

# THE HYMEN MORPHOLOGY IN NORMAL NEWBORN SAUDI GIRLS

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**Background:** Hymen morphology has a medico-legal importance. In view of the lack of national norms, establishing the hymen morphology of Saudi newborn infants is essential.

**Subjects and Methods:** Over a period of 4 months, the genitalia of 345 full-term female newborn infants were examined to determine the shape of the hymen. A previously described labia traction technique was used to classify the hymen morphology into annular, sleeve-like, fimbriated, crescentric, and other types.

**Results:** The hymen was present in all 345 female newborn infants examined. A total of 207 (60%) were of the annular type, 76 (22%) were sleeve-like, 43 (12.5%) fimbriated, 17 (4.9%) crescentric, and 2 (0.6%) of other types.

**Conclusion:** The most common hymen morphology in Saudi newborn girls was annular, followed by sleeve-like, fimbriated, and crescentric. This study may be the first to define normal configuration of the hymen in this community.

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**Key Words:** Hymen, morphology, newborns.

The morphology of the hymen has a medico-legal importance. Pediatricians are sometimes confronted with the challenge of documenting evidence of acute or chronic accidental or non-accidental trauma to the hymen. Lack of normal standards leaves the matter open for endless and worrying uncertainty. Establishing norms for the hymen shape at various ages is, therefore, a national need. In this study, the shape of the hymen was studied in 345 Saudi newborn infants in two major hospitals in Riyadh, Saudi Arabia.

## Subjects and Methods

For a period of four months, 345 female newborns (1-3 days old full-term) born in King Khalid University Hospital and King Fahad National Guard Hospital in Riyadh were examined. The examination was held in the postnatal ward immediately after the hospital staff physician's routine examination had been made. The baby was placed in the supine position on an examination table with legs flexed and held by a nurse or an assistant examiner. The main examiner then performed the labia traction technique described by Berenson et al.<sup>1,2</sup> The lower portion of the labia majora was grasped between the thumb and the index finger and gently pulled outward. The examiner inspected the hymen to classify it into one of the following previously described hymen configurations.<sup>1</sup>

2. Sleeve-like: annular shape with a vertically displaced orifice.
3. Fimbriated: redundant and folded with a ruffled and/or fringed edge.
4. Crescentric: posterior rim of hymen with attachment at 11 and 1 o'clock position.
5. Other types: these may include septated, cribriform, etc.

Newborns who were admitted to intensive care units were excluded. A few newborns were photographed after informed consent was obtained from their parents.

## Results

All 345 female newborns were examined at 1 or 2 days of age. They were all full-term deliveries, with a mean birth weight of 3.247 kg (range 2.160-4.880) and length of 49.1 cm (range 44-55 cm). The hymen was present in all infants. The number and percentage of infants with the listed shapes above was 207 annular (60%), 76 sleeve-like (22%), 43 fimbriated (12.5%), 17 crescentric (4.9%), and 2 (0.6%) classified as other types.

## Discussion

The hymen was present in all 345 babies presented. This is consistent with the series by Jenny et al., where it was present in all 1131 newborns examined.<sup>3</sup> This implies that absence of the hymen is an extremely rare entity in neonates. Establishment of norms for the hymen shape and configuration is a medical, legal and sociocultural need for

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1. Annular: a hymen that surrounds the vaginal opening at 360 degrees.

every community. The hymen configuration may differ according to the racial background. The annular-shaped hymen was the most predominant type seen in this study. The sleeve-like hymen may be considered as a subtype of the annular shape. It may, therefore, increase the percentage of this type to almost 82%. In 1991, Berenson et al. showed similar findings of 80% in 468 newborn infants.<sup>1</sup>

The fimbriated-shaped hymen was present in 12.5% of those studied. This is a smaller figure compared to the studies done in America.<sup>1,4-7</sup> This reflects racial differences, as all infants presented in this study were of Saudi parentage. The Asian group in the study by Berenson et al. was too small to be considered for comparison.<sup>1</sup> The crescentic-shaped hymen was present in only 17 (4.9%) of the subjects. Estrogen withdrawal at an older age may convert some of the annular types into this crescentic-shaped configuration. This is especially noted among those neonates having a cleft at the 12 o'clock position. Reproducing our study for older Saudi infants, preferably done in a prospective nature, may clarify this phenomenon. Estrogen abundance at the neonatal age may have contributed to the rarity of labial agglutination, which may be confused with labial fusion due to pathological androgen exposure due, for example, to congenital adrenal hyperplasia, which is not uncommon in this country.<sup>8</sup>

This study did not describe hymenal opening size and presence of certain variations such as polyps, cysts, bonds, ridges and rims. These may change with age, and prospective longitudinal studies may better describe these findings and their evolution.<sup>5-7</sup>

Sexual abuse, although a rare occurrence in neonates, makes it vital for normal standards to be established. It is important, therefore, for the fundamental configuration to be known in order to decide on the genital findings in sexually abused infants and children. At an older age, the of suspicion of sexual abuse. In a study of 1057 prepubertal girls aged 6 months to 10 years, Pugno defined the

transhymenal diameter to be 2.3 mm, with 1 mm increments per year of age.<sup>9</sup> In a recent study by Berenson et al.,<sup>10</sup> there was no statistical difference in the hymen morphology of abused and non-abused prepubertal girls; the significant finding was in their histories and/or presence of vaginal discharge.

This study may be the first to define the normal configuration of the hymen for Saudi newborn girls. It is hoped that further similar studies at older ages may be carried out. This is important in this community where ambiguous genitalia may not be uncommon, and will also help when accidental and non-accidental genital trauma is suspected.<sup>8,9</sup>

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