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Mini Review

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Forensic Aspects of Male Child Rape and How We Can Prove It

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Abstract

Introduction: Most cases of sexual violence against male children involve anal coitus. This type of violence has been proven in Brazilian courts based on the presence of sperm in the anus. However, other findings can also confirm this. This review aims to describe some forensic aspects of this crime and propose a rational form of evidence collection. **Methods:** An extensive search in databases (from 2009 to May 2022) like Medline, Cochrane Central, Scopus, Web of Science, and Science Direct were used, searching the following keywords: child abuse, rape, boys, and forensics. **Results:** From the sources found, only 24 were considered appropriate for this paper. **Discussion and Conclusion:** The absence of sperm research on the anus isolated is insufficient to exclude rape in a male child and increases the need for other methods to prove rape. Therefore, we propose a system of points based on some diagnostic criteria that should be analyzed together: the child's testimony, physical signs found in the anus, and the presence of spermatozoa in the anal cavity.

Keywords: Child abuse; Rape; Boys; Forensics.

Introduction

Child sexual assault is highly prevalent in Brazil. Documentation and relevant evidence collection are the challenges faced in such cases [1]. The World Health Organization [2] defines sexual violence as "any sexual act perpetrated against someone's will"."It can be committed "by anyone regardless of their relationship to the victim, in any setting". It includes but is not limited to rape, attempted rape, sexual slavery, unwanted touching, threatened sexual violence, and verbal sexual harassment. According to the Center for Disease Control and Prevention (CDC), the United States has millions of estimated cases annually. Estimates indicate that 1 in 3 women and 1 in 4 men experience sexual violence involving physical contact during their lifetime [3]. The numbers are high in many countries. A survey in Great Britain reported that 10% of the 2019 children and adolescents interviewed were sexually abused before the age of 16 [4]. The Ministry of Women and Child Development, Government of India [5], studied 12,447 children and reported that 5.69% were sexually abused (57.3% of them were boys).

Despite economic disparities between countries, Sakelliadis et al. [6] say that "child sexual abuse exists in all socioeconomic groups" and "figures from the USA show that 1in 4 girls and 1 in 6 boys are sexually abused before the age of 18, whereas the median age for reported abuse is nine years old".

As Kaur et al. [1] pointed out, "children below the age of 10 years are highly vulnerable as they lack mental maturity and inability to defend themselves". Besides, victims do not seek help because they are ashamed or afraid of suffering negative repercussions if they are exposed to health professionals, public safety professionals, friends, or family.

According to their respective legislations, acts that consider sex crimes vary from country to country. However, a broad definition of rape is contact between the penis and vulva, or the penis and anus, involving penetration without consent. In addition, this broad definition encompasses the contact between the penis and mouth, vulva, or anus. Even without penetration, as long as without permission. Within this concept, we can also include

manipulation of the genitalia by hand, finger, or any object used sexually. In 2009, Brazilian legislation adopted this broad concept of rape, and Law 12015 [5] defines rape as "carrying out sexual intercourse, or performing another lewd act, under violence or serious threat." Furthermore, this same law created the figure of "rape of the vulnerable" - defined as the act committed against minors under 14 years of age or against those who cannot offer resistance for any reason.

However, sexual violence against male children has rarely been reported in the medical and forensic literature, especially in Brazil [7,8]. As commented by Vrolijk-Bosschaart et al., "the literature on physical signs and symptoms of child sexual abuse (CSA) in boys of this age is scarce" [9]. This lack hinders good technical and professional practice, making it necessary to develop specific strategies to prevent this type of offense and improve health and forensic professionals' management of these cases. More importantly, this lack also contributes to the aggressor going unpunished because of the lack of reliable evidence in the court of justice.

Recently, we published a study in which 13,870 reports of sexual assault in Brazil in 2017 were analyzed [10]. This descriptive cross-sectional study selected 11,275 reports from victims under 18 years. In our series, we found 3.282 cases of male victims, most of them with ages varying between 3 and 5 years.

In the crime of rape of vulnerable males (e.g., boys under 14 years of age), oral sex and anal intercourse are the most common lewd acts. Therefore, in Brazilian criminal law, an expert examination of this type of activity is necessary to demonstrate the materiality of the crime [5] and the conviction of the accused. Traditionally, we can only prove the offense if the examination reveals the presence of sperm in the anus or the oral cavity.

However, in the study mentioned above, despite bruises, abrasions, or fissures in the anal region, in 96.2% of the examined males under 14 years old, the examination was inconclusive, and somebody could not prove the alleged rape. Besides, the search for sperm was positive in only 13.5% of the cases, including boys and girls [10].

The experience of the examiner and the proper collection of shreds of evidence are crucial for the success of the exam. Otherwise, as stated by Adams [11], "when child abuse is suspected, a medical examination is often one part of the overall evaluation. For example, suspicion of sexual abuse may result when a child discloses such abuse. Or the child has developed behaviors suggestive of sexual abuse, is diagnosed with a sexually transmissible infection, is found to have suggestive medical or laboratory findings, or because the abuse has been witnessed by others or documented by photographs or videotapes".

The authors state that "during the past 20 years, many changes have occurred in how medical professionals perform evaluations of children suspected of having been sexually abused". They also question how physical and laboratory findings are interpreted".

It is important to note that, in most cases of suspected sexual abuse, there will not be signs of injury or healed trauma, even sexually transmitted infections. In these cases, the child's testimony is critical in helping to determine if a child had specific sexual contact that a medical history of other symptoms could validate. The affidavit must be taken in good form, and all patients asked open-ended. It is essential to avoid questions about body sensations during the history obtained by the medical provider [11].

Usually, a trained medical examiner performs an official examination in Brazil upon request from a judicial or police authority. However, forensic evidence of the crime is complex, especially for young boys.

The physical forensic examination of the male victim of suspected rape begins within the external inspection. Next, the exam of the children's anus must be performed in the supine knee-chest or lateral decubitus position. The objective is to detect bodily injuries or signs that suggest injuries produced for libido stimulation, such as sucking and biting, in erogenous regions. Therefore, special attention should be paid to genitals and other erogenous zones, such as the neck and thighs. Next, the kneeling position followed by buttock separation is necessary to evaluate these male victims to inspect the genitalia and perineal region.

Thus, the anal area deserves special attention. Physical findings included perianal erythema, swelling of the perianal tissues, laxity and reduced tone of the anal sphincter, large tears, and skin changes, complete anal dilatation with the relaxation of both the internal and external anal sphincters, fissures, abrasions, and hematoma and/or bruises, venous congestion, pigmentation [6]. In a study made by Myhre et al. with 198 children "belonging to the anal penetration group," there was a "positive association between the following features and anal penetration: anal soiling, fissure, laceration, and total anal dilatation" [12]. These findings, although some of them "with no expert consensus on interpretation concerning sexual contact or trauma" in Adam's classification of the victims [11], are essential to highlight the suspect of sexual violence (e.g., rape). Finally, we have to make an anal smear and an anal swab to search for sperm. However, in our previous study [10], this search resulted negatively in most cases, as we pointed out above.

In addition, we can highlight suspicious lesions using toluidine blue. The lesions were recorded and photographed to facilitate recording. However, video recording and documenting the victim's altered behavior during the examination are currently

more indicated [9,14,15].

The same regions should be examined using filtered ultraviolet light (Wood's lamp). Parts that fluoresce with Wood's lamp may contain sperm.

The collection of material from these regions should be performed for laboratory research on sperm and the genetic profile of the aggressor.

Other complementary exams should be collected, such as blood and urine (for investigation of sexually transmitted infections, drugs, and other psychoactive substances) and saliva.

It is essential to classify physical findings in the victims using Adam's classification (to complete the report), based on anogenital results in children with suspected sexual abuse.

As stated by Walker, "in the majority of cases, prepubertal child sexual abuse only comes to light sometime after the incident. Acute injuries normally heal before the examination, with or without residual evidence." Thus, evidence of injury to the anal region in this group of children is of "particular significance in the clinical evaluation of child sexual abuse" [16].

Some authors consider anogenital findings consistent with acute sexual abuse in male children to perianal swelling, marginal hematomas, radial fissures, dilated anus, and linear skin abrasions [10]. However, many of these findings are questionable. For example, Adams state that "the significance of reflexive anal dilation remains controversial. A dilation of less than 2 cm can be considered a normal reflex reaction. It is also associated with constipation, encopresis, and neuromuscular diseases" [11].

In addition, anal fissures may appear in perianal infections or skin irritations of other origins. Furthermore, "in most cases, penetration (or repeated penetration) of the anus does not result in injury or other changes" [2]. A "Significant inter-observer variability in the accuracy of detection and interpretation of genital injury" [13] can cause a wide variation in the reported prevalence of genital injury following rape.

Brazilian medicolegal predominant doctrine [17] says that anal intercourse is mainly proven when sperm are found in the anus. The technical evidence of the crime (rape with anal intercourse) only exists beyond doubt if research on spermatozoa in the anus is positive. It is important to remember that anal sperm screening results are better if the examination is performed within the first 24-48 hours after the alleged rape [2,11,13].

Papanu Suttipasit [18] stated that "Semen is crucial evidence for some sex crimes, with its sole confirmation being sperm detection." However, the author also affirms that "The success of sperm detection depends on all levels of preanalytical and analytic procedures. Specimen collection must be performed by well-trained and competent forensic physicians and nurses, with proper preservation before laboratory transfer." It does not frequently occur, which is a cause of failure in that type of exam.

In Brazil, many forensic examiners confirm rape in boys, usually by the presence of recent anal or perianal lesions [19]. In the series in this study (although their cohort was composed of boys and girls), the authors found that "recent anal or perianal lesions were present in 35 (87.5%) of the confirmed cases involving boys. Laboratory confirmation based on spermatozoa or prostate-specific antigen detection occurred in only 4.2% of the cases. In all cases, sample collection was performed within 24 h of the alleged abuse. Thus, in most cases with material evidence of sexual abuse, the confirmation criteria consisted of a ruptured hymen and recent perianal lesions" [19]. As pointed out above, it can be (or not) a questionable conclusion regarding perianal lesions.

Thus, our primary goal is to review the literature in respect of collecting evidence to prove the rape of male children (under 14 years old) and propose a rational and new form of evidence collection.

Methodology

The following databases (from 2009 to May 2022) Medline, Cochrane Central, Scopus, Web of Science, and Science Direct were used, searching the following keywords: child abuse, rape, boys, and forensics. The main keyword, "child abuse," was searched for singularly and then associated individually with each of the other keywords. From the sources found, only 24 were considered appropriate for this paper. All sources have been screened independently by the two authors. To be included, they had to be selected by both authors.

Discussion

The purpose of this review in the forensic context is to improve the quality of the evidence that should prove the rape of a male child in front of a court of law. Standardization of the forensic process is designed to reduce variability, facilitating a correct diagnosis by the forensic expert and convincing the court scientifically, which allows convicting the perpetrator. If child abuse is inaccurately diagnosed, it will imply more societal costs.

Many authors consider the child's testimony as "the most important piece of evidence in child sexual abuse evaluation, and physical findings resulting from sexual abuse, when present, are important in the investigative and legal arenas" [6,11,13]. However, it is also important to note that "even in legally confirmed cases of sexual abuse, most children do not have physical findings diagnostic of sexual abuse" [6].

Physical Examination of the Male Child Victim

There are some differences between the authors on this point.

Some authors generally prefer the exam in the prone knee-chest position [12]. Sakelliads et al. [6] suggest that the examination of boys "may be performed with the patient in the sitting, supine or standing position. Evaluation of the anus may be performed with the patient in the supine, lateral recumbent, or prone position with gentle retraction". In the anal examination, the correct position is critical (as the delay in the exam after the sexual assault) to achieve better results. We suggest that the anal examination may be performed with the child in the prone knee-chest position, which allows for verifying the existence of full anal dilatation.

Laboratory Findings

The presence of semen is crucial evidence to prove rape in the majority of cases [18], but as Magalhães et al. stated [20], "laboratory evidence of abuse is frequently not found (a fact that does not exclude the possibility of sexual abuse)". However, if the expert successfully isolates sperm from the anus, there is no need to prove the alleged rape and the anal penetration. It is essential to note that finding sperm in the anus is not a simple task. This task depends on other series of factors [21]. The first is the time interval between rapeseed and material harvesting. Ideally, this collection should occur within the first 72 h after the alleged rape, which is not always the case. The ideal collection time is forty-six hours for anal swabs [10].

On the other hand, as we pointed out above, this research has a minimal success rate. For example, in our previous study [10], only in 13.5% of victims, the search for sperm was positive (including boys and girls). It is a worrying number because, in the other cases, the forensic examination could not fully demonstrate the existence of the alleged rape. So, a fact like this forces us to seek more reliable means to help us prove the alleged rape.

Usually, the conclusion that rape existed was based on general signs around the anus of the victims, such as anal redness, bleeding, bruises, fissures, and anal dilation. Although these findings could be significant in highlighting the suspicion of sexual violence (e.g., rape), based on Adam's criteria, there is no expert consensus on interpreting sexual contact or trauma [11,13]. In other words, there is no conclusive evidence that the rape occurred.

How Can We Demonstrate the Rape of Male Children Clearly and Objectively?

To answer this question is essential to note that medical literature on sexual violence against male children is scarce. It has been an issue that commonly appears only within works that study the problem more broadly, not focusing on this specific type of violence (e.g., rape with anal intercourse). It is a crime that is difficult to prove for several reasons. One reason is that the general physical findings around the anus, as the only instrument of evidence before the courts, especially regarding the rape of vulnerable male children, are questionable [10]. They are questionable because general physical signs such as redness or anal fissures are often caused by perianal infections and skin irritation of other origins, as pointed out above. In addition, penetration of the anus does not result in injury sometimes [6,20]. In addition, there is the problem of the "inter-observer variability in the accuracy of detection and interpretation of genital injury" [11]. Many confounding variables can hamper a more objective conclusion when examining a male victim, particularly a child.

Physical Signs Alone are Not Sufficient to Prove the Rape

Two questions arise at this point. First, to what extent would the findings related by Sakelliadis et al. [6], Myhre et al. [12], or Adams' criteria [11] will be sufficient for the conviction of the offender in a court of law? The second question is: What standard should be used for forensic examination to reach an objective conclusion beyond a reasonable doubt?

The answer to the first question is relatively simple: "physical signs are only part of the evidence in cases of possible child sexual abuse; they have been a controversial part, particularly the significance of anal findings," as stated by Robinson [22].

In our view, some criteria should be placed in order of importance. The first was the child's testimony. Fortin and Jenny [23] stated, "in most cases, a child's statement about sexual abuse is the strongest evidence of abuse." The second is the physical finding of the anus. Specifically, regarding the anus, the most critical result seems to be total anal dilatation or a dilatation that is more significant than 2cm. From our perspective, this is more critical than fissures, bruises, or bleeding. Finally, as stated by Vrolijk-Bosschaart [9], "according to the Center for Disease Control and Prevention (C.D.C.) guidelines, positive STI-tests for gonorrhea, syphilis, and HIV are diagnostic for child sexual abuse if the perinatal and vertical transmission is excluded (and in the case of HIV transmission via blood products)." And it is necessary not to forget if sperm were observed in the anus.

Thus, the next question is: how do we associate the child's testimony, the presence of physical signs in the anus, and eventual laboratory findings in an objective and user-friendly system?

Creating a Pointing System to Confirm Anal Penetration

In our opinion, to confirm the anal penetration is necessary to create a pointing system using the data we search. The starting point is to choose from the available literature the physical signs on the anus that have the greatest strength of evidence. In this regard, Myhre et al. [12] study are crucial. In their series, anal soiling, fissure, laceration, and full anal dilatation have a positive association with anal penetration. Sakelliadis et al. [6] added other signs like perianal erythema, swelling of perianal tissues, laxity and reduced tone of the anal sphincter, fissures, and large tears,

skin changes, hematoma and/or bruising, venous congestion, pigmentation, and anal dilatation. It is essential to point out that these physical signs should be interpreted with caution in the absence of a clear disclosure from the child. Also, there must be no other predisposing factors such as constipation, encopresis, sedation, anesthesia, and neuromuscular conditions, as stated by Adams et al. [11].

However, these criteria should not be considered for isolation. They must be analyzed together. For example, suppose physical findings in the anus (e.g., Adam's classification or the signs described by Sakelliadis) confirm the child's testimony. In that case, a negative anus sperm test is not critical to establishing rape. However, we must remember that this does not imply that research on sperm is unimportant. Hagemann et al. [24] demonstrated that "analysis of swabs was associated with charge filling, regardless of test results."

On the other hand, taking a child's testimony about the abuse suffered requires an experienced professional, preferably with a background in forensic psychology [10]. This testimony must be taken in a peaceful environment in which the child is free from any pressure. It is necessary to remember that the results of our previous study [10] show that the victim's aggressor alleged was the child's father in most cases. Therefore, the first interview with this child must be conducted only with the participation of a forensic psychologist expert.

Counting the Points

The following Table 1 shows the parameters we use in our system of points taking into account the physical signs referred to by Sakelliadis et al. [6], Adams et al. [11], and Myhre et al. [12].

Type of Evidence	Value (Maximum 6 Points)
Child Testimony	4 points
Anal redness + bleeding*	2 points
Anal dilatation > 2cm*	2 points
Bruises, fissures*	2 points
Anal soiling*	2 points
Laceration*	2 points
Total anal dilation*	2 points
Swelling of the perianal tissues	2 points
Laxity and reduced tone of the anal sphincter	2 points
Venous congestion, pigmentation, skin changes	2 points
Positive STI tests for gonorrhea, syphilis, and HIV**	4 points
Research on sperm positive	6 points

Table 1: Points system for anal intercourse assessment;*In the absence of other predisposing factors such as constipation, encopresis, sedation, anesthesia, and neuromuscular conditions;**If perinatal and vertical transmission is excluded (or HIV transmission via blood products).

When we add up the points, if we reach a total of six points, the diagnosis of rape can be confirmed. For example, the testimony of the child (4 points) plus the finding of anal dilatation above 2cm or complete anal dilatation, the total is 6 points. If we find anal erythema (2 points), anal bleeding in the absence of other diseases (2 points), and anal dilatation (2 points), we can reach the same six points. We have different possible combinations. But the presence of sperm on the anus, isolated, earns 6 points to confirm the rape.

Conclusion

Based on our review, we can conclude that rape in vulnerable male children is challenging to prove in court. Negative research on sperm in the anus isolated is insufficient to exclude rape in a male child. Thus, to improve the probative capacity of forensic examination, we propose that some diagnostic criteria, such as the child testimony, the presence of physical signs, and the presence of sperm on the anus, should be analyzed together in a system of points. If we reach six points, we can objectively prove the rape.

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