



# Two cases of hymenal scars occurred by child rape

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Children who have been raped some years back may have hymenal scars. However, medical professionals are not accustomed in assessing these scars because of the lack of experience in performing physical examinations of the external genitalia of children who suffered from rape some years back. Moreover, the importance of physical examination of the victim's external genitalia is sometimes overlooked. Two cases of rape victims with hymenal scars who visited Daegu Child Sexual Abuse Response Center several years after their first sexual abuse along with a literature review are presented here.

**Keywords:** Rape; Child; Hymen; Genitalia

## Introduction

Child sexual abuse is a sexual crime against children aged less than 13 years. Rape is defined as committing forced sexual intercourse by violence or threat [1]. Children lack the capacity to consent; therefore, heavy sentences are imposed on the offenders, regardless of consent. Nevertheless, the Korean Criminal Procedure Act is based on the evidence submitted during the trials [2] and the physical evidence that supports the victim's statement is crucial in proving the crime committed by the defendant. Medical professionals provide not only medical treatment for the physical injuries on the external genitalia of children who are rape victims but also evidence that can conclusively prove the act of rape by thoroughly documenting the details of the physical trauma.

In cases of child victims who seek medical attention within 72 hours after rape, medical professionals can diagnose and treat the acute injuries of the genital organs. At the same time, evidences can be promptly collected using a sexual assault evidence collection kit. However, when child victims do not report the rape immediately and seek help from a medical institution at a later stage, medical professionals often exclude the physical examination of the external genitalia unless specific symptoms are reported by the child, or an examination is requested by the guardian. Not being exposed to similar cases, medical professionals are not familiar with external genital injuries in the later stage, and the importance of physi-

cal examination of the external genitalia is largely overlooked. According to studies from other countries, the hymenal scars of rape victims are monitored for several months or years. In addition, severe forms of hymenal scars persisted [3]. Another study has also compared hymenal injuries between white and blacks rape victims, and the severity of hymenal injury varies depending on the level of skin pigmentation [4,5]. On the other hand, almost no research on hymenal scars in child rape victims has been conducted in Korea.

This study analyzed 2 cases of child rape victims who attended the Child Sexual Abuse Response Center (CSARC). Two children with hymenal scars, who reported the rape years after the occurrence of the event, were examined. Herein, these 2 cases along with literature reviews are reported.

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## Case report

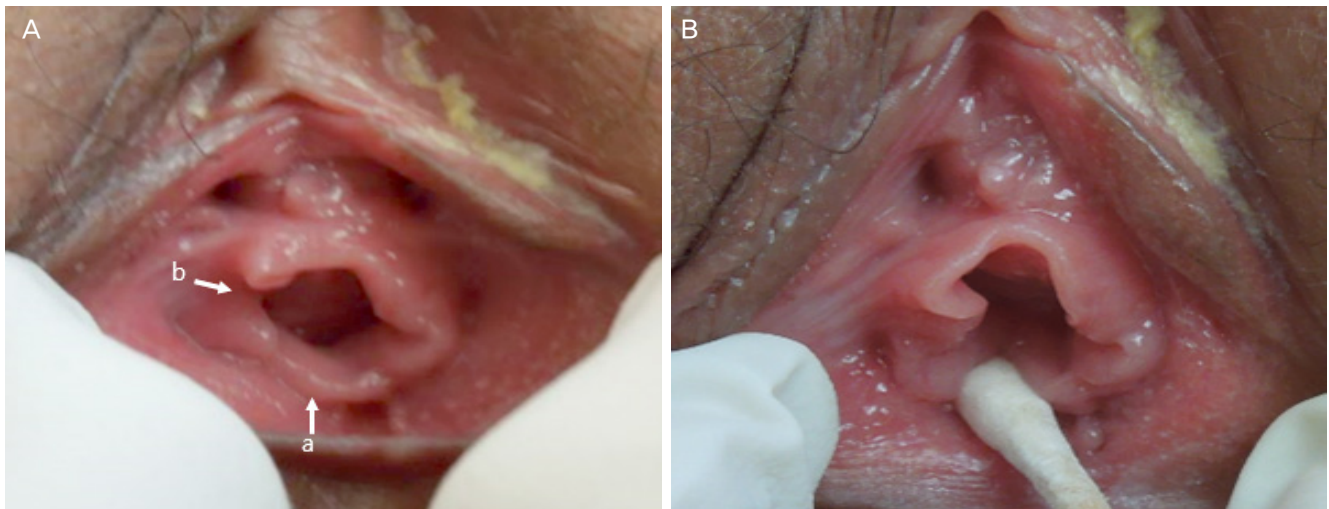
### 1. Case 1

The victim was a female child aged 12 years. She reported being raped by her stepfather over 20 times before reaching the age of 10 years. The rape occurred until 2 months before attending the CSARC. She had no history of sexual intercourse except her stepfather's rapes and external genital injuries. Forensic physical examination was conducted. The victim was 154 cm tall and weighed 40 kg. No remarkable injury on her body was observed. Based on Tanner staging, the pubic hair development was at stage III. V-shaped partial notches (80%)

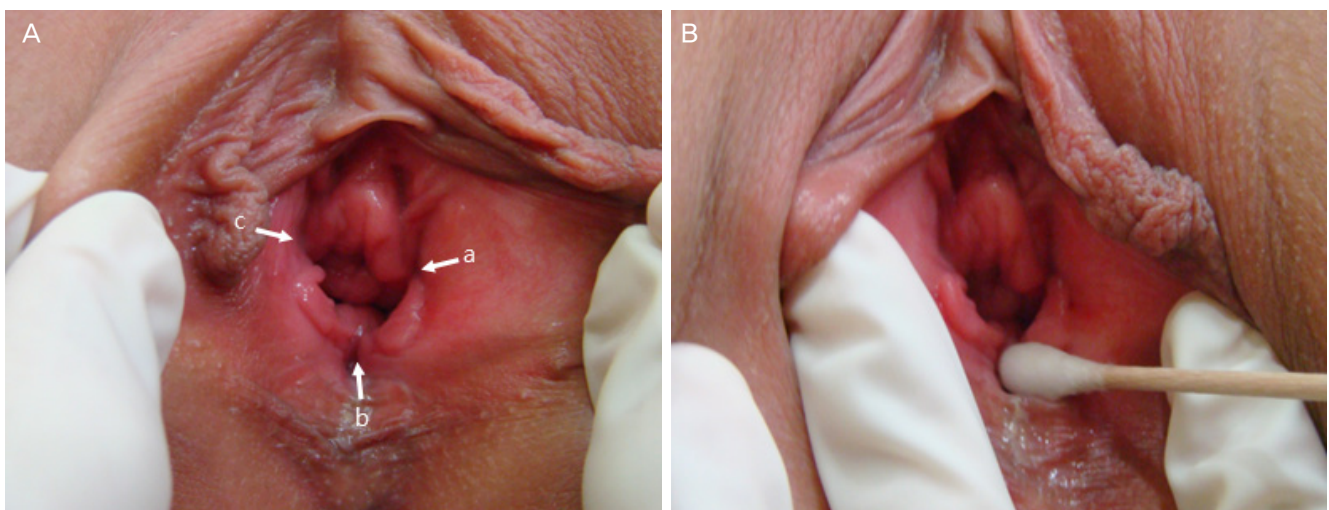
were noted on the hymen at the 6 and 9 o'clock positions (Fig. 1A). This case was reported to the police for investigation. The offender was prosecuted and convicted by the court for intrafamilial rape and rape against a minor less than 13 years of age.

### 2. Case 2

The victim was a female child aged 11 years. She reported being raped by her biological father since the age of 9 years and until 2 months before attending the CSARC. The child's sexual experience was only with her biological father. She reported no history of external genital injuries caused by trauma. The



**Fig. 1.** (A) The hymen was annular, and partial V-shaped notches (80%) were observed at the 6 o'clock (a) and 9 o'clock (b) positions. (B) Via a cotton swab examination, a partial V-shaped notch (80%) was observed in the 6 o'clock position.



**Fig. 2.** (A) The hymen was annular, and multiple transections were observed at the 3 o'clock (a), 6 o'clock (b), and 10 o'clock (c) positions. (B) Via a cotton swab examination, transection that extends to the base of the hymen was observed in the 6 o'clock position.

forensic physical examination showed that she was 135 cm tall and weighed 38 kg. No remarkable injury on her body was observed. Based on Tanner staging, the pubic hair development was at stage II. Multiple transections were observed on the hymen at the 3, 6, and 10 o'clock positions (Fig. 2A). The case was reported to the police for investigation. The court ruled that the offender was guilty of intrafamilial rape and rape against a minor under the age of 13 years.

## Discussion

The shape and diameter of the hymen change depending on age and developmental stage and may be determined by different examination techniques [6]. In general, hymenal shape is described as annular, redundant/sleeve like, crescentic, septate, cribriform, fimbriate, and imperforate [7]. The diameter of the hymen in children normally ranges up to 1 cm before adolescence and rarely widens [8]. The hymen is often thought to be smooth and thin in shape. However, different anatomical types that are congenitally transformed, such as notch, cleft, bump, or tag [6,7], are observed. Rarely, hymenal injuries caused by accidental penetration or crushing with objects, such as nail, pencil, or fences, should require clinical attention because it can be mistaken as results of sexual abuse [6].

Typically, acute injuries of the external genitalia observed in child rape victims include lacerations, bruise, abrasion, redness, and edema of the posterior fourchette, labia majora, labia minora, hymen, or vulva [9]. The hymen of a child is easily torn by the insertion of an adult penis, as the pre-pubertal physical structure of the hymen is relatively smaller than that of adults [10]. In a study conducted by Heppenstall-Heger et al. [3], the genital scars of pre-adolescent sexual abused victims were monitored for 10 years. Of 24 child victims who were raped, transection was observed in 12 victims. The transection of the hymen did not naturally heal unless they were surgically reconstructed. Slaughter et al. [11] conducted a study on scar patterns in the genital organs of sexually assaulted female victims. Hymenal laceration occurred more frequently in adolescents than in adults, and the difference was statistically significant. Hymenal injury is more frequent in adolescents than in adults because of the lack of sexual and childbirth experience. When a child is raped, hymenal injury is more likely to occur, or the severity of the injury is more seri-

ous in adolescents than in adults. Severe hymenal scars, such as deep notches of over 50% or transections, may remain permanently even after several years [6,12]. Most child rape cases have a delayed disclosure of sexual abuse [6]. Therefore, by the time medical professionals examine child victims, the injuries are most likely healed to a certain degree.

In the majority of rape cases, most scars remained in the areas of the posterior vagina between 3 and 9 o'clock positions [13]. In the 2 cases reported here, the injuries were caused by rape. In case 1, scars were observed in the areas at 6 and 9 o'clock positions; in case 2, scars were observed at 3, 6, and 10 o'clock positions, which is consistent with the previous research report. The degree of the injury was an 80% hymenal notch in case 1 and a transection extending to the hymenal base in case 2. The first rape took place when both victims were aged less than 13 years, with no history of sexual abuse or consensual intercourse, and the offenders were male adults. A study reported that the average penis circumference of Korean men during erection was  $11.3 \pm 1.2$  cm [14]. Therefore, the hymen could be seriously injured due to the relative difference in the size of the penetrating physical structure during rape. When children are raped, the scars in the hymen are deeper, and notches of over 50% or transections remain as permanent scars [12]. The victims of cases 1 and 2 had serious hymenal scars that resulted from penile insertion during rape. The hymenal scars may have been visible for several years after rape due to the severity of the injury. This can serve as physical evidence, which supports the reliability of the child victim's statement.

When the rape victim is a child and the offender is a male adult, hymenal scars may be observed up to several years after rape, as in the cases reported here. The presence of hymenal notches of over 50% in children is suggestive of sexual abuse. Injuries caused by the intentional insertion of a blunt object in a girl's external genitalia are definitive evidences of sexual abuse or contact [15]. Therefore, medical professionals should perform a meticulous examination of genital organs, particularly in the hymen, even when the child victim seeks for medical attention 72 hours after rape. When a child victim has no past sexual experience or external genital injuries, hymenal scar becomes a critical physical evidence and will have a significant impact on court proceedings. Medical professionals who diagnose the child victims of rape aged less than 13 years should perform an accurate medical examination of the injured hymen regardless of the date of the rape inci-

dent. Moreover, injuries and scars are to be recorded using an anatomical diagram, and the statements of the child victims should be documented. This allows medical professionals, as experts, to prove that sexual abuse was committed, increasing the conviction rates of sexual offenders. In Korea, which follows the principle of trial by evidence, medical professionals can help the justice department make a judicial judgement by testifying on the severity of hymenal damage inflicted on rape victims.

## Conflict of interest

No potential conflict of interest relevant to this article was reported.

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