Nature, frequency and duration of genital lesions after consensual sexual intercourse—Implications for legal proceedings

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ABSTRACT

Objective: The purpose of this study was to make a normative description of the nature and duration of genital lesions sustained during consensual sexual intercourse, using the three most commonly used techniques: visualisation using the naked eye, colposcopy and toluidine blue dye followed by colposcopy.

Methods: Ninety eight women were examined within 48 h of consensual sexual intercourse. Fifty of the women were examined twice again within the following 7 days of sexual abstinence after the first examination.

Results: The participants had a median age of 22.4 years and 88% were nulliparous. Lesions were frequent: 34% seen with the naked eye, 49% seen with colposcopy and 32% seen with toluidine blue dye and subsequent colposcopy. The lesions lasted for several days; the median survival times for lacerations were 24, 40 and 80 h, respectively.

Conclusions: The legal implications of these findings are that genital lesions by themselves do not corroborate a rape complaint. Genital lesions may, however, corroborate specific details of a case and should be documented as carefully as any other lesion in rape complaints.

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1. Introduction

The presence of physical signs of trauma, including genital trauma, in the corroborative of a legal rape complaint is currently under debate in many countries. In a recent report, Amnesty International states: ‘main concerns ... cases are closed in Nordic countries] even when there are objective medical evidence as the victims fear the physical marks of violence'.

The examination and evaluation of genital lesions seen in the sexual assault victim differ around the world. In the US most examinations are carried out by specially trained nurses, Sexual Assault Nurse Examiners (SANEs) and in many European countries including the UK the examinations are performed by gynaecologists [1]. In Denmark examinations are performed by forensic pathologists. The expert testimony given by these professionals in cases of genital lesions in sexual assaults has been questioned in court in several countries [2–4] and thus increased focus on the lack of scientific knowledge on genital lesions.

1.1. Genital lesions sustained during consensual sexual intercourse

A review of the literature identifies seven studies of lesions seen after consensual sexual intercourse among adults, four recent [2,5,6,7] and three older studies [8–10]. One study describes lesions seen after consensual sexual intercourse in adolescents aged 13–17 years [11].

1.1.1. The nature of lesions

There is not much information on the site, type and number of lesions. The lesions were predominantly located in the posterior forchette [2,6,10] in studies that mentioned site. Two of the four studies that mentioned type had lacerations as the predominant lesion [2,7], whereas the other two found bruising to be predominant [6,10]. Three studies had information regarding number of lesions. These figures vary from 0 to 75% having more than one lesion [2,6,10].

1.1.2. The frequency of lesions

The frequencies of lesions seen after consensual sexual intercourse vary considerably between the studies.

Using the naked eye only, McLean et al. [6] reported an overall lesion prevalence of 6% in 68 women after consensual sexual intercourse. Slaughter et al. [10] included a group of 75 women and

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reported an overall prevalence of lesions of 11% using colposcopy. Both studies included lacerations, abrasions and bruises.

The pioneer work by both Lauber and Souma [8] and McCauley et al. [9] in the 1980s introduced toluidine blue dye in the examination of rape victims. In the study populations, which were mainly multiparous women presenting with an unrelated gynaecological complaint, the prevalence of lesions (lacerations only) were 5% and 10%.

Four studies used both colposcopy and toluidine blue dye, but only one study by Zink et al. [7], compared the two techniques. In a sample size of 120 women they reported an overall lesion prevalence of 55% including subjective measures such as redness and swelling. Toluidine blue dye was significantly better at detecting lacerations (25% vs. 18% and 17%) and abrasions (13% vs. 8% and 8%) than the naked eye and colposcopy respectively. As expected toluidine blue dye was significantly inferior at detecting bruising and redness.

Anderson et al. [2] reported an overall frequency of lesions of 30%, including lacerations, abrasions and bruises using both colposcopy and toluidine blue dye, whereas Anderson et al. [3] did not report the frequency of lesions. Jones et al. [11] reported a frequency of lesions of 73% in 51 adolescents (13–17 years), 49% of whom had not had a prior sexual intercourse.

1.1.3. Duration of genital lesions

Only one study, by Anderson et al. [5], investigated the changes of lesions over time. A group of 35 women were seen within 48 h of consensual sexual intercourse and then again 24 h later. At the second examination, the surface area of abrasions and redness was significantly smaller, as were the lesions in the posterior forchette.

1.1.4. Factors that may influence the appearance of lesions

Two of the seven studies tested factors that may influence the vulnerability of the genitalia, such as use of condom or lubricants, digital contact and roughness of the sexual act. Anderson et al. [5] reported no significant factors. McLean et al. [6] found no correlation between lesion prevalence and age, hormonal status or parity.

1.2. Purpose

The purpose of the present study is to describe genital lesions sustained during consensual sexual intercourse using the three techniques: visualisation with the naked eye, colposcopy, and toluidine blue dye followed by colposcopy. The lesions are described according to their nature, frequency and duration. Factors possibly influencing the findings are taken into account.

2. Methods

2.1. Participants

The women were recruited at the University College Lillebaelt, Health and Social Sciences. By agreement with school management, an e-mail was sent to approximately 1200 students with a brief description of the purpose and technical details of the study. The students contacted the authors if interested in participation and received more detailed information by personal e-mail. An anonymous e-mail address, like Hotmail or Yahoo was used by many students. Two series of inclusions were performed over a two month period in spring 2010. Series I included 60 women and series II included 50 women. Initially only series I was planned, but due to the high proportion of women presenting with lesions, it was decided to expand the scope of the study to include survival of lesions. The recruiting procedure was repeated within weeks of the last examinations in series I. The number of participants was chosen to match the annual number of rape victims seen at SDSARC (see description below). The first 60/50 women that met the criteria of consensual sexual intercourse within 48 h were included. As participation was anonymous and inclusion was a few weeks apart, participation in both series cannot be ruled out. Full anonymity was secured by several means. Apart from an anonymous e-mail for communication, the women were given a random identity number used for all data. All participants were aware of the purpose of the study (description of genital lesions) and were instructed to have sexual intercourse in accordance with their normal routine, but with penile penetration as a must, within 48 h of the examination.

2.2. Clinical investigations

The study was performed at the Southern Denmark Sexual Assault Referral Centre, SDSARC, situated at Odense University Hospital. The SDSARC is a 24 h service that receives victims of sexual assault of both sexes, 15 years old or older, with or without prior contact with the police. The centre is staffed with specialized nurses (not forensic nurses) and doctors specializing in forensic medicine. There are no gynaecologists appointed, but if treatment is needed, the forensic pathologist can refer to the on-duty gynaecologist or other departments. The sexual assault victims had priority and the examination of participants in the present study was postponed in case of a victim contacting the centre.

The examinations were performed by the principal investigator or one of four other doctors (registrars of forensic medicine), all experienced in examination and evaluation of findings in sexual assault victims at SDSARC and undergoing the Danish specialization programme in forensic medicine.

The colposcope used was a Zeiss 150 fc with an integrated Medilive® digital video recording device. The toluidine blue dye was applied using the Forensic Blue Swab™ produced by National Forensic Nursing Institute, Inc. (USA).

Just before the examination, the women answered a questionnaire with questions concerning gynaecological matters, sexual habits and the nature of their last intercourse. The women of series II were examined three times and were sexually abstinence until the last examination. They were examined three times: on day 1, day 3/4 and day 6/7. One woman dropped out after the first examination, but as recruitment was still ongoing at the time, another woman was recruited as a replacement, and the non-completer was excluded. Another woman dropped out after the second examination and no replacement was recruited. The second non-completer was not excluded, leaving 49 women examined three times and one woman examined twice.

The examinations followed the same strict routine sequence:

1. Naked eye examination of external genitalia. Recording of all findings, positive or negative.
2. Colposcopy of the external genitalia. Recording of all findings, positive or negative. Digital photography using the integrated camera of the colposcope. The investigator decided if more photos were needed for full documentation, for instance close-ups or photos from different angles. Photographic data were not included in this paper.
3. Toluidine blue dye was applied to the external genitalia and removed with 1% acetic acid after drying as recommended by NFNI [12].
4. Point 2 was repeated.
5. Inspection of the vagina and cervix using speculum and colposcope. Findings were noted.
6. Swabs were taken for detection of semen from the labia minora, the cervical canal and the posterior fornix. These data were not included in this paper.
7. For series II points 1 and 3–7 were repeated on day 3/4 and 6/7.
8. The results from the first examinations were blinded to the investigator on the second and third examination. The exams were performed by five different experienced doctors, but securing a system of different/same doctor for each woman was logistically impossible, all exams were performed by ‘the doctor of the day’ and the identity of the doctor was recorded.

2.3. The nature of lesions

Three types of lesions were described: lacerations, abrasions and haematomas [13]. More ambiguous lesion types, such as the redness or swelling of the TEARS classification are not included (tear, ecchymosis, abrasion, redness and swelling):

1. Laceration: discontinuity of epidermis and dermis. Caused by blunt force such as tearing, crushing or overstretching.
2. Abrasion: traumatic exposure of lower epidermis or upper dermis. Most often caused by lateral rubbing or sliding against the skin in a tangential rather than a vertical manner. The outermost layer of skin is scraped away from the deeper layers.

The number of lesions and position (labia, posterior forchette, hymen, vaginal wall or cervix) was noted.

2.4. Frequency of lesions

The frequency of lesions is reported as the number of women having at least one lesion. The frequency is given for each of the three examination techniques and each of the three types of lesions. No comparisons of the different techniques are made as

this is a normative, descriptive study, and the designation of a ‘gold standard’ would be an arbitrary choice. Because laceration is the only prevalent lesion, agreement between methods is calculated using laceration frequency in order to give a more uniform evaluation of agreement.

2.5. Duration of lesions

Duration of lesions is estimated by determining the number of hours passing from the reported consensual sexual intercourse to the last examination where the lesion was present. In other words, the assessed duration of the lesions is the minimal number of hours the lesions could be seen.

2.6. Statistical analysis

All data were entered in the EpiData software system (www.epidata.dk) for data entry and data documentation securing a simple and certified double entry. All data were entered twice, once by investigators and once by secretaries, and any discrepancies caught in the data check mode were corrected according to the original questionnaires.

Analysis of the data was performed using the STATA (version 10.1) software package (www.stata.com) for statistical analysis. Frequencies are given as proportions with a 95% confidence interval (c.i.) and calculated using the exact probabilities of the binomial distribution. Agreement between investigative methods are calculated using positive predictive agreement (PPA) and negative predictive agreement (NPA).

Categorical data, such as the influence of condom or lubrication use on lesions are evaluated using the Chi²-test for significance. As for non-categorical data, normality is not assumed and data are analysed using the Mann–Whitney U-test for significance.

The development of lesions over time is seen as survival data illustrated using the Kaplan–Meier survival technique. Significance level is set at 95%.

2.7. Ethical considerations

The study was approved by the Medical Research Ethics Committee of Southern Denmark. Written consent was obtained from all participants. Full anonymity was secured in storage of data and photographs. Any medical condition discovered during the research examinations, which were for scientific purposes only, was referred to the gynaecologist of the department.

3. Results

3.1. Study population

The median age in series I was 22 years (range 19–40 years) with 87% being ≤25 years. The median age in series II was 22.5 years (range 18–32 years) and 78% being ≤25 years. All women were Caucasian.

After finishing series I it was clear that 12 of the 60 women did not fulfil the inclusion criteria of having had a vaginal intercourse within 48 h of the examination. In series II all 50 women met the inclusion criteria. The results for the 12 women not meeting the criteria are given separately. They do not differ from the rest of the women in any other of the results given. Table 1 summarizes the gynaecological history of the women and the nature of their latest intercourse. None of the factors listed had any significant correlation with the presence of lesions.

3.2. The nature of lesions

Lacerations were the most prominent lesion accounting for 33 of 37 (89%, c.i. 74.6–97.0%) of lesions seen with the naked eye, 54 of 63 (85%, c.i. 74.6–93.3%) lesions seen with the colposcope and 82 of 90 (91%, c.i. 83.2–96.1%) lesions seen with toluidine blue dye. The rest were abrasions except two haematomas seen only with the naked eye and colposcope. The blue dye changes the colour of the mucosa, thus blurring the discolouration of the haematoma.

Seen with the naked eye, 3/98 women had more than one lesion of any kind, seen with the colposcope the number was 11/98 and with toluidine blue dye 21/98 women had more than one lesion. Seen with the colposcope 2/98 had more than two lesions and 12/98 had more than two lesions seen with toluidine blue dye.

The lesions were predominantly located in the area of the posterior forchette (78%, c.i. 67.8–85.9%). The rest were in the labia (21%, c.i. 13.2–31.0%) and the hymen (1%). No lesions were seen in the vaginal wall or on the cervix.

3.3. Frequency of lesions

The results are summarized in Table 2, and the number given refers to the number of cases with presence of one or more of a particular lesion as seen by the diagnostic method in question.

Seen with the naked eye, 31% of the women had a laceration and 34% (c.i. 24.4–43.9%) had a lesion of any kind; seen with the colposcope 42% had a laceration and 49% (c.i. 38.7–59.3%) had a

| Table 1 |
| Gynaecological history of participants and the nature of their latest intercourse. |
| | Series I | II |
| | Inclusion (n=98) | Exclusion (n=12) |
| | | P-value* |
| Lesion vs. no lesion |
| Childbirth (vaginal/caesarean) | 11 (11%) / 1 (1%) | 0.84 |
| STD in historyb | 54 (55%) | 0.43 |
| Chlamydia | 34 (35%) | 9 (75%) |
| Condyloma | 14 (14%) | 3 (25%) |
| Herpes | 7 (7%) | |
| Number of sexual intercourses the last month (median) | 8 (range 1–20) | 0.40b |
| Contraception | | 5 (range 0–12) |
| Oral | 78 (80%) | 11 (92%) |
| Condom | 13 (13%) | 1 (8%) |
| Other/none | 19 (19%) | 0 |
| Use of tampon <48 h of examination | 5 (5%) | 0.76 |
| The last intercourse | | 3 (25%) |
| Durationa | 12.6 min (range 3–45 min) | 0.87b |
| Ejaculation | 62 (63%) | 14.6 min (range 5–30 min) |
| Use of fingers | 61 (61%) | 6 (50%) |
| Use of lubricant | 9 (9%) | 8 (66%) |
| Use of object | 4 (4%) | 1 (8%) |
| Use of condom | 12 (12%) | 1 (8%) |
| Roughness | | |
| Soft | 8 (8%) | 1 (8%) |
| Normal | 84 (86%) | 9 (75%) |
| Rough | 6 (6%) | 2 (17%) |

* Chi-squared test if nothing else is stated.

b Mann–Whitney’s U-test.

c One had more than one STD.

lesion of any kind; and after toluidine blue dye 50% had a laceration whereas 52% (c.i. 41.7–62.2%) had a lesion of any kind. Abrasions were seen in 2%, 5% and 7% respectively. One woman in the exclusion group had a laceration seen with the colposcope and the toluidine blue dye. She reported a consensual sexual intercourse 60 h before examination (Fig. 1).

Agreement between methods is shown in Table 3. It is seen that positive predictive agreement (PPA) is higher than negative predictive agreement (NPA) in all comparisons. PPA ranges from 77% between the naked eye and toluidine blue dye and 87% between the naked eye and colposcopy. Colposcopy and toluidine blue dye had a PPA of 85%.

3.4. Duration of lesions

The survival time of lesions as seen by the naked eye, the colposcope and using toluidine blue dye is shown in Fig. 2. The median survival time for lesions is 24 h (c.i. 19–42 h) using the naked eye, 40 h (c.i. 20–83 h) using the colposcope, and 80 h (c.i. 21–108 h) using toluidine blue dye. Fig. 3 illustrates the percentage of women with lesion at any given time of examination using any of the three investigative methods. For instance, if the women were examined 48 h after their sexual intercourse we would have found 10% (c.i. 0.3–21.8%) with a lesion using the naked eye, 26% (c.i. 14.6–40.3%) with a lesion using colposcopy and 32% (c.i. 19.5–46.7%) with a lesion using toluidine blue dye. The longest surviving laceration seen with the naked eye was visible in 89 h.

4. Discussion

We found an overall frequency of lesions after consensual sexual intercourse of 34% seen with the naked eye, 49% seen with colposcopy and 52% with toluidine blue dye. This frequency of lesions was higher than expected from earlier studies, and many participants had lesions that lasted longer than 48 h, which is a common limit for time since assault for centres for sexual assault victims around the world.

4.1. Study population

The participants were young, mainly nulliparous women and therefore comparable with rape victims as described in the literature [6,14–17], which describes a median age in the early twenties in all studies that do not include minors (<15 years of age). They were sexually active and had a high prevalence of STDs in their medical history.

Table 2
Frequency of lesions.

<table>
<thead>
<tr>
<th>Series I+II Inclusion (n=98)</th>
<th>Series I Exclusion (n=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Proportion (95% c.i.)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Naked eye</td>
<td></td>
</tr>
<tr>
<td>Laceration</td>
<td>31</td>
</tr>
<tr>
<td>Abrasion</td>
<td>2</td>
</tr>
<tr>
<td>Haematoma</td>
<td>2</td>
</tr>
<tr>
<td>Colposcope</td>
<td></td>
</tr>
<tr>
<td>Laceration</td>
<td>41</td>
</tr>
<tr>
<td>Abrasion</td>
<td>5</td>
</tr>
<tr>
<td>Haematoma</td>
<td>3</td>
</tr>
<tr>
<td>Toluidine blue</td>
<td></td>
</tr>
<tr>
<td>Laceration</td>
<td>49</td>
</tr>
<tr>
<td>Abrasion</td>
<td>7</td>
</tr>
<tr>
<td>Haematoma</td>
<td>1</td>
</tr>
</tbody>
</table>

* 95% confidence interval (binomial exact, STATA).

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Fig. 1. Flowchart showing the inclusion and exclusion of study participants.
4.2. Investigative techniques

We made no statistical evaluation of techniques, as the techniques in question have different characteristics. The better magnification and the better light source available, the more small lesions will be seen. Toluidine blue dye enhances and thereby aids in the detection of lesions involving a non-intact mucosa, but discolours mucosa and will blur any discolouration due to trauma, i.e. haematomas. This was previously shown by Zink et al. [7]. We found relatively low PPAs and NPAs for lacerations, especially considering the fact that this part was not blinded. The examiners were instructed to look with the naked eye first, write down what they saw, use the colposcope and write down what they then saw, etc. This is an artificial research situation; in a real rape investigation, one would make a single conclusion. The low PPA is a result of the techniques having different enhancement levels – not all small lesions are seen with the naked eye. The low NPA between methods illustrates the difficulty of detecting lesions in the genital mucosa. What looks like a laceration using the naked eye turns out to be a mucosal fold using the magnifying lenses. Or what is a definite laceration in the colposcope does not take up dye when applied, because the exposed nuclei are covered with secretion either from the wound or the vagina. It is the authors’ personal experience that if a definite lesion does not take up dye, it will take up dye at a second application after the lesion has been dried with a swab. This was not included in the research procedure due to the risk of iatrogenic alteration of lesions.

4.3. Nature of lesions

Lacerations were the predominant lesion in accordance with three other studies, including the study concerning adolescents [2,7,11]. Two studies [6,10] reported haematomas as the most prevalent lesion, constituting half of the lesions in both studies. Both studies reported a low frequency of lesions in a slightly older study population, but the literature suggests that age in pre-menopausal, sexually active women does not affect the frequency of lesions [18], and in this paper there was no relationship between age and lesions.

Regarding the site of injuries we found the posterior forchette to be the most prominent, as do all other studies, except the study involving adolescents which have the hymen as the predominant site. Interestingly, we did not find any lesions in the vaginal wall or in the cervix. This is in agreement with other studies, although Zink et al. [7] are unclear reporting three lesions in the internal genitalia defined as the hymen, vaginal wall and cervix. Lesions in the cervix and the vaginal wall are frequently seen in rape victims. Slaughter et al. [10] reported that in rape victims, 11% had lesions on the cervix and 13% had vaginal lesions. McLean et al. [6] reported similar frequencies, 11% and 4% respectively. Bowyer et al. [19] reported 1% for each type of lesion. In general, most studies on genital lesions in rape victims do not report the specific figures.

In the present study we found a higher prevalence of women with more than one lesion, compared to other studies except the study by McLean et al. [6] who found that three of four women with a lesion had more than one lesion. Slaughter et al. reported that one of 8 women with a lesion had more than one lesion and Anderson et al. reported that one in 14 women with a lesion had more than two lesions. This higher prevalence is probably a natural consequence of the overall high frequency of lesions in this study.

4.4. Frequency of lesions

The observed frequencies of lesions after consensual sexual were comparable to results by Zink et al. [7] who reported an overall frequency of 55% including redness, but not specifying the investigative technique used to obtain the 55% trauma rate. The observed frequencies are also comparable to results by Jones et al. [11] who described injury rates in the fossa navicularis and posterior forchette in adolescents of 38% and 25% respectively. Other studies had a lower frequency rate, between 4.5% and 30.4% [2,6,8–10]. Overall, it can be said that the studies on the subject of genital lesions have a great variance in the reported frequencies of lesions after both consensual sexual intercourse and non-consensual sexual intercourse varying from 5% to 87% [8,9,16,17,20–23]. The reason for this variance has not been adequately explained by science, but reasonable suggestions have been made. In a review from 2007 [24], Sommers suggested two main explanations for the variance, one being the lack of consensus as to defining lesions, the other being racial differences. When looking at literature, both make sense. Virtually no papers use the same definition of lesions, American literature tends to use variations of the TEARS classification, the rest of the world other classifications. Few papers, including the present paper, have a lower size limit when detecting lesions, and it is likely that as better magnification and dye techniques are incorporated in investigative protocols smaller and smaller lesions are detected. Little literature is published on racial differences, but Sommers et al. [18] do report a black vs. white odds ratio of 4.30 of having genital lesions detected after sexual assault. The women of the present study were all white, Nordic types, whereas most studies are made on mixed populations. The homogeneity of the study group was not planned, but reflects the general population of the area. The present study was prospective and it so follows that the women were aware of the study purpose during their latest intercourse. The strength and direction of a possible influence on the results from this fact is difficult to assess.

4.5. Duration of lesions

To our knowledge this study is the first study to systematically examine the duration of lesions sustained after sexual intercourse for as long as 7 days. We have been able to make Kaplan–Meier survival curves that could be very useful to the expert when interpreting a specific genital lesion. Lesions persist for days. After four days, 96 h, 12% of all 50 women had a lesion seen with colposcopy and 22% had a lesion in healing seen with toluidine blue dye. This is valuable information as many rape victim referral centres only accept victims until 48 or 72 h after the assault [1].

Only one study has attempted to describe the development of lesions over time [5]. Anderson et al. examined 35 women twice with a 24 h interval, and found a significantly smaller surface area of abrasions and redness after the second examination. Differences
in surface area of tears or ecchymoses were not significant. The study had several methodological problems. It was not blinded, the actual number of lesions seen was not reported and the technique of measuring surface area from digital photographs in an area as flexible as the external female genitalia is at best debatable.

4.6. Limitations of the study

A limitation of our study is the lack of independent evaluation of photographic material. The results given in this study are the results of the examiner looking directly in the colposcope. But in many courts around the world expert testimony relies on photographic documentation [1,25]. Systematic knowledge on photo evaluation by a third party is desirable.

Another limitation is the sample size which is too small to elucidate all aspects of the less frequent lesions such as abrasions and haematomas. The frequency, site and duration of haematomas and abrasions are not adequately examined in the present paper. Regarding the duration of lesions our investigation can be seen as a pilot study, and a larger study encompassing all lesion types is desirable.

This study was for practical reasons only semi-blinded. The examining forensic medical doctors knew at the time of examination, whether it was the first, second or third examination, but they did not know the results of the previous investigations. Five different investigators performed the examinations taking turns unsystematically. Although, there were no detectable differences in the detection rate between investigators (data not shown), the sample size is too small to rule out a detection bias between investigators.

4.7. The legal implications of genital lesions in consensual sexual intercourse

It follows from the high frequency of lesions after consensual sexual intercourse presented in this paper that a genital lesion in itself does not corroborate a legal complaint of rape. That does not imply that the opposite is true or that the genital examination of rape victims is superfluous. It simply supports one of the central dogmas of forensic medicine: the results of a forensic examination are to be used in individual cases as corroboration of a specific theory of a chain of events constituting the crime; it is not necessarily a base upon which the chain of events can be reconstructed. In other words the finding of a genital lesion can be very important for the prosecution of one case and absolutely irrelevant in the next case, it depends solely on the case itself, the explanations in court given by the victim and perpetrator of the case. At the time of examination of the victim usually too few details are known to the police and forensic examiner for them to opt for a less invasive forensic examination. When a specific lesion is evaluated in a court of law on a basis of known research, one should bear in mind the preconditions of the research situations, the definitions of lesions, and the investigative techniques used. Because swelling or tenderness is considered too ambiguous for research purposes, it does not mean that it is insignificant in a specific case and, very important, vice versa; if a lesion is so small that it is only seen after toluidine blue dye application, is could be insignificant – but not necessarily so.

When evaluating a genital lesion at a court of law, one must: know the premises of the case, know the strengths and limitations of the investigative tool and know the nature of genital lesions. Further research is needed for the last part.

No women in this study had a lesion at second or third examination without having a lesion at the first examination. It would be an interesting opportunity to examine sexually abstinent young women, to see whether a genital lesion corroborates sexual intercourse be it consensual or non-consensual.

Furthermore no women in this study had lesions in the vaginal wall or on the cervix, whereas these lesions are seen in rape victims. Extension of the knowledge of patterns and severity of lesions seen after special assault circumstances is needed.

In order to correctly interpret legal implications of the presence or absence of genital lesions in rape cases, one must have more precise knowledge of potential loss of information and alteration of results in the transition from real life examination till photographic documentation. Data from the photographic documentation collected during this study as well as data regarding spermatozoa recovery will be published and discussed separately as both subjects are very relevant to professionals dealing with sexual assault cases and therefore needs to be discussed in detail.

5. Conclusion

In this descriptive, normative study we have provided insight into the nature of genital lesions seen after consensual sexual intercourse. We found a high frequency of lesions; 34% seen with the naked eye, 49% seen with the colposcope and 52% after toluidine blue dye. We have established that lesions in many cases last longer than the time limit for admission to most centres for victims of sexual assault, the median survival time for lesions being 24 h seen with the naked eye, 40 h seen with the colposcope and 80 h after toluidine blue dye application. The legal implication of these findings is that a genital lesion does not in itself corroborate a rape complaint, but the forensic imperative of taking all the information into account in a specific case implies that the diagnosis of a genital lesion in a rape complaint is important.

References

intercourse—Implications


