

# ANALYSIS OF CASES OF SEXUAL ASSAULT PRESENTING AT A MEDICAL CENTER IN TAIPEI

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## SUMMARY

**Objective:** Sexual assault is a form of interpersonal violence with significant consequential health problems. The purpose of this study was to describe the characteristics of the victims, assaults, and associated physical and psychologic trauma of sexual assault cases in Taipei.

**Materials and Methods:** Data were retrospectively collected from the medical records of sexual assault victims who visited the emergency department of a medical center in Taipei from 1991 to 2003. The characteristics of the victims, assaults, and factors associated with general body and genital trauma were analyzed.

**Results:** There were 114 sexual assault victims, including 107 females and seven males, aged from 3 to 49 years (mean, 17.9 years). Overall, 72.3% of victims had evidence of physical trauma. Genital/anal injuries (53.3%) occurred more often than general body trauma (41.0%). The presence of general body injuries was positively associated with physical examination within 72 hours, and negatively associated with a victim age younger than 18 years. Genital/anal lesions were significantly more common in victims without prior sexual intercourse.

**Conclusion:** The results of physical examination in sexual assault victims were related to early examination, age, and sexual experience. [*Taiwan J Obstet Gynecol* 2010;49(2):165–169]

**Key Words:** forensic medicine, genital/anal injury, sexual assault, trauma

## Introduction

Sexual assault is a unique type of interpersonal violence with profound consequences for the victims; it is considered to be a significant global problem, as well as a public health issue [1]. Sexual assault is a major violent offence that mainly affects women, but also a limited number of men. Increases in the incidence of sexual assault, in the percentage of attackers known by their victims, and in the incidence of oral and anal assault have been noted [2]. It is estimated that 13% of women and 3% of men worldwide may be raped at some time in

their life [3]. According to the Annual Report of the National Police Agency (<http://www.npa.gov.tw>), there were 766 and 3,752 reported sexual assault cases in Taiwan in 1991 and 2007, respectively. Moreover, a large fraction of victims do not seek medical care or report to the police. There is an escalating epidemic of sexual assault in Taiwan and in other Asian countries.

The acute treatment of sexual assault victims is crucial. The physician's function is to take care of the injuries, identify the psychologic needs of patients, and collect forensic evidence. It is, therefore, necessary for physicians to be aware of the epidemiology of sexual assault victims, their associated injuries, and the risks of related problems. However, few studies have reported on the characteristics of acute physical and psychologic trauma, and the management of sexual assault victims in Asia.

The aim of this study was to analyze the characteristics of the victims, assailants, assaults, physical injuries,



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Accepted: January 8, 2009

and psychologic trauma of sexual assault cases who sought emergency care in Taipei.

## Materials and Methods

This retrospective study was conducted in a medical center in Taipei and was approved by the institutional review board. Patients who had visited the emergency department (ED) with alleged sexual assault (or rape) between January 1991 and December 2003 were recruited. Sexual assault was defined as completed or attempted genital (beyond the labia majora) and/or anal penetration by a part of the attacker's body (including penis, mouth or fingers) or by an object, and/or penetration of the mouth by the penis, using force, or without the victim's consent [4,5]. Cases that met the definition of sexual assault were included, whereas cases without complete available medical records of the assault were excluded. Only one woman was seen more than once (twice) for sexual assault during this time period; both of her visits were included in the analysis. Examination of the victims was usually performed by the gynecologic, urologic, surgical or psychiatric resident on duty in the ED, under the guidance of responsible staff.

The following data were obtained from the medical records for each case:

1. Demographic characteristics of the victim, including age, sex, marital status, prior sexual intercourse, menstruation cycle, occupation, and vulnerability.
2. Condition of the victim when the attack occurred. Impaired consciousness was recorded when the patient reported that he/she was asleep, drunk or markedly intoxicated by drugs at the onset of the attack. Amnesia was recorded when the victim could not remember part or all of the assault.
3. Time, frequency, and place of sexual assault.
4. Time between the last sexual assault and physical examination.
5. Number, sex, and type of assailant(s). The assailant was defined as a stranger when the victim met or contacted the offender for the first time the same day as the attack took place. The attacker was classified as an "acquaintance", if the patient had experienced any social contact or a conversation with the attacker before the day of the assault. "Intimate partners" included current and former boyfriends, live-in partners, and spouses.
6. Type of sexual assault, including type of penetration.
7. Other violent attack and presence of a weapon.
8. Toxicologic and/or alcohol blood level analyses were performed when the clinical history involved drug abuse or if signs of intoxication were present.
9. Presence of general body and genital/anal trauma.
10. Results of psychiatric consultation.
11. Follow-up condition at outpatient department.

## Statistical analysis

Data were analyzed using  $\chi^2$  tests for dichotomous variables. Univariate and multivariate logistic regression analyses were performed with general body, genital/anal trauma or psychologic problems as the dependent variables. All statistical analyses were performed using SPSS version 10.0 statistical software (SPSS Inc., Chicago, IL, USA). A *p* value of  $<0.05$  was considered significant.

## Results

A total of 114 sexual assault cases were analyzed, including 107 (93.9%) female and seven (6.1%) male victims. Their ages ranged from 3 to 49 years, with a mean age of 17.9 years and a median of 17 years. About 39% (45 in 114) of the victims were teenagers (13–19 years old), and 24.6% (28 in 114) of the victims were younger than 13 years. Almost all (97.4%, 111 in 114) of the subjects were Taiwanese; only three were foreigners. Nearly 9% (10 in 114) of the cases had a handicap (five with mental retardation, five with mental/psychiatric diseases). Only one female victim presented with a drug abuse history. Most patients (83.3%, 95 in 114) received an examination within 72 hours of the last assault. Among the 19 patients examined later than 72 hours after the last sexual assault, 58% (11 in 19) were younger than 18 years. About 60% (68 in 114) of the victims had no previous experience of sexual intercourse. Most cases involved a single assailant (93.9%, 107 in 114). All of the offenders were male. Among the 87 cases with further descriptions of the offender(s), the assailant was an acquaintance in 55.2% (37 in 67) of cases. The perpetrator was a family member of the victim in three cases (3.4%, 3 in 87); father in two cases, and grandfather in one case). Assault by an intimate partner accounted for eight cases (9.2%, 8 in 87). Fourteen patients reported threats with weapons, including a knife (seven cases), and rope (three cases). Seven patients (6.1%, 7 in 114) told physicians that they were drugged by the offenders. Partial or total amnesia of the assault was reported in 26.3% (30 in 114) of victims because of drug intoxication (10 cases), drunkenness (eight cases), mental retardation (five cases), mental/psychiatric diseases (two cases), or young age ( $\leq 5$  years old; five cases). Vulvar/vaginal penetration (99.1%, 106 in 107) was most commonly reported for female victims, while anal and oral assaults occurred in one and two cases, respectively. Anal assault was

involved in 100% of male victims, with one also having suffered from oral assault. Penis penetration occurred in the majority of cases, whereas finger, tongue or object penetration occurred in three cases. Only one victim reported condom use by the assailant.

According to the medical records at the ED, two victims refused physical or urogenital examination, and seven cases revealed only old lacerations or mild reddishness, which could not be identified as assault-related lesions. Among the 105 patients with clearly determinate results of the physical examination, 72.3% (76 in 105) had physical trauma, whereas 27.6% (29 in 105) had no documented injuries. Genital/anal trauma (53.3%, 56 in 105) occurred more often than general body lesions (41.0%, 43 in 105). General body trauma was found in 41.8% (41 in 98) and 28.6% (2 in 7) of female and male victims, respectively. The most common general body injuries included bruises (86.0%, 37 in 43) and abrasions (23.3%, 10 in 43). Only one case had cuts inflicted by a weapon. The extremities were the most commonly injured areas, followed by the head. Genital/anal lesions were present in 53.1% (52 in 98) of female and 57.1% (4 in 7) of male victims. Hymenal, vulvovaginal and anal injuries were found in 43.9%, 30.6%, and 2.0% of the female cases, respectively. The most common genital/anal lesions included hymenal lacerations (41.8%), and abrasions on the labia (21.4%). Anal abrasions and/or lacerations were noted in 57.1% (4 in 7) of male victims, respectively. Four of the wounded female victims underwent suture repair of the genital lacerations because of extended wounds with active bleeding. One female victim suffered tooth loss as a result of beating.

Table 1 presents the results of univariate and multivariate analyses of factors related to the presence of general body trauma. General body trauma was more frequent in patients who received physical examination within 72 hours, whereas general body trauma was less frequent in patients younger than 18 years. These two factors were independently related to general body lesions in multivariate logistic regression analysis. Table 2 shows the results of univariate and multivariate analyses of risk factors for genital/anal injury. Genital/anal lesions were more frequently found in victims without prior experience of intercourse and in victims younger than 18 years. Nevertheless, a statistically significant correlation between patients without prior experience of intercourse and patients younger than 18 years was noted. Multivariate logistic regression analysis only identified an association between genital/anal trauma and victims without prior experience of intercourse. The effect of patient age on genital/anal injury was not significant, after adjustment for vaginal status of the victims in the multivariate model.

**Table 1.** Results of univariate and multivariate logistic regression analyses of factors associated with general body trauma

Factor	OR* (95% CI)
Univariate	
Age groups	
≥ 18 years	1.0 (reference)
< 18 years	0.41 (0.19–0.92) <sup>†</sup>
Examination within 72 hours	4.42 (1.13–15.4) <sup>†</sup>
Multivariate	
Age groups	
≥ 18 years	1.0 (reference)
< 18 years	0.44 (0.20–0.99) <sup>†</sup>
Examination within 72 hours	3.87 (1.03–14.56) <sup>†</sup>

\*Odds ratio in univariate models and adjusted odds ratio in multivariate model; <sup>†</sup>*p* < 0.05. OR = odds ratio; CI = confidence interval.

**Table 2.** Results of univariate and multivariate logistic regression analyses of factors associated with genital/anal injury

Factor	OR* (95% CI)
Univariate	
Age groups	
≥ 18 years	1.0 (reference)
< 18 years	2.82 (1.28–6.25) <sup>†</sup>
No prior intercourse	9.46 (3.56–25.18) <sup>†</sup>
Multivariate	
No prior intercourse	8.57 (1.79–40.98) <sup>†</sup>
Age < 18 years	0.82 (0.14–4.90)

\*Odds ratio in univariate models and adjusted odds ratio in the multivariate model; <sup>†</sup>*p* < 0.05. OR = odds ratio; CI = confidence interval.

Psychiatric consultation was provided to 64.9% (74 in 114) of patients by physicians at the ED, but one patient refused the interview. Among the 73 interviewed patients, 97% (71 in 73) showed fear, horror, anger or sadness, as typical initial emotional responses to sexual assault. Post-traumatic stress disorder (PTSD) was diagnosed 1–6 months later in 62% (8 in 13) of the patients who subsequently visited the outpatient psychiatric clinic. The frequencies of PTSD diagnosis did not differ significantly between victims aged 18 years or above and victims younger than 18 years, or between victims with and without physical injuries.

Toxicologic urinalysis for drugs (REMEDI HS; Bio-Rad, Hercules, CA, USA) was performed in five cases with suspicious drug involvement. Benzodiazepines were detected in two cases. The blood alcohol level was assayed by gas chromatography in whole blood from two cases who consumed alcoholic drinks voluntarily, and the alcohol level was > 0.5 g/L in one patient.

## Discussion

Sexual assault is a physical and mental health problem, and also creates problems for the public health and criminal justice systems [1]. The management of sexual assault victims is most frequently handled in an ED, where a team of physicians and a range of equipment are always available. The demographic features of victims and assaults have been reported previously in the United States [2,5]. The percentage of female victims (93.9%), the fact that the majority of perpetrators were known by their victims, and the commonest type of assault (vaginal penis penetration) noted in this series were similar to those previously reported by Riggs et al [2]. However, the age distribution of the victims, the percentage and type of patients with vulnerabilities, and the percentage of victims without prior intercourse differed from previous reports from Western countries [2,5,6]. As in the report by Schei et al [7], intimate partners were seldom reported as offenders in this study, in contrast to the findings of some population-based studies [8,9]. The relatively lower prevalence of drug abuse and the relatively lower number of female alcoholic beverage consumers in this population may have contributed to the lower percentage of victims with amnesia caused by drug or alcohol intoxication, compared with a previous report by Sugar et al [5].

Previous studies found general body and genital/anal lesions in 40–82% and 6–87% of patients, respectively [2,5,10–15]. The percentages of patients with evidence of general body trauma (41.0%) and of genital/anal lesions (53.3%) in our study were similar to those reported by Cartwright [10] and Riggs et al [2], respectively. The relatively high rate of genital/anal injuries compared with the report by Sugar et al [5] may be associated with the higher percentage of victims without previous experience of sexual intercourse in the current series [15]. General body trauma was positively correlated with victim aged 18 years or older and with examination within 72 hours, as in previous reports [5,10]. Univariate analysis identified age (< 18 years old) and virginal status of the victim as being significantly associated with genital/anal lesions, as reported by Sugar et al [5]. Genital examination using colposcopy, toluidine blue staining, and anoscopy may increase the detection rate for genital/anal trauma [5,14,16]; because none of the above equipment or methods were used in this series, the actual rate of genital/anal lesions may have been even higher. Although the significance of microtrauma in healthy cases is controversial, the presence of genital/anal microtrauma is taken as important evidence of the occurrence of a sexual assault and is associated with a successful legal outcome [17]. Diagnostic colposcopy, anoscopy,

and toluidine blue staining are, therefore, recommended in the management of such cases [5,14,16].

Sexual assault may cause severe emotional pain for the victim, and induce acute and long-term anxiety, depression, trauma syndrome, and sexual dysfunction [18–20]. Emotional disturbance and PTSD were revealed in 97% and 62% of victims, respectively, in this series, in response to sexual assault [20–22]. Routine psychiatric consultation for sexual assault victims is indicated, especially for victims younger than 20 years. Child and adolescent sexual assault victims are at special risk for PTSD, a major depressive episode, substance abuse, eating disorders, and revictimization. Psychologic evaluation and preventive interventions are helpful in these patients [21]. In this series, PTSD was diagnosed in 62% of victims with follow-up visits, which was consistent with an overall rate of 55% in previous reports [20,22–24].

In conclusion, general body injuries, genital/anal lesions and psychologic trauma commonly occur as a result of sexual assault. The presence of general body injuries was positively associated with physical examination within 72 hours and negatively associated with victims younger than 18 years. Genital/anal lesions occurred mainly in victims without prior sexual intercourse. Physicians providing health care to the victims of sexual assaults should receive comprehensive training regarding the characteristics and management of this form of violence.

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