present for sexual abuse evaluations have evidence of penetration [16].

Sexually transmitted diseases are often detectable in cases of sexual abuse. Guidelines for evaluation from the American Academy of Pediatrics indicate that gonorrhea, syphilis, HIV and Chlamydia (if not perinatally or transfusion-acquired) are diagnostic of sexual abuse; *Trichomonas vaginalis* is highly suspicious. Condyloma acuminatum (if not perinatally acquired), and Herpes genitalis are also suspicious. It is suggested that any positive finding are to be reported. Bacterial vaginosis is inconclusive for sexual abuse and should have medical follow-up [4,17].

Enuresis (involuntary leakage from the bladder) in a child old enough to have developed urinary control is one of the most common health problems in the pediatric population; estimated at 3.8%–24.0% of children. The wide range of this estimate is due to different definitions used by International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10), Diagnostic and Statistical Manual of Mental Disorders 3rd Revision (DSM-III), and Diagnostic and Statistical Manual of Mental Disorders 4th Revision (DSM-IV). Studies indicated that when using the stricter DSM-IV requirements for diagnosis, the prevalence is only 3.8% [18]. Prevalence has been reported as up to 20% of 5 year olds, 7–10% of 10 year olds and 0.5% of 18 year olds [19].

Etiology of enuresis is not fully understood, the possible mechanisms proposed include: genetic factors, sleep disorders, developmental delays, infections and anatomic/hormonal factors. Often, a combination of these factors exists. Instances have been cited where sexual abuse may

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