



Hymenal lesions and legal outcome in sexually abused girls with a history of vaginal penetration



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ABSTRACT

Purpose: In many cultures, it is commonly accepted that the hymen remains unchanged throughout childhood, until it is torn at the first episode of sexual intercourse. Therefore, the definition of virginity is directly linked to a normal hymen. However, most girls referred for medical forensic colposcopic examination have normal or nonspecific findings, the prevalence of abnormal findings in girls with a history of genital penetration being only 4–6%.

The aim of this study was to investigate the relation between hymenal findings seen at the colposcopic examination and the legal outcome: prosecution in court and conviction in court.

Results: During the 80-month period of our study, 426 girls with a median age of 9 years (range 0–15 years) were included. A history of at least one vaginal penetration was given in 226 of the girls with a median age of 12 years (range 2–14 years).

The hymenal findings were described as normal in 125 of the 226 cases (55%). In 50 cases (22%), hymenal clefts were found, 17 (34%) of which were complete and 33 (66%) incomplete. The finding of hymenal clefts increased with age.

Of the 226 cases of girls being sexually assaulted with vaginal penetration, 119 cases (53%) were prosecuted in court, 102 of which (86%) resulted in conviction. Thirty-five (70%) of the cases with hymenal clefts and 100 (57%) of the cases without hymenal clefts were prosecuted in court, showing a correlation between hymenal clefts and conviction; however, the correlation was not significant (χ^2 test = 2.1 and $P = 0.14$). In total, 29 (58%) of the cases with hymenal clefts and 88 (50%) of the cases without hymenal clefts were convicted in court, which shows no significance (χ^2 test = 1.0 and $P = 0.33$).

Conclusions: The single most important feature for conviction in court is the child's testimony and not hymenal findings seen at the colposcopic examination. Especially the testimony of the older children leads to conviction, raising the question whether the videotaped testimonies are aimed at the court proceedings, or whether hearing the child's testimony directly in court has a more powerful effect. Overall, it is crucial that the videotaped police questioning of the younger children is performed by specialized personnel, with the aim of presenting the testimony in a detailed and credible manner in court, giving children of all ages a fair trial.

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1. Introduction

In many cultures, it is commonly accepted that the hymen remains unchanged throughout childhood, until it is torn at the first episode of sexual intercourse. Therefore, the definition of virginity is directly linked to a normal hymen, based on which sexual abuse can be ruled out.

Embryologically, the hymen is derived from the urogenital sinus, which fuses with the more cranial paramesonephric ducts by

the third month of gestation, forming the vaginal plate. The structure canalizes, forming the vaginal lumen. The most caudal portion, however, remains uncanalized and separated from the cavity of the urogenital sinus. This structure is called the hymen, consisting of the epithelium of the urogenital sinus and a thin layer of vaginal cells. Around the time of birth, the hymen develops a small opening, canalizing the vagina as a whole [1].

During the first weeks of life, maternal hormones, transferred across the placenta, affect the newborn infant by stimulating the hormone-sensitive tissues. This is particularly evident in the hymen, which becomes thick and turgid. This maternal stimulation rarely persists longer than a month. During the first few months of life, however, the infant's hypothalamic–pituitary–gonadal axis

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can become quite active, producing gonadal estrogens, prolonging the stimulating period, called the thelarche. By the age of 2–4 years, this system is fully suppressed, changing the appearance of the hormone-sensitive tissues in the typical prepubescent child, making the hymen thin and atrophic, with little resistance to trauma. By the age of 7–11, the hypothalamic–pituitary–gonadal axis again becomes active. The hymen thickens, and the hymeneal orifice increases in size. By the age of 9–13 years, the hormone-sensitive tissues assume an adult appearance, with further thickening of the hymen. By this time, the first menstrual bleedings also occurs, called the menarche [2].

There is a wide range of normal hymenal anatomy, the most common configurations being the annular, crescentic, septate, redundant, cribriform, fimbriated, and imperforate hymen. The annular hymen, seen at all ages but most common in newborns, is defined as a circumferential ring of tissue with the orifice anteriorly placed. The crescentic hymen, becoming more prevalent during the prepubertal years, can be seen with the total absence of tissue in the suburethral area from approximately the 11 to 1 o'clock position. The septate hymen has a band of tissue running through the hymenal orifice, but without extending internally into the vagina, creating an opening on each side of the septum. The redundant hymen, most commonly seen in oestrogen-affected females, has abundant tissue that folds on itself and protrudes outward. The cribriform hymen has multiple small openings, separated by hymenal tissue. The fimbriated hymen has multiple projections of hymenal tissue extending into the orifice with indentations on the edge, creating a ruffled appearance. Finally, the imperforate hymen has no hymenal orifice, therefore requiring medical intervention at puberty [3].

As indicated earlier, it is common belief that hymenal rupture occurs following vaginal penetration, with lesions of the hymen being visible at a later colposcopic examination [4]. In reality, however, most girls referred for medical forensic colposcopic examination have normal or nonspecific findings, the prevalence of abnormal findings in girls with a history of genital penetration being only 4–6% [5–7].

Therefore, the aim of this study was to investigate the relation between hymenal findings seen at the colposcopic examination and the legal outcome: prosecution in court and conviction in court.

2. Materials and methods

The study included all girls referred by the police for a forensic medical examination at the Department of Forensic Medicine, Aarhus, Denmark, from 1 January 1996 to 1 September 2002 [8].

Danish law stipulates that all suspected cases of child sexual abuse must be reported to the social services, but not necessarily to the police. In cases where the police are involved, the investigative procedure includes a videotaped questioning of all children in the 3–12-year age group, whereas older children give their testimony in court. Most often, the questioning is followed by a forensic medical examination. This documentation will later be used in court proceedings.

The Department of Forensic Medicine, Aarhus, Denmark, serves an area of Jutland with about 2.5 million inhabitants, comprising almost half of the total Danish population, half a million of whom are children aged 0–16 years.

The case review included medical records, police reports, and court decisions, including the police questioning of the child and statements from the perpetrator, family members, and others related to the child or to the perpetrator. The results of the police investigations leading to prosecution and the following court decisions were reviewed and abstracted.

The forensic medical examination is a lengthy procedure, including the child's medical history, but with no questioning about the assault. Prior to the examination, the child and her parents

or guardian are informed in writing about the purpose of the examination and how it will proceed. The details of the sexual assault are obtained from the police report of the questioning of the child, and/or from the statement of the person who reported the assault, and/or from the perpetrator. During the examination, the child is undressed so as to perform a normal medical examination including the Tanner stage, following which a forensic medical examination with description of lesions, including an anogenital examination with a video-colposcope, is performed with the child in both the back position and the knee–elbow position.

Since 1994, the Department of Forensic Medicine, Aarhus, Denmark, has used a Zeiss video-colposcope (Olympus, Ballerup, Denmark) for examining the anogenital area. A camera with a 5–16× image magnification is mounted on the colposcope. The camera has different filters, enabling capillaries and vessels to be viewed with great accuracy. Two medical doctors, the examining doctor and a senior doctor, review the videotape of the anogenital examination before writing the forensic medical report.

Collection of biologic trace evidence, such as semen, is time dependent, only relevant for a period of <72 h from the assault. Testing for sexually transmitted diseases is only performed when the examination or the medical history gives rise to concern, for example, in cases with a history of vaginal penetration. The risk of sexually transmitted infection with *Chlamydia trachomatis* or *Neisseria gonorrhoeae* has been found to be very low in this part of Denmark [9].

In this study, hymenal findings were classified as normal (clefts and notches in the superior half of the hymenal rim were classified as normal findings), nonspecific with incomplete clefts, or specific with complete clefts (Figs. 1–4).

2.1. Data analysis and statistics

The data were entered into Epidata and analyzed using SPSS (version 10.0).

3. Results

During the 80-month period of our study, 426 girls with a median age of 9 years (range 0–15 years) were included. A history of at least one vaginal penetration was given either by the child or

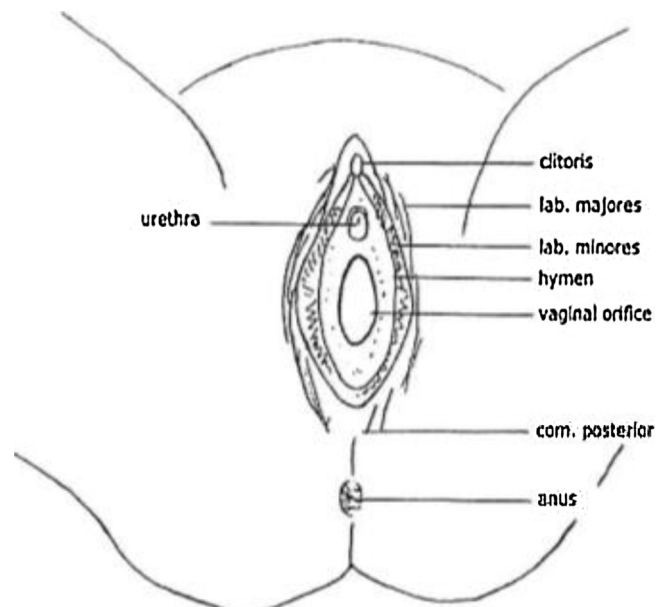


Fig. 1. Illustration of the female external genitalia with a normal hymen.

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