



Naif Arab University for Security Sciences  
Arab Journal of Forensic Sciences and Forensic Medicine  
المجلة العربية لعلوم الأدلة الجنائية والطب الشرعي  
<https://journals.nauss.edu.sa/index.php/AJFSFM>



## A Pregnant Adolescence with an Intact Hymen

مراهقة حامل بغشاء بكارة سليم: تقرير حالة

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Received 20 Nov. 2021; Accepted 17 Nov. 2022; Available Online 19 Dec. 2022

### Abstract

Child sexual abuse is a public health problem due to both the act itself and its consequences, one of the most serious of which is adolescent pregnancy. Unfortunately, it is difficult to provide evidence of such sexual crimes by forensic gynecologic examinations based on only the visual inspection of genitalia. Moreover, anatomic variations of genitalia can make it quite difficult for a physician to make a diagnosis of rape. A 14-year-old pregnant girl presented at our hospital with the allegation of sexual abuse. Although her pregnancy was obvious due to shape of her abdomen, her hymen was determined to be intact after examination. She was examined in the gynecology department to check on the pregnancy and investigate her health status. Ultrasound imaging revealed that she was 4 months and 3 days pregnant. The goal of this presentation is to draw physicians' attention to the anatomic variations of the hymen. Our findings indicate that it is not always easy to make a diagnosis of sexual intercourse; the practitioner must take a multidisciplinary approach and develop his/her genital examination knowledge and skills.

### المستخلص

الاعتداء الجنسي على الأطفال هو مشكلة صحية عامة ترجع لكل من الفعل نفسه وعواقبه، ومن أخطر الاعتداءات الجنسية هي حمل المراهقات. لسوء الحظ، من الصعب تقديم أدلة على مثل هذه الجرائم الجنسية عن طريق فحوصات الطب الشرعي النسائي التي تعتمد فقط على الفحص البصري للأعضاء التناسلية. بالإضافة لذلك، تجعل الاختلافات التشريحية للأعضاء التناسلية من الصعب جدًا على الطبيب إجراء تشخيص للاغتصاب. حضرت فتاة حامل تبلغ من العمر 14 عامًا إلى المستشفى التي نعمل بها تدعي بأنه تم الاعتداء الجنسي عليها. وعلى الرغم من أن حملها كان جليًا بسبب شكل بطنها، فإن غشاء البكارة كان سليمًا بعد إجراء الفحص. وقد تم فحصها في قسم أمراض النساء للتحقق من الحمل والتحقق من حالتها الصحية. وكشف تحليل الموجات فوق الصوتية أنها كانت حاملًا في الشهر الرابع وثلاثة أيام. والهدف من هذا العرض هو لفت انتباه الأطباء إلى الاختلافات التشريحية لغشاء البكارة. وتشير النتائج التي توصلنا إليها إلى أنه ليس دائمًا من السهل إجراء تشخيص للجماع الجنسي. وعلى الطبيب الممارس اتباع مدخل متعدد التخصصات وتطوير معرفته ومهاراته الخاصة بفحص الأعضاء التناسلية.

**Keywords:** Forensic Science, Adolescent Pregnancy, Child Sexual Abuse, Child Maltreatment, Clinical Forensic Medicine, Forensic Medicine, Intact Hymen.

**الكلمات المفتاحية:** علوم الأدلة الجنائية، حمل المراهقات، الاعتداء الجنسي على الأطفال، سوء معاملة الأطفال، الطب الشرعي السريري، غشاء البكارة السليم.



Production and hosting by NAUSS



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doi: [10.26735/YMSX6024](https://doi.org/10.26735/YMSX6024)

## 1. Introduction

The sexual abuse of a child is defined by the World Health Organization as “a child is taking part in an act with/without consent for it or cannot know that it is breaching the legal norms or customary norms of that society” [1]. Under Article 3 of the Turkish Juvenile Protection Code, a child is a minor under the age of eighteen [2]. The crime of sexual assault of a child is regulated under Articles 103, 104, and 105 of the Turkish Penal Code [3]. To substantiate allegations of sexual abuse, a genital examination is conducted. Thus, an expert report is prepared by a forensic medicine specialist; however, anatomic variants in many such cases can make it difficult for the examiner to arrive at a determination [4]. The claim of pregnancy with an intact hymen can be considered one such variant.

A 14-year-old girl admitted to our hospital with the allegation of sexual abuse. She suggested that she had suffered from a sexual assault by her intimacy partner. Adolescent pregnancy is relatively uncommon. Moreover, pregnancy with an intact hymen is considered almost impossible in terms of general precedents. The aim of this presentation is to share a rare legal case with our colleagues and to draw attention to anatomic variations of hymen tissue that can be observed during a genital examination.

## 2. Case Report

A 14-year-old girl was admitted to our hospital in the Turkish city of Bursa suffering from being sexually abused. She weighed 59 kilos and was 156 cm tall. While the claims and medical history of the patient were being taken, she suggested that she had been pregnant for nearly four months. She had not had any complaints of disease during the pregnancy and said that she did not use any medications. In contrast, she confessed having abused metham-

phetamines by inhalation more than 20 times before the pregnancy. In contrast with her claim, laboratory tests investigating her methamphetamine use were negative. It was determined that the amount of methamphetamine that she had inhaled was too insignificant to show up on the laboratory tests.

A genital examination revealed the presence of an intact elastic hymen (The pictures of the current case study are available from the corresponding author on reasonable request). However, ultrasound imaging (US) showed a pregnancy consistent with a duration of 21 weeks and 3 days. The hymenal opening was 20 mm and thus could enable coitus without breaking the hymen. The fetus was measured as 161 mm in length and weighing 390 grams. Any abnormalities which could have been caused by substance abuse were not observed by the US.

## 3. Discussion

The elasticity of the hymen sometimes results in it not tearing during penetrative intercourse. This property develops in the period of adolescence [5]. Tearing of the hymen can be complete or incomplete; a study based on the forensic examinations of 426 cases reported that two-thirds of the patients' hymenal clefts were incomplete [6]. Adams et al. suggested that there is no significant difference between women who allowed or denied penile-vaginal penetration in terms of the existence of deep notches and complete clefts in the hymen [7]. Other studies have reported, as in our case, that the hymen is not an indicator of virginity [8,9]. Dhall suggested that some prostitutes have intact hymens due its elastic form [9]. Similar to our case, a 13-year-old girl was reported to be pregnant for a second time despite having an intact hymen [10]. Moreover, a study examining 36 adolescent pregnancy cases asserted that definitive findings were



observed during genital examinations in only two cases. This study too had no definitive finding of penetration in hymen tissue [11]. Penetration is not necessary in some cases for having a child. For example, an adult female who became pregnant after ejaculation occurred near her perineum has been reported [12].

If a hymenal rim does not admit anything bigger than a finger, it is considered intact [13], but a greater than 5 mm vaginal opening is not considered normal and raises doubts of penile, solid object, or finger penetration [14,15]. On the other hand, an intact hymen cannot preclude penetration [14]. For example, a non-abused girl's hymenal rim measuring 24.1 mm<sup>2</sup> has been reported in the literature [16]. In contrast, Mishori et al. suggested that a hymenal opening's diameter cannot be considered conclusive evidence due to it being hard to measure, can vary according to examination technique, the relaxation of tissues, the female's age, and the physician's capability [11]. Herring et al. found that the incidence of self-reports of pregnancy without penetration as almost 0,5% of all women who participated in their study [17].

#### 4. Conclusions

The hymen has been viewed as evidence for a female's absence of past sexual activity in many societies for centuries [11]. The hymen is not only a membranous tissue which surrounds the vaginal opening, but it is also a symbol of virginity. Although a forensic gynecological examination alone is not sufficient for making a diagnosis of whether sexual abuse contact has occurred, such examinations should still be performed because they are an opportunity to collect medico-legal evidence, such as the spermatozoa and pubic hair of the perpetrator.

Physicians should consider the anatomic vari-

ations of genitalia, develop their examination skills and knowledge of genital examinations, and not abandon utilizing laboratory sample tests such as beta-Human Chorionic Gonadotropin hormone level, screening for sexually transmitted diseases, and imaging methods such as US to prepare the most accurate expert reports.

#### Key Points

- Hymen examinations can sometimes be inconclusive.
- Differentiation between an intact and broken hymen is vital to decide whether penetrative sexual intercourse occur or not.
- The physician should consider the anatomical features and possible variations of the hymen during a forensic gynecological examination.

#### Informed Consent

The patient and her relatives have provided written informed consent for the sharing of this unusual case in a medical journal.

#### Competing interests

The authors have no relevant financial or non-financial interests to disclose.

#### Funding

No funding was received for conducting this case report.

#### Authors' contributions

SK wrote the first draft of the manuscript, and then SK and SSK worked together to improve subsequent versions. Both authors have approved the final version of the manuscript.

#### Abbreviations

US: Ultrasound Imaging



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