Forensic Medical Examination in Female Children Alleged to have Sexually Abused

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Abstract: ***Introduction*****:** Child sexual abuse is a global public health problem and the medico legal examination is directed to provide an objective, unbiased opinion on alleged sexual contact. There are many factors influencing such opinion.

Objective**:** The aim was to study the factors influencing the medico legal opinion in female children who alleges sexual abuse.

Methodology**:** A retrospective descriptive study was done based on medico-legal case records of female children who had been referred for medico legal examination following alleged sexual abuse during past 3 years to the Teaching Hospital Ragama, Sri Lanka. Data analysis was done with Statistical Package for Social Sciences (SPSS).

Results**:** We studied the records of 353 child victims for this research. The main presenting complaint was concerns of the guardian 168 (48%). Majority, 261 (74%) presented for medico legal examination 72 hours after the incident. The perpetrator was known to the victim in 339 (96%) cases. Recent injuries were observed only in 40(11%) victims while there were 184(52%) victims with old injuries. 122 (73%) out of 168 victims who were brought due to concerns of the guardians had genital injuries and of them only 11 (9%) had recent injuries. Psychological impacts were observed among 149 (42%) children. Out of the 74 victims who had experienced physical threats, only 12 (16%) had supportive injuries. Firm positive medico legal opinion as per the complaint was given in 218 (62%).

Conclusions**:** Paucity of medical evidence is well observed in child sexual abuse and is a challenge to the medical expert. The mere absence of physical findings does not necessarily exclude the allegations of sexual abuse. Proper insight in to the presentation, pattern and factors influencing medical opinion is needed for proper administration of justice.

Keywords: Female children, Sexual abuse, Medical evidence, Injuries, Opinion.

1. INTRODUCTION

World statistics reveal that approximately 7.9% of boys and 19.7% of girls globally experienced sexual abuse prior to the age of 18 [1]. Sexual abuse is usually underreported and child sexual abuse is even less reported. Across all studies it is clear that only about half of the young victims disclosed the abuse to anyone [2].

The aim of forensic medical examination and evidence collection in a case of sexual assault is to document an alleged physical or sexual contact between individuals and to corroborate the victim's and the assailant's history.

Even if physical signs of sexual abuse are rare, proper documentation is essential in assisting the criminal justice system. Presence of an injury influences decision making throughout the criminal justice process.

Child sexual abuse is a unique phenomenon; the presentation and pattern often vary to that of adult sexual abuse. Definitive signs of genital trauma are seldom seen in cases of child sexual abuse, as physical force is rarely involved [3]. Due to characteristics specific to child sexual abuse, the correct medico legal interpretation of minimal genital findings in children requires specialist skills.

It is generally believed and clinicians are in agreement that false allegations by children are very rare [4]. However, the forensic expert must always be objective and have an open mind towards the allegations. The opinion he makes should be based on scientific evidence.

The findings must be in accordance with basic principles of pathology and pathophysiology. Balanced and reasonable evidence based opinion of a forensic expert can contribute immensely to the criminal justice system. Therefore to provide an insight into the presentation, pattern and prevalence of genital injuries among the Sri Lankan female child victims of sexual abuse at forensic medical examination and to fulfill the gaps in our knowledge on different variables that can influence the medico legal opinion on genital as well as non-genital injuries, we designed a retrospective

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descriptive study on medico legal examination on alleged sexual abuse.

2. OBJECTIVES

The aim of the study was to analyze the presentation, pattern and the prevalence of injuries among the sexually abused female children and to determine the factors influencing the medico legal opinion in forensic examination of sexually abused.

3. METHODS

A retrospective descriptive study was conducted on the medical and the medico legal records of the female child victims of sexual abuse during last 3 years presented to a Tertiary Care Hospital in Sri Lanka. Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Kelaniya, Sri Lanka.

Medico legal examination forms, medico legal reports and other case materials such as copies of bed head tickets of the children who had undergone medico legal examination following an allegation of sexual abuse that were maintained by doctors who conducted the Medico-legal examinations in a teaching hospital were perused. The historical details, examination, investigation and management details and the opinion given were obtained to fill the pro-forma.

Data collected were entered in Microsoft excel worksheets and analysed using Statistical Package for Social Sciences (SPSS). Graphs and tables were used to represent the data.

4. RESULTS

Medical records of 353 female child victims presented for medico legal examination following alleged sexual abuse during period of 3 years were perused. Of them 150 (43%) victims belonged to the age group of >14-16 years (Table **1**).

Table 1: Age Distribution of the Victims

Age group	Frequency	Percent
<12	76	21.5
12-14	66	18.7
>14-16	150	42.5
>16-18	61	17.3
Total	353	100.0

24% (n=84) of these children were pre-pubertal. 168 (48%) presented due to parental concerns while there were 104 (30%) presenting with a complaint of vaginal intercourse. Perpetrator was known to the victim in 339 (96%) while in 157 (45%) it was the boyfriend (Table **2**).

Table 2: Relationship with the Perpetrator

Perpetrator	Frequency	Percent
Person causing incest	32	9.1
Known	145	41.1
Unknown	14	4.0
Boyfriend	157	44.5
Known & unknown	5	1.4
Total	353	100.0

Majority, 261(74%) were brought to the medico legal examination 72 hours after the alleged incident (Table **3**).

Table 3: Time Elapsed before Presentation

Time (Hours)	Frequency	Percent
<12hr	1	.3
12-24hr	29	8.2
25-48hr	20	5.7
49-72hr	19	5.4
>72hr	261	73.9
Details not available	23	6.5
Total	353	100.0

183 (51.8%) alleged single episode of abuse while repeated abuse was the complaint in 153 (43%) cases. 74 (21%) victims had experienced physical threats at the time of the alleged incident while 93 (26%) were verbally threatened. However, non-genital injuries were observed only in 12 (3.4%).

Recent genital injuries were observed only in 40 (11.3%) while there were 189 (54%) with healed injuries (Table **4**). Out of the 40 victims with recent injuries, 25 (64%) had the injuries mainly located in the hymen either alone or in combination with other injuries. 6 (15%) victims had isolated injuries to the vulva while there was 1 (2.5%) victim with isolated vaginal injuries and 5 (10%) with isolated perineal injuries. 3 (7.6%) were having injuries to the anus in combination with the perineum.

Table 4: Timing of the Genital Injuries

Timing	Frequency	Percent
Recent injuries	31	8.8
Recent & old injuries	9	2.5
Old injuries	184	52.1
No injuries	129	36.5
Total	353	100.0

Children older than 14 years were mainly brought due to the concerns of the guardian (n=132, 62.6 %). However, 104 (29.5%) victimized children had presented with the complaint of vaginal intercourse and 55.8% (n=58) of them were more than14 years of age (Table **5**).

Out of the 104 victims who complained of vaginal intercourse, 15 (14.4%) had recent injuries. 111 (66.1%) out of the 168 victims who were brought because of the concerns of the guardian were having old/healed genital injuries while only 11 (6.5%) had recent injuries (Table **6**).

Out of 40 children who had recent injuries 15 were with the complaint of vaginal intercourse and they mainly had hymenal tears (n=12, 80%) while out of 6 victims with multiple complaints 4 were mainly having abrasions and contusions (n=4, 66.6%) in the genital and other areas. 3 children who complained of anal intercourse, 5 (50%) out of 10 children with genital injuries and brought due to concerns of the guardian also had tears of the hymen. 1 child who complained of fondling also had a tear of the hymen while another one was having abrasions or contusions (Table **6**).

When the time gap increases, injuries were either healed or absent (Table **7**). Injuries that remained at or around 72 hours were mainly tears of the hymen.

Table 5: Presenting Complaint Vs. Age of the Victim

Age / Presenting Complaint	< 12 y	12-14 y	>14-16 y	>16-18 y	Total
Vaginal intercourse	21	25	38	20	104
Anal intercourse	1	2	2	0	5
Intercrural intercourse	8	4	8	1	21
Fondling	15	7	5	0	27
Fingering	9	0	0	0	9
Concern of guardian	13	23	94	38	168
Multiple	8	4	2	1	15
Other forms of sexual abuse	1	1	1	1	4
Total	76	66	150	61	353

Table 6: Presenting Complaint vs. Injuries

Findings / Complaint	Recent Injuries	Recent & Healed Injuries	Healed Injuries	No Injury	Total
Vaginal intercourse	13	2	65	24	104
Anal intercourse	2	1	0	2	5
Intercrural intercourse	1	0	3	17	21
Fondling	2	0	1	24	27
Fingering	1	1	2	5	9
Concern of guardian	9	2	111	46	168
Multiple	3	3	2	7	15
Other forms of sexual abuse	0	0	0	4	4
Total	31	9	184	129	353

Table 6: Presenting Complaint Vs. Nature of the Recent Genital Injury

Nature of Genital Injury / Presenting Complaint	Hymenal Tears	Hymenal Tears + Abrasion/ Contusion	Abrasion/ Contusion	No Recent Injuries	Total
Vaginal intercourse	7	5	3	89	104
Anal intercourse	2	1	0	2	5
Intercrural intercourse	0	0	1	20	21
Fondling	1	0	1	25	27
Fingering	0	0	2	7	9
Concern of guardian	4	1	5	158	168
Multiple	2	0	4	9	15
Other forms	0	0	0	4	4
Total	16	7	16	314	353

Table 7: Time Gap Vs. Genital Injuries

	<12hr	13-24hr	25-48hr	49-72hr	>72hr	Details not Available	Total
Recent injuries	0	3	3	5	19	1	31
Recent & old injuries	0	1	2	1	5	0	9
Old injuries	0	10	5	6	150	13	184
No injuries	1	15	10	7	87	9	129
Total	1	29	20	19	261	23	353

Only 30% Out of the 76 children who were less than 12 years had detectable genital injuries (recent or old). While 79 % of the older children (14 years or above, n=211) were having such injuries (Table **8**).

Out of the 168 victims who were brought due to concerns of the guardian, there were 135 (80.4%) with recent injuries and/or healed tears or features of chronic abuse or variations that would interfere with giving an opinion on genital injury (presence of notch or partial tear). 18.5% (n=23) of them had only a single healed tear. Only 33 (19.6%) were having no remarkable genital findings.

149 (42%) children were emotionally disturbed at presentation. Further, it was observed that the psychological effects were commoner among younger children. Only (9.5%) were having emotional disturbance when the perpetrator was the boyfriend (Table **9**).

A firm positive opinion such as “evidence of recent vaginal penetration” or “evidence of repeated vaginal penetration” or negative opinion such as “no evidence of vaginal penetration” as per the allegation was given in 253 (71.8%) victims. A firm positive opinion was given in 78 (75%) out of the 104 victims complaining of vaginal intercourse and 116 (69.1%) out of the 168 victims brought due to parental concerns (Table **10**).

Among the victims for whom a firm opinion could not be given (n=100, 28.2%), 45% were having complaints such as intercrural intercourse, fondling and fingering. 19% of them were brought because of the concerns of the guardian (Table **10**).

Table 8: Age Vs. Genital Injuries

	<12yr	12-14yr	>14-16yr	>16-18yr	Total
Recent injuries	8 (10.5%)	8 (12%)	11 (7.3%)	4 (6.5%)	31
Recent & old injuries	4 (5.3%)	0	2 (2.7%)	3 (4.5%)	9
Old injuries	10 (14.5%)	27 (41%)	99 (65%)	48 (79%)	184
No injuries	54(69.7%)	31 (47)	38 (25%)	6 (10%)	129
Total	76	66	150	61	353

Table 9: Psychological Effects Vs. Age Vs. Relationship with the Perpetrator

Psychological		Age				Total
		<12 yr	12 to <14 yr	14 to <16 yr	16 to <18 yr	
Emotionally disturbed	Person causing incest	10	6	8	1	**25**
	Known	32	25	26	10	**93**
	Unknown	2	1	1	5	**9**
	Boyfriend	0	1	13	1	**15**
	Known/ unknown	0	3	2	0	**5**
No impact	Person causing incest	5	1	0	1	**7**
	Known	26	10	7	7	**50**
	Unknown	1	1	2	1	**5**
	Boyfriend	0	18	89	35	**142**
Depressed	Known	0	0	2	0	**2**
Total		**76**	**66**	**148**	**61**	**353**

Table 10: Presenting Compliant Vs. Opinion

	Firm Positive Opinion	Firm Negative Opinion	Cannot Give a Firm Opinion	Total
Vaginal intercourse	78	1	25	104
Anal intercourse	3	0	2	5
Intercrural intercourse	3	0	18	21
Fondling	5	1	21	27
Fingering	3	0	6	9
Concern of guardian	116	33	19	168
Multiple	9	0	6	15
Other forms	1	0	3	4
Total	218	35	100	353

34 (85%) out of 40 children with recent injuries and 177 (96%) out of 184 children with old injuries were given a firm positive opinion on sexual abuse (Table: 11). The 6 children having recent injuries without a firm opinion had abrasions and/or contusions to the perineum and/or vulva, while 2 cases with an old injury but no firm opinion were having inconclusive variations like presence of a notch or partial tear.

A firm positive opinion could be given in all 23 (100%) victims with hymenal tears while in 69% of victims with other genital injuries also got a firm positive opinion (Table **11**).

A firm positive opinion could be given in 10 (83.3%) out of the 12 (3.4%) children who had co lateral injuries.

5. DISCUSSION

Forensic medical examination leading to objective unbiased scientific opinion is crucial in administering justice to sexually abused children. However, most children do not have physical findings diagnostic of sexual abuse. Although an opinion on penetration based on injuries is the most important or needed expert opinion to the court from the forensic physician, opinions on consent and other corroborative evidence specific to child sexual abuse such as time of causation of the act, the place of occurrence or the circumstance are welcomed.

The study revealed that the majority (43%) of the victims were children between 14 to 16 years. Majority of the girls have attained menarche by this age [5]. Perpetrator is known to the victim in 96% while it is the boyfriend in 44.5%. Most perpetrators of child sexual abuse are relatives or close associates of the youth [6, 7].

Late presentation was observed in 74% and the majority (48%) was brought due to concerns of the parents. Children often avoid telling such incidents because they are either afraid of a negative reaction from their parents or of being harmed by the abuser. This has been identified in other studies on child sexual abuse as well [8].

Table 11: Opinion Vs Nature of Genital Injury and Timing of the Genital Injury

		Recent Injuries	Recent & Old Injuries	Old Injuries	No Injuries	Total
Firm +ve opinion	Tears	12	4	0	0	**16**
	Tears + abrasions/ contusions	5	2	0	0	**7**
	Abrasions/ contusions	8	3	0	0	**11**
	No injuries	0	0	177	7	**184**
Firm -ve opinion	No injuries		0	5	30	**35**
No firm opinion	Abrasions/ contusions	5	0	0	0	**5**
	No injuries	1	0	2	92	**95**
Total		**31**	**9**	**184**	**129**	**353**

Even though 21% of the children had alleged physical threats during the act only 3.4% had supportive injuries. Presence of collateral injury in a victim who alleges sexual abuse, such as bruises, cuts, burns, or internal injuries increases the probability of proving the charge of sexual violence [9]. Majority of them were brought late when the injuries were healed. Further, physical force necessary for restraining a young child is minimum leading to absence of co-lateral injuries.

Recent genital injuries were observed only in 11.3% of the victims and the majority of them were hymenal tears. Even in the victims who were brought late hymenal tears were the injuries that were frequently observed. The most common locations for genital injury in female teenagers and women following sexual abuse are the posterior fourchette, labia minora, hymen and fossa navicularis [10]. Accidental injuries to genitalia are typically anterior, exterior, unilateral, usually mild, and generally superficial injuries of the external genitalia (usually bruises with hematoma, more rarely cutaneous tears, and very rarely deep, penetrating injury) [11]. Among the group complaining of vaginal intercourse, 14.4 % had recent injuries. On the other hand, out of the 168 victims who were brought because of the concerns of the guardians 6.5% were having recent genital injuries while there were 66% with healed injuries.

It was observed that children who were at or before puberty were having less genital injuries compared to the children who were older. During the pre-pubertal age, acute trauma to the genitalia causes bruising, lacerations, abrasions and swelling. Most of these injuries heal quickly without leaving any lasting signs to be found on later examination unless it is an extensive laceration [12].

Psychological effects due to the sexual abuse were observed mainly among very young and in the children who had not willingly participated in the act. Mental health conditions such as post-traumatic stress disorder (PTSD), depression, anxiety, insomnia, and lack of trust in others are reported more often by children who have been sexually abused [13, 14]. Some, especially very young may not have immediate effects but will develop long term effects when they have an insight to understand.

Complaint of vaginal intercourse and presence of recent or old genital injuries were mainly associated with a firm positive opinion. Rambow and colleagues have reported that the evidence of genital or non-genital injury is associated with successful legal outcome in cases of sexual abuse [15]. There were 100 individuals in whom a firm positive or negative opinion could not be given. 76% of these individuals were not having any injuries to the external genitalia or any hymenal injury/ variation. Paucity of physical findings is well described with child sexual abuse [3, 16, 17, 18]. The most important reason for this is the nature of the abuse itself. Frequently the act does not involve physical contact sufficient enough to produce physical sequelae, which was well observed in our study as well (fondling and intracrural intercourse). Thus, the absence of medical evidence does not necessarily exclude or confirm the given allegation.

69% among the children who were brought because of the concerns of the guardian, a firm positive opinion on sexual abuse was given. Child sexual abuse is unique due to the issue of consent. There is no valid consent that can be given by a child who is less than 16 in Sri Lanka [19]. Therefore many children who had willingly participated in sexual activity are considered as victims of statutory rape.

On the other hand in 19.6% who were brought due to the concerns of the guardians, the medical experts have excluded the given allegation with a firm opinion

minimizing the possibility of wrongful convictions and unwanted harassment and re-victimization of these children.

6. CONCLUSIONS

Forensic medical examination in an alleged child victim of sexual abuse is of major importance in the successful prosecution of the case as well as in prevention of further abuse. A firm positive opinion on sexual abuse is associated with presence of injuries and the complaint of vaginal intercourse. There were 28% of the victims with no firm positive or negative opinion on sexual abuse in our study group. Clinical findings, in a child sexual abuse, are rare due to many reasons including the nature of abuse. This may be further complicated when the presentation is late which is commonly observed in child sexual abuse. Therefore a "negative" or normal examination does not exclude the possibility of sexual abuse. Thus, it is more scientific to state that even though there are no medical evidence or signs of injury, exclusion of sexual abuse is not possible.

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