Evaluation of Lower Urinary Tract Symptoms in Children Exposed to Sexual Abuse

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Purpose: To evaluate the lower urinary tract symptoms (LUTS) in children that are exposed to sexual abuse.

Materials and Methods: Fifty-two patients, including 8 male and 44 female children/adolescents presented with sexual abuse to the outpatient clinics were evaluated retrospectively (group 1). In group 1, the subjects were categorized into sexual touch (n = 35) and sexual penetration (n = 17). All the patients were evaluated with a detailed medical history, physical examination, and a dysfunctional voiding and incontinence scoring system questionnaire. Thirty age-matched children were evaluated as a control group (group 2).

Results: The mean age of the patients was 12.2 ± 3.6 years and 12.0 ± 4.5 years in groups 1 and 2, respectively (P = .848). The mean age of the subjects in sexual touch and sexual penetration groups was 10.8 ± 3.6 years and 14.9 ± 1.5 years, respectively. The difference between sexual touch and sexual penetration groups was statistically significant (P = .0001). The incontinence rate was 30.76% and 23.3% in groups 1 and 2, respectively. This difference was not statistically significant (P = .640). The rates of daytime incontinence, nocturnal enuresis, diurnal incontinence, urgency, and continence maneuvers were 25.7%, 17.1%, 22.9%, 42.9%, and 20%, respectively, in sexual touch group, while they were found to be 5.9%, 0%, 0%, 17.6%, and 5.9%, respectively, in sexual penetration group.

Conclusion: Although a significant association was not detected between sexual abuse and LUTS, it was seen that LUTS, such as urinary incontinence and urgency, were higher in children exposed to sexual abuse than the control group.

Keywords: sex offenses, child, urinary incontinence

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INTRODUCTION

Since ancient times, sexual abuse has been an important public health problem, which can be encountered globally without discriminating between ethnic, religious, or socioeconomic groups. Sexual abuse is defined by International Society for the Prevention of Child Abuse and Neglect as a social and medical problem in which a child under the age of consent is involved in an act resulting in sexual satisfaction of an adult or connivance of such an act. [1] Although child sexual abuse is a frequently encountered condition which generally lasts for years, it is the most challenging diagnosis among various types of child maltreatment due to attempts to hide the act. Although data relating to the prevalence of child sexual abuse differ widely, actual rates were reported to be 7% to 12% in

women and 5% to 8% in men.[1]

Sexual abuse can be seen in both children and adults. The importance of evaluation of child abuse in terms of its associated social and psychological dimensions is well-known.[2] Child sexual abuse is defined as the involvement of a child in a sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared, or else that violates the laws or social taboos of the society.[3,4] In children exposed to sexual abuse, in addition to psychiatric disorders, such as anxiety, depression, substance dependence, borderline personality disorders, and post traumatic stress disorder, the presence of lower urinary tract symptoms (LUTS) have been reported in a limited number of studies.[5,6]

Apart from anatomopathologic and neurological causes, such as daytime lower urinary tract conditions, ectopic ureter, extrophy, epispadias, and urethral valve, LUTS usually develop because of bladder filling and/or voiding dysfunction. Daytime lower urinary tract conditions which is seen at different rates ranging between 2% and 20%, encompass urgency, incontinence, weak stream, hesitancy, frequency, and all dysfunctional forms of urinary incontinence due to pediatric urinary tract infections.[7,8] Extremely limited number of publications related to urinary system disorders in children exposed to sexual abuse are cited in the literature, which have reported the emergence of genitourinary symptoms, such as vaginal pain, enuresis, dysuria, frequency, and urgency versus daytime incontinence.[9] In this study, we evaluated the correlations between LUTS and age, gender, socioeconomic, and cultural levels of the sexual abused victims.

MATERIALS AND METHODS

Between November 2005 and December 2008, 862 subjects presented with sexual abuse to the outpatient clinics of Department of Forensic Medicine.

Dysfunctional voiding and incontinence symptoms score guestionnaires were completed during face to face interview.[10] Subjects with recurrent urinary tract infections, vesicoureteral reflux, neurogenic bladder, structural urinary tract abnormalities, and those with a history of pelvic surgery were excluded from the study. Fifty-two patients, including 8 male and 44 female children/adolescents were evaluated retrospectively (group 1). In group 1, the subjects were categorized into two groups based on the type of sexual abuse as sexual touch (n = 35) and sexual penetration (n = 17). Thirty age-matched children were evaluated as a control group (group 2).

Statistical analysis was done using SPSS (Statistical Package for the Social Sciences, Version 18.0, SPSS Inc, Chicago, Illinois, USA) software. For intergroup comparisons of categorical variables used in the study, Chi-square test was utilized, while categorical variables were expressed as numerical values and percentages. For comparison of patients'age in sexual touch and sexual penetration groups, independent two-sample *t*-test was used. *P* values less than .05 were considered statistically significant.

RESULTS

The mean age of the patients was 12.2 ± 3.6 years and 12.0 ± 4.5 years in group 1 and group 2, respectively ($P = .848$). In group 1, the mean age of the subjects in sexual touch group and sexual penetration group was 10.8 ± 3.6 years and 14.9 ± 1.5 years, respectively. The difference between sexual touch and sexual penetration groups was statistically significant ($P = .0001$).

Victims of the sexual abuse were distributed based on their age as follows: 5 years (n = 2; 3.8%), 6 years (n = 3; 5.8%), 7 years (n = 5; 9.6%), 8 years (n = 1; 1.9%), 9 years (n = 2; 3.8%), 10 years (n = 1; 1.9%), 11 years (n = 4; 7.7%), 12 years (n = 5; 9.6%), 13 years (n = 5; 9.6%), 14 years (n = 4; 7.7%), 15 years (n = 11; 21.2%), 16 years (n = 4; 7.7%), and 17 years old (n = 4; 7.7%).

The incontinence rate was 30.76% and 23.3% in groups 1 and 2, respectively. This difference was not statistically significant ($P = .640$). The rates of the bladder dysfunctions in children exposed to sexual abuse are depicted in Table 1.

Table 1. Bladder dysfunctions in children exposed to sexual abuse

	Sexual touch (n = 35)	Sexual penetration (n = 17)
Daytime incontinence	9 (25.7%)	1 (5.9%)
Enuresis	6 (17.1%)	-
Diurnal incontinence	8 (22.9%)	-
Continence maneuvers	7 (20%)	1 (5.9%)
Urgency	15 (42.9%)	3 (17.6%)

As table shows, in sexual penetration group, nocturnal enuresis and diurnal incontinence were not detected. The urgency rate was 20% in the control group. The maternal and paternal educational levels of the sexual abuse survivors are demonstrated in Table 2.

DISCUSSION

Urinary incontinence which affects the psychological and social well-being of victims and parents has been defined by International Children Continence Society as an inability to keep urine in the bladder with ensuing involuntary. Daytime LUTS refers to dysfunctional bladder disorders, including uropathies and neuropathies, and are reportedly seen in 2% to 20% of pediatric population.[8,9] In the age group ranging between 6 to 12 years, daytime incontinence is seen more frequently in girls relative to boys (3.1% versus 2.1%).[11] The incidence of combined daytime incontinence in girls and boys has been reported as 1.5% and 2.8%, respectively.[12] Within this age group, the incidence of urgency is reported to be 4.7% in girls and 1.3% in boys,[11] while the corresponding percentages for nocturnal incontinence are 1.5% and 8.9%, respectively.[11-14] In this study, the incontinence and urgency rates in groups 1 and 2 were found to be 30.76% and 34.6%, and 23.3% and 20%, respectively.

Several factors, including central or peripheral nervous system, local or systemic mediators, and psychologic status of the person may play a role in the normal voiding pattern.[15-17] Any anatomic, functional, and neurologic impairment in any phase of the normal micturition cycle leads to urinary dysfunction. The etiologies of voiding dysfunctions are analyzed in two main groups as filling and voiding phase dysfunctions. Among filling phase disorders, overactive bladder, urgency syndrome, underactive, or high-compliance neurogenic bladder (lazy bladder syndrome) can be enumerated, while sphincter insufficiencies constitute voiding phase disorders. We also recognize that neurogenic disorders, previous surgical interventions, congenital, metabolic, and psychogenic factors, and miscellaneous infections can impair normal physiologic mechanism of micturition. In addition to above-mentioned factors, in a limited number of studies, sexual abuse has been implicated in the etiopathogenesis of voiding dysfunction.[18]

Childhood sexual abuse is a complex problem with social, moral, and emotional dimension and is not usually disclosed to anyone, which prevents obtainment of precise and complete information about its actual incidence. It was found that as children grow older, they are exposed to various types of sexual abuse, and mind-body integration is broken. In our study, victims in the sexual penetration group are apparently older than those in the sexual touch group. The prevalence of sexual abuse in children aged $\leq$ 18 years was estimated to be 1.3/1000, which was reportedly higher in girls as in our study.[19] In another study, prevalence of childhood sexual abuse was detected to be in a much higher range (7% to 38%).[20,21]

Sexual abuse can be in the form of non-contact

Table 2. The parental educational level of the children exposed to the sexual abuse

	Maternal Level of Educatıon		Paternal Level of Educatıon	
	Sexual touch (n = 35)	Sexual penetration (n = 17)	Sexual touch (n = 35)	Sexual penetration (n = 17)
Illiterate	4 (11.42%)	-	-	0
Primary school	28 (80%)	16 (94.11%)	27 (77.14%)	12 (70.58%)
Secondary school	2 (5.71%)	-	2 (5.71%)	2 (11.76%)
High school	1 (2.85%)	1 (5.88%)	5 (14.28%)	3 (17.64%)
University	-	-	1 (2.85%)	-

sexual abuse (obscene talks or voyeurism), sexual touch (touching private parts of the body), oral sex (oral-vaginal, oral-penile, or oral-anal intercourses), interfemoral contact, sexual penetration (vaginal, anal, or genital penetration with a finger or a foreign substance), sexual exploitation, child pornography, and child prostitution.[22] In our study, subjects were categorized in sexual touch and sexual penetration groups.

Although a very strong correlation exists between non-sexual abuse, and lower socioeconomic level,[23] in subjects of sexual abuse, the situation is still under debate. However, lower socioeconomic level has been detected in patients who referred for assessment of sexual abuse. Even if association between childhood sexual abuse and socioeconomic status is not clear cut, it is markedly correlated with the parental educational level.[24] In our study, 28 (80%) mothers and 27 (77%) fathers in the sexual touch group were of primary school graduates.

Various studies have demonstrated the association between sexual abuse and pelvic pain, headache, gastroenterologic, and genitourinary symptoms.[25-29] In the afore-mentioned studies, psychologic problems have taken the lead, without attempting evaluation of LUTS. Apparently, very limited number of studies have investigated the association between sexual abuse and LUTS. In adults who were exposed to sexual abuse during childhood, daytime lower urinary tract conditions can be seen more frequently when compared with those without such a history, and these complaints might extend into advanced ages. In a study by DeLago and colleagues on 161 female subjects exposed to sexual abuse, the authors detected genitourinary symptoms, such as dysuria and genital pain to be 47.7% and 71.6% in the sexual penetration group, while the corresponding percentages in the sexual touch group were 24.7% and 31.5 %, respectively.[30] In a study by Klausner and associates, the incidence of urgency was found to be 20.1%,[21] while it was 42.9% in our study. In our study, it was seen that LUTS were much higher in sexual touch group than sexual penetration group, which may be due to the lower mean age in the sexual touch group.

CONCLUSION

Although a significant association was not detected between sexual abuse and LUTS, it was seen that LUTS, such as urinary incontinence and urgency were higher in children exposed to sexual abuse than the control group. Therefore, potential LUTS should be taken into consideration in evaluation of children exposed to sexual abuse. Scarcity of the subjects and lack of psychiatric evaluation of the children exposed to sexual abuse are limitations of this study. Thus, further investigations with larger number of participants and detailed psychiatric evaluations should be performed to reveal etiopathogenesis of the association between sexual abuse and LUTS.

CONFLICT OF INTEREST

None declared.

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