

Discrepancy between information reported by the victims of sexual assaults and clinical forensic findings

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ABSTRACT

INTRODUCTION: From the clinical forensic examination reports made at the Department of Forensic Medicine, the University of Copenhagen in 2007 concerning rape, attempted rape and sexual assault (RAS), information about the assault, including both violence and the perpetrator's line of sexual action was extracted, analysed and compared to the observed lesions (LE).

MATERIAL AND METHODS: A total of 184 girls and women were included in this retrospective study.

RESULTS: 75.5% of the victims were under 30 years of age. Observed LE: 79% had observed LE. 41% had body LE only, 19% genito-anal LE only, and 40% had both body and genito-anal LE. Half of the victims, who reported no exposure to violence, had body LE. Five victims also had LE of a self-inflicted character. Genito-anal LE: 47% had genito-anal LE, 64% of whom had one or two, commonest a tear. Body LE: 64% had body LE. 57% was caused by slight, blunt force. Information on line of sexual action was present in 148 cases. A total of 123 victims reported penetration: 94% vaginal, 16% anal and 20% oral. Three were exposed to anal penetration only. Eleven perpetrators used a condom. 50% of the cases with vaginal and/or anal penetration had genito-anal LE. Victims with both vaginal and anal penetration and victims who reported more than one perpetrator did not show more genito-anal LE. Anal penetration or attempted anal penetration has increased to 21% of cases.

CONCLUSION: Young victims are exposed to RAS. Half of them have genito-anal LE, typically one. Anal penetration or attempted anal penetration is increasing. This will often cause genito-anal LE. This finding stresses the importance that these examinations take place where both forensic and health-care expertise are offered.

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examination of the victims and the securing of forensic evidence such as semen and saliva from the perpetrator constitute important parts of the subsequent police investigation and ultimately the legal proceedings [3, 4].

The aim of this study was to correlate clinical forensic findings with information on the assault as presented by the victim.

MATERIAL AND METHODS

Data were extracted from the clinical forensic examination reports. These reports include a summary of the assault and a physical examination of the victim. The database at the DFM was searched for victims of sexual assault in the year 2007. A total of 197 cases met the search criteria. Nine examinations were not completed, and four cases involved male victims, leaving 184 fully examined females over the age of 12 years.

Forensic clinical findings (type, number and localisation of lesions, type of violence and severity) were compared with information provided by the victim (violence and/or threats and the line of sexual action). Lesions were classified as body lesions, genito-anal lesions or both. The type of lesion was classified as abrasions (grazes or scratches), contusions (bruises), submucosal haematomas, lacerations (cuts or tears), incised wounds (cuts, slashes or stabs), tissue swelling and redness (erythema). Lesions were also classified as caused by sharp or blunt force, and lesions caused by blunt force were additionally classified into slight, moderate or severe. Furthermore, possible self-inflicted lesions were noted [5].

Anamnestic information about perpetrator/s, their relationship to the sexually assaulted victim and other data are analysed in a joint study [6].

Trial registration: not relevant.

RESULTS

The median age of the victim was 20 years (range 12-89 years), with a total of 139 (75.5%) victims under the age of 30 years and seven (3.8%) over the age of 50 years. Most victims (n = 153; 83%) were examined within 24 hours after the assault, some (n = 14; 8%) were examined within 24-48 hours after, very few (n = 4; 2%) within 48-72 hours after the assault, and 11 (6%) victims

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A total of 500 rapes, attempted rapes and sexual assaults (RAS) were reported to the police in 2002 in Denmark. In 2007 this number had increased by 13% to 566 [1]. The Departments of Forensic Medicine in Denmark perform clinical forensic examinations of sexually assaulted victims at the request of the police [2]. RAS cases account for nearly a third of all clinical forensic examinations performed at the Department of Forensic Medicine, the University of Copenhagen (DFM). The

TABLE 1

The number of victims with different types of lesions and the number of respective types of lesions observed on each examined victim. A total of 117 (64%) of the victims had body lesions.

	Types of body lesions				
	bruises	abrasions	reddening	swelling	tissue contusions
Victims ^a , n (%)	78 (67)	73 (62)	29 (25)	11 (9)	5 (4)
Respective type of lesions observed on each examined victim, n (median)	1-32 (2)	1-100 (3)	1-22 (2)	1-3 (1)	1-2 (1)

a) 1 victim had body-incised wounds from sharp violence, probably all self-inflicted, and she is not included.

TABLE 2

Correlation between observed body lesions and whether the victims reported use of force or not. The values are n (%).

	Reported no violence	Reported exposure to violence incl. strangulation or other kinds of violence against the neck	No data on violence	Total
With observed body lesions	33	70	14	117 (64)
Without observed body lesions	38	22	7	67 (36)
Total	71 (39)	92 (50)	21 (11)	184 (100)

were examined more than 72 hours after the assault. In two cases, there was no information on the time of the assault.

Observed lesions

Lesions were observed in 145 (79%) victims. Of these, 59 had body lesions only, 28 had genito-anal lesions only, whereas 58 had both body and genito-anal lesions. Five victims had additional lesions of a self-inflicted character, whereas one of the 145 victims had self-inflicted lesions only. These self-inflicted lesions were made with razors or scratching with fingernails apart from one case in which a victim had burned herself.

Body lesions are shown in **Table 1**. These lesions were mostly caused by slight blunt force (n = 104; 57%), although 12 victims had lesions caused by slight to moderate blunt force, two had lesions caused by moderate blunt force and one had body lesions caused by severe blunt force. **Table 2** shows the correlation between body lesions and whether the victims reported the use of force or not.

The distribution of lesions is shown in **Figure 1**. About one third (n = 55) of the victims had one or two genito-anal lesions, and the most common lesion was a tear.

Line of sexual action

Table 3 shows the correlation between the line of sexual

action in terms of sexual activity during the rape, specifically whether penetration occurred or not and if any lesions were observed.

In the 25 cases where no penile penetration was reported, some were subjected to attempted penetration or other sexual violations. Nine victims reported attempted vaginal penetration, and six victims reported attempted anal penetration.

Of the 116 victims who reported vaginal penetration, 11 reported that the perpetrator used a condom, 41 reported ejaculation in the vagina, whereas 52 reported that they did not know if the perpetrator had ejaculated or not. Twelve cases had no information on ejaculation. Three of 20 victims who reported anal penetration reported that the perpetrator used a condom. Four reported that the perpetrator ejaculated in the anus. A total of 15 victims did not know if the perpetrator had ejaculated. Of the 20 victims who were subjected to anal penetration, 17 had also been subjected to vaginal penetration.

Of the 25 victims who were subjected to oral penetration, seven reported that the perpetrator had ejaculated orally. In all, 21 victims were penetrated both in the mouth and in another body cavity.

A total of 119 victims reported vaginal and/or anal penetration and of these 60 (50%) had genito-anal lesions (**Table 3**). On average, victims who were subjected to either vaginal or anal penetration had 1.5 genito-anal lesions. The 17 victims, who had been subjected to vaginal and anal penetration, had an average of 0.9 genito-anal lesions.

In 168 cases, the number of perpetrators involved was registered. In 14 (8%) cases, the victims reported more than one perpetrator who actively participated in the sexual contact, with two active perpetrators (10/14) being the most frequently reported number. The number of genito-anal lesions, frequency of anal penetration, or penetrations in more than one body cavity was not higher in this group than in the group with only one perpetrator. Overall, there were more cases with multiple perpetrators than stated above. However, these perpetrators only participated indirectly in the assault, e.g. by incapacitating the victim or guarding an exit.

A total of 86 victims reported exposure to other sexual actions than penile penetration. In 36 cases, there was no information in the papers on any penetration. In all, 14 of these victims had genito-anal lesions, whereas 22 had none.

Other elements of rape, attempted rape and sexual assault

Information about violence and/or threats was available in 163 cases, and 101 victims reported exposure of this kind. A total of 92 reported exposure to physical vio-

lence, e.g. beating, kicking, pushing and fixation. In this group, 38 victims had body lesions only, 15 had genito-anal lesions only, 32 had both, and seven had no observed lesions. In all, 16 victims had been exposed to attempted manual strangulation or other kinds of violence to the throat. Seven of these had lesions on the throat, and the most frequent lesions were abrasions and bruises. In addition, six had been threatened with a knife or another weapon.

DISCUSSION

A total of 83% of the victims in this study were examined within 24 hours after their assault. A short time span between assault and examination increases the chance of securing forensic evidence. However, if the time span is too short, lesions such as bruising might not yet have developed and will not be registered at the examination. It has recently been shown that lesions can still be visualised more than seven days after the assault by the use of colposcopy and the application of Toluidine Blue to the lesion [7]. A higher number of genito-anal lesions might have been observed in this study if colposcopy and Toluidine Blue had been used [7, 8].

Alphain this study, almost half (86/184) of the victims had genito-anal lesions. Other studies have reported genito-anal lesions rates ranging from 16% to 68% [8-13]. The reason for this variation may be differences in lesion definition and interpretation [7]. Most examined victims had one or two genito-anal lesions or more than nine lesions. This indicates a dichotomy in the genito-anal violence of the sexual assault: most result in few lesions, but a few result in many lesions.

In accordance with the findings of Hilden et al [14], we found that half of those who reported vaginal and/or anal penetration had no genito-anal lesions. Additionally, Hilden et al found that if more than one perpetrator was involved, the victim was more likely to sustain lesions [14]. In contrast to this finding, we found that involvement of more than one perpetrator was not associated with more genito-anal lesions, anal penetrations or penetration of more body cavities.

A substantial part (21%) of the victims did not have any lesions at all. The clinical description of lesions and their severity is a very important part of the forensic examination. This description constitutes the basis for the assessment of the severity of the RAS [4, 7, 8, 10, 13]. However, it should be emphasised that the severity of the lesions does not indicate whether or not the sexual act was voluntary or not. It has recently been reported that voluntary intercourse and other kinds of voluntary sexual actions cause lesions, which are comparable, both in number and severity, to lesions inflicted during RAS [7].

We found that almost one in ten of the victims re-

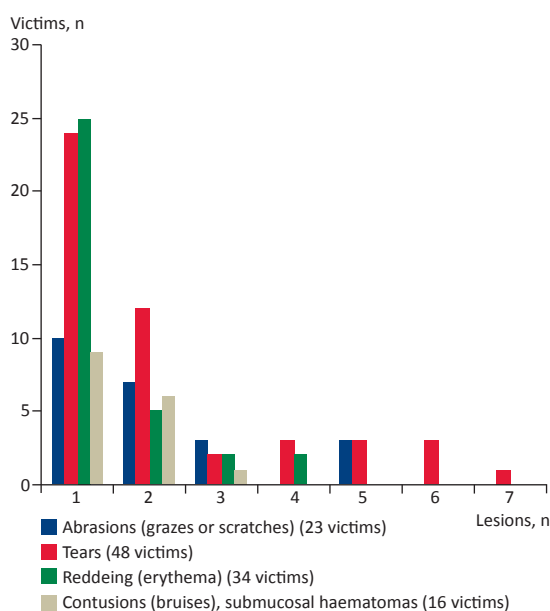
ported violence against the throat, and almost half of these victims had lesion(s) on the throat. It is very important to closely examine the throat of an assault victim, especially if a history of trauma to the throat is indicated. Lesions on the throat including petechiae on or above the throat level indicate that the assault has been potentially life-threatening, which can lead to a more severe penalty according to the Criminal Code.

In this study, 50% of the victims reported physical violence. Other studies have described 57% [15], 66% [4] and 71% [14], respectively. We found that almost half of the victims who had reported not having been exposed to violence had body lesions. A possible reason for this could be underreporting caused by amnesia or that the observed lesions were not obtained in conjunction with the assault. 24% of the victims who had reported being exposed to violence had no body lesions. One victim reported oral penetration only, and she had one genito-anal lesion. The discrepancy between the reported information and the observed lesions stresses the importance of a complete and thorough clinical forensic examination. Moreover, one fifth of the victims had no recollection of the assault due to intake of alcohol or drugs or their mental condition.

We found a higher rate of victims with genito-anal

FIGURE 1

The number of victims who had 1-7 of each of the four specific types of genito-anal lesions. Of the examined victims a total of 86 had genito-anal lesions*.



a) 1 victim had genito-anal lesions which appeared to be incised; these lesions were interpreted as self-inflicted and the case is not included. Several victims had more than 1 type of lesions and therefore appear more than once.

TABLE 3

Correlation between line of sexual action in terms of penetration or no penetration and observed lesions.

	Observed lesions, n				Total, n
	+ GAL	− GAL	+ GAL	− GAL	
	+ BL	+ BL	− BL	− BL	
Reported penile penetration, n (%)					123
Vaginal only, 81 (66)	16	28	14	23	
Anal only, 3 (2)	2	0	1	0	
Oral only, 4 (3)	1	3	0	0	
Vaginal and anal, 14 (11)	7	3	3	1	
Vaginal and oral, 18 (15)	10	2	5	1	
All three body openings, 3 (2)	2	1	0	0	
Reported no penile penetration but penetration with fingers or objects	6	3	2	1	12
Reported no penile penetration and no penetration with fingers or objects	3	8	0	2	13
Total	47	48	25	28	148

BL = body lesions; GAL = genito-anal lesions.

lesions than earlier studies [14]. It should be noted however, that Hilden et al [14] included both police-reported and non-reported sexual assaults. We also saw an increase in the frequency of anal penetration. Hansen & Franzmann included attempted anal penetration in their data: 6% in 1975-79 and 16% in 1995-99 [16]. When including attempted anal penetration from our data, this group increases to 18%. This may indicate that the line of sexual action in the RAS has changed over the years. Whether this reflects that the line of voluntary anal sexual action has changed remains uncertain. The increased frequency might also be a result of more detailed questioning of the victim than previously.

In all, 15 of the 20 victims who reported anal penetration as well as other penetrations had genito-anal lesions, and 100% of the victims who reported anal penetration only had genito-anal lesions (Table 3). This finding is consistent with the findings of others [14]. Knowledge about anal penetration and genito-anal lesions in RAS is important when assessing the risk of contracting a sexually transmitted disease, e.g. HIV.

In this study half of the victims who were subjected to vaginal penetration and three-fourths of the victims who were subjected to anal penetration did not know if ejaculation had taken place. This underlines the importance of always looking for sperm cells. Twelve perpetrators used a condom. The doctor should ask specifically about both ejaculation and whether a condom was used or not, as this might indicate whether or not semen findings should be expected and whether or not a used condom might be found at the crime scene.

Finally, we note that five victims had lesions of a self-inflicted character as well as lesions caused by the RAS, and that one victim had ten genito-anal lesions,

probably all self-inflicted. Literature on forensic examination of victims of RAS and acutely applied self-inflicted lesions is sparse. One study found that 15% of sexually assaulted adolescent girls had sequelae after self-inflicted injuries [17]; and it is a well-established fact that sexual abuse during childhood is a common cause of self-inflicted injuries [18]. It is important that forensic doctors who perform these examinations identify these types of lesions and categorise them correctly. It is evident, however, that self-inflicted lesions are not an indicator that the victim has not been exposed to RAS.

CONCLUSION

We conclude that there is a discrepancy between the information reported by the victims and the clinical forensic findings, both concerning reported violence and observed lesions, as well as the reported line of sexual assault and observed genito-anal lesions. Our results stress the importance of a complete and thorough clinical forensic examination performed by a forensic expert to correctly evaluate lesions and secure forensic evidence such as semen and saliva. The secured and analysed results of forensic evidence as well as the clinical forensic report constitute a substantial part of the evidence presented in court. An understanding of the line of action in rape cases, and the possible asymmetry in lesions and degree of violence reported is crucial, not only for the forensic expert, but also for the initial health-care providers who attend to rape victims, e.g., in an emergency room setting.

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