Research Article
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Importance of the use of complementary diagnostic measures in the detection of injuries caused by sexual violence

Abstract

Sexual violence produces physical, psychological and social damage in those who are victims of it. The identification of lesions in the anogenital areas is important when gathering evidence of non-consensual sexual relations.

A retrospective study was carried out on a sample (n=202) of victims of sexual violence who required forensic medical attention in La Rioja (Spain), between 2008 and 2020. Of the 129 cases in which there was penetration, injuries were identified in the anogenital area in 16.2% (n=29) of the victims, the most frequent locations being the vaginal introitus and the anus.

The comparative analysis of these results with other studies allows us to establish the hypothesis that anogenital examination with a simple visual inspection leads to under-diagnosis of possible physical injuries, which is why the use of complementary exploratory techniques is recommended in cases of sexual violence.

Keywords: injury, rape, sexual violence, colposcope, toluidine

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González-Santamartina Jorge[1], Salvador-Martínez María del Carmen[2], González-Fernández Jorge[3]

[1]Doctor, San Vicente Mártir Catholic University of Valencia, Spain
[2]Coroner, Valencia Institute of Legal Medicine and Forensic Sciences, Spain
[3]Coroner, La Rioja Institute of Legal Medicine and Forensic Sciences, Spain

Correspondence: González-Fernández Jorge, Coroner, La Rioja Institute of Legal Medicine and Forensic Sciences, C/ Marqués de Murrieta 45-47,A -1 Logroño Spain, Tel +34678618417, Email jgonzalezf@larioja.org

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Abbreviation: TEARS, tears abrasions ecchymoses redness swelling

Introduction

Sexual violence, in general, produces damage that affects the physical, psychological and social wellbeing of those who are victims of it. Although the last two components are a result of most attacks, physical injuries are not objectified in a high proportion of cases. On the contrary, and although the identification of injuries points towards the existence of sexual violence, the presence of genital injuries should not be required to prove a report of sexual assault, particularly in the absence of non-genital injuries.[1] On the other hand, different studies show that in consensual relationships, physical alterations may also appear, and as such, the presence of genital lesions may be significant in ascertaining the existence of sexual contact, although it cannot be inferred with whom or with what such contact occurred, or whether it was consensual or not.[2]

Hence, it is necessary to carry out studies on the assessment of genital injuries in sexual assaults, with the aim of directing expert actions towards a correct medical-legal diagnosis with which to advise judges and courts.

The application of complementary techniques, beyond a "de visu" examination, significantly improves the detection of genito-anal injuries. Lauber and Souma,[3] in 1982, stated that the application of Toluidine blue improved the detection of genital lesions by up to 56%, an improvement also reflected in consensual relations, with studies concluding that the detection of lesions increases up to three times with the application of Toluidine blue in consensual sexual relations.[4]

On the other hand, the use of augmentation instruments increases the detection rate of injuries in a very notable way, where in a 1991 study, positive results were reached in 87% of the people evaluated after suffering a sexual assault,[5] ending up converting the application of colposcopy for the forensic examination of sexual abuse in adolescents and adults in a standard of care.[6]

Methods

The objectives of this retrospective study are to determine the existence, type and location of lesions, in cases of genito-anal penetration in female victims of sexual violence over 12 years of age, as well as in cases in which lesions appear in the genital region, but without penetration, as a result of aggressive handling, and to make a comparison with other studies in which complementary techniques are used to identify possible injuries.

A review was carried out of the 278 forensic medical reports issued in cases of sexual assault reported in La Rioja (Spain) between 2009 and 2020, establishing as case criteria the female sex in victims over 12 years of age who claim unconsented sexual contact, with the introduction of a penis, fingers or an object by vaginal, anal or oral route, with a sample n=202 cases.

In all of them, the forensic-gynecological examination was carried out by simple inspection, without the use of complementary means or any type of staining. For the classification of injuries, the TEARS criteria of Slaughter has been used: (T: Tears), (A: Abrasions), (E: Ecchymoses), (R: Redness), (S: Swelling).[7]

Results

From January 1, 2009 to December 31, 2020, 278 subjects taken from judicial proceedings for sexual violence were examined. Of these, 202 were female over 12 years of age.

In 129 cases, the sexual assault consisted of vaginal, anal, or oral penetration. In 87 cases the penetration was vaginal, in 19 it was combined with anal penetration, in 11 with oral penetration and in 4 more it included oral and anal access. In 6 cases the penetration was exclusively anal and in 1 there was both anal and oral penetration.

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Genito-anal lesions were only identified in 21 of the 129 cases in which there was anal or vaginal penetration (16.2%), being the sole location of lesions in 19 of the cases. In the other 2 cases, lesions were identified in two different locations.

The most frequently observed typology was abrasion/excoriation, present in 14 of the 21 cases. No serious injuries requiring medical-surgical care by specialized services were observed in any of the examinations.

Regarding the most frequent locations, the lesions were found mainly in the vaginal introitus, anus and labia minora (Table 1).

On the other hand, in 23.8% (n=5) of the cases in which the victim reported knowing with certainty that there had been no penetration (n=21), lesions were also identified in the genital area. In these cases they presented the following typology and location (Table 2).

Table 1 Type and location of lesion in victims with penetration

	Abrasion	Tears	Redness	Ecchymoses	Total injuries
Labia majora			1		1
Labia minora	4				4
Posterior fourchette	2				2
Fossa navicularis		1			1
Introitus	3		2	1	6
Hymen		1			1
Vagina	2	1			3
Anus	3	1		1	5
Total	14	4	3	2	23

Table 2 Type of lesion and location in victims without penetration

	Abrasion	Tears	Redness	Ecchymoses
Introitus			1	1
Labiaminora	1			1
Perineum				1

Discussion

As discussed above, the colposcope improves the detection of genital trauma in female victims of sexual assault compared to macroscopic visual examination [8] and can help identify small lesions due to its improved visualization and higher resolution in the examination of genital areas, so its incorporation as a standard in the evaluation of victims of sexual assault makes a valid contribution to the identification of genital lesions,[9] and even more so when the recognition is carried out promptly: the use of a colposcope allows the identification of genital trauma in 35.7% of the cases evaluated within the first 72 hours of the aggression.[10]

The application of Toluidine blue dye makes it possible to increase the detection of genital lesions, with studies in which up to 67% of female victims of sexual assault are identified, with an average number of genital lesions of 1.4.[11]

Regarding the most frequent locations, in studies in which complementary staining methods were used as identification aids, Suttipasit,[12] in 117 cases, 55 women were identified with genito-anal injury, predominantly in the Fourchette posterior (31.6%), and Slaughter,[7] in 311 rape victims, 213 presented genital lesions, also with a more frequent location of the trauma (70%) in the Fourchette posterior, in contrast to our study in which lesions were mostly observed in the vaginal introitus.

Complementary media were not used in our studies, leaving a diagnosis rate of 16.2%, which suggests a hypothesis that there is an under-diagnosis with respect to studies in which they are used, so it is recommended, as a standard course of action, the application of a colposcope and toluidine blue staining, or the use of substitute electronic technology, which allows for future comparative reviews aimed at assessing the suitability of these new techniques.

Conclusion

Despite the small size of the sample (129 cases), the comparative study with other studies in which complementary means have been used, allows us to consider the hypothesis that simple visual examination of the genital area entails an under-diagnosed bias.

For this reason, the use of complementary means, either classic ones, such as the colposcope and Toluidine blue, or innovative ones, such as those based on new, alternative, electronic technologies, should be established as a recommendation for the adequate performance of expert evaluations in the area of sexual violence.

The detection of genital lesions in cases in which the victim claims the absence of penetration makes an exhaustive exploration necessary using these complementary measures.

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Conflicts of interest

Author declares that there is no conflict of interest.

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