
GYNECOLOGY

Variation of Genital Appearance in Thai Women

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ABSTRACT

Objectives: To study the normal variation of Thai female genitalia and the difference in premenopausal and postmenopausal age groups.

Materials and Methods: One hundred and fifty five Thai women having the annual pelvic examination at King Chulalongkorn Memorial Hospital from May 2017 to April 2018 were recruited. The inclusion criteria were: age between 20-70 years, satisfied with the external genitalia as classified by Thai version of Genital Appearance Satisfaction questionnaires and not seeking for genital cosmetic surgery. The height, weight, body mass index, parity, route of prior delivery, contraception method, age at menopause, and the used of postmenopausal hormonal therapy were recorded. The genital appearance measurements included 10 parameters (length of clitoris, clitoral gland width, clitorio-urethral length, labia minora length and width, labia majora length, perineal length, protusion of labia minora, and the appearance of the perineum).

Results: The median (interquartile range) of left and right labia minora width were 10.46 (6.61, 14.12) and 9.69 (6.25, 14.62) mm. Most women had the darker color of the perineum than the skin of inner thigh (47.7%). Forty four women (28.4%) reported of having ridge at the labia majora. When comparing the genital appearances in premenopausal and postmenopausal group, the clitoral length, clitorio-urethral length and labia minora length were statistically different ($p < 0.001$).

Conclusion: We found the wide range of the variation of female genital appearances in Thai women who were satisfied with their own genital appearance. This information would be useful for the preoperative counseling for Thai women who are not satisfied with her own appearance and seek the genital cosmetic surgery without medical indication to avoid the regret after surgery.

Keywords: genital appearance, female genitalia, female genital cosmetic surgery.

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การศึกษาลักษณะอวัยวะเพศภายนอกของสตรีไทย

ธัญสิดา ชินกังสดาร, ปุริม เรือนภู, สุวิทย์ บุญยะเวชชีวิน

บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาลักษณะปกติของอวัยวะเพศภายนอกของสตรีไทย และศึกษาความแตกต่างระหว่างอวัยวะเพศภายนอกของสตรีกลุ่มวัยก่อนหมดประจำเดือน และสตรีวัยหมดประจำเดือน

วัสดุและวิธีการ: หญิงไทยที่มาตรวจภายในประจำปีที่ รพ.จุฬาลงกรณ์ ในระหว่างเดือนพฤษภาคม พ.ศ. 2560 ถึงเมษายน พ.ศ. 2561 จำนวน 155 คน จะได้รับการเชิญให้เข้าร่วมการศึกษา โดยมีเงื่อนไขคืออายุระหว่าง 20-70 ปี และมีความพึงพอใจในอวัยวะเพศภายนอกของตนเองตามแบบทดสอบความพึงพอใจต่อลักษณะอวัยวะเพศภายนอกแบบฉบับภาษาไทย จากนั้นประวัติข้อมูลกายภาพของผู้เข้าร่วมวิจัยทุกคน ได้แก่ น้ำหนัก ส่วนสูง ค่าดัชนีมวลกาย ประวัติการคลอดบุตร การคุมกำเนิด อายุที่เข้าสู่วัยหมดประจำเดือน และประวัติการใช้ฮอร์โมนทดแทนจะถูกบันทึกไว้ แล้วจึงทำการตรวจวัดขนาดและลักษณะของอวัยวะเพศภายนอก ได้แก่ ความกว้างความยาวของคลิตอริส แคมเล็ก และแคมใหญ่ ระยะห่างระหว่างคลิตอริสถึงรูเปิดท่อปัสสาวะ ความยาวของกล้ามเนื้อเพอริเนียล ความยืดหยุ่นของแคมเล็กที่ยาวพ้นจากแคมใหญ่ และลักษณะภายนอก ได้แก่ สีและความเรียบเนียนของอวัยวะเพศภายนอก

ผลการวิจัย: ค่ามัธยฐาน (ค่าพิสัยควอไทล์) ของแคมเล็กข้างซ้ายและขวา คือ 10.46 (6.61, 14.12) และ 9.69 (6.25, 14.62) มม. ตามลำดับ สตรีไทยจำนวนมากมีสีผิวของบริเวณอวัยวะเพศเข้มกว่าสีผิวบริเวณต้นขาด้านใน (ร้อยละ 47.7) มีสตรีจำนวน 44 คน (ร้อยละ 28.4) มีลักษณะผิวของของแคมใหญ่มีรอยย่น ไม่เรียบ และสตรีกลุ่มวัยก่อนหมดประจำเดือนมีแนวโน้มที่จะมีความยาวของคลิตอริส และระยะห่างระหว่างคลิตอริสและรูเปิดท่อปัสสาวะยาวกว่าสตรีวัยหมดประจำเดือนอย่างมีนัยสำคัญทางสถิติ ($p < 0.001$)

สรุป: ลักษณะอวัยวะเพศภายนอกของสตรีไทยมีความหลากหลายแตกต่างกันไปในแต่ละบุคคล ซึ่งข้อมูลที่ได้รับจากการศึกษานี้สามารถนำไปใช้ประกอบการให้คำแนะนำก่อนผ่าตัดแก่ผู้ที่ไม่มีความพึงพอใจ ในอวัยวะเพศของตนเองและเข้ามาปรึกษาเพื่อเข้ารับการผ่าตัดศัลยกรรมตกแต่งอวัยวะเพศโดยไม่มีข้อบ่งชี้ทางการแพทย์

คำสำคัญ: ลักษณะอวัยวะเพศภายนอก, อวัยวะเพศสตรี, การผ่าตัดศัลยกรรมตกแต่งอวัยวะเพศ

Introduction

The incidence of women undergone the female genital cosmetic surgery has been increasing. Many studies reported of more than 80% of the women (teenage to menopause) seeking the female genital aesthetic such as the labial reduction or labioplasty to improve their looking, confident and sexual function although they are asymptomatic^(1, 2). This trend also happens in Thailand and many Southeast-Asian countries^(3, 4).

The Royal College of Obstetricians and Gynaecologists, Royal Australian College of General Practitioners and American College of Obstetricians and Gynecologists have launched the awareness that this kind of surgery have no guidelines and any recommendations because there is lacking of reliable evidence about the safety and efficacy^(5, 7). Those organizations suggest that all gynecologists have to advise all patients who want to undergone the female genital cosmetic surgery about the variation of female genital organs and also balance the risks and benefits of the procedures to avoid the unnecessary procedures and complication. Up to now, there are a few studies or information about female genital appearance. There are only scanty data about the vulvar morphology appears in gynecologic or anatomical textbook⁽⁸⁾. There is report of high variation of the female genitalia in European and Australian women⁽⁹⁻¹¹⁾. There has been only one study about the variation of the female genitalia in Chinese⁽¹²⁾. The authors reported a big difference in genital appearance of Chinese women who requested for cosmetic surgery⁽¹²⁾. Up to now, there has been no study in Thai or any Southeast-Asian women. This study aimed to determine the variation of Thai female external genitalia, and compare the differences of female genitalia between pre and postmenopausal women.

Materials and Methods

Patient selection and setting

After IRB approval, 155 Thai women attending the out-patient clinic for annual gynecologic examination at King Chulalongkorn Memorial Hospital were recruited. All women had to sign the consent form. The inclusion criteria were: aged 20 to 70 years, and satisfied with the external genitalia as classified by Thai version of Genital

Appearance Satisfaction (GAS) questionnaires and not seeking for genital cosmetic surgery. The Thai version of GAS Scale questionnaire were tested in 50 Thai women for internal validity (Chronbach's Alpha = 0.672) and test retest reliability (Intraclass correlation (r) = 0.965). Only Thai women who answered the GAS questionnaire on the satisfaction questionnaire with the scale = 0 (most satisfied) were included in the study. The exclusion criteria were: history pelvic reconstructive surgery or vulvovaginal cosmetic surgery, prior vaginal birth with known history of mediolateral episiotomy or obviously noticed mediolateral episiotomy scar, and known congenital mullerian anomaly. Participants with previous vaginal delivery with median episiotomy or no episiotomy or natural perineal tear could be included

The characteristics of participants were recorded. The body weight and height, gynecologic history, menarche, menstruation, hormonal use, parity, route of delivery, and history of smoking or drinking were recorded. The menopause was defined as a woman who had amenorrhea more than one year at the visited date.

Measurements

The anatomical measurements were performed in lithotomy position with minimal stretching technique. All the parameters were measured by digital vernia caliper: Mitutoyo® model 500-196-20 (Mitutoyo corporation, Kawasaki, Kanagawa Prefecture, Japan) by the first author to minimize the inter-rater variability. This digital caliper had the accuracy of 0.001mm with the reading of the upper and lower scale of 0.0005 and 0.01 mm, respectively. Each parameter measurement was repeated 3 times and the average value was used for data analysis.

The parameters to be measured were:

1. Length of clitoris; the length from the crest of the skin at the base to the end of clitoris.
2. Clitoral gland width; the greatest width of the clitoral gland.
3. Clitro-urethral length; the length from the tip of the gland-clitoris to the opening of urethra.
4. Labia minora length and width.
5. Labia majora length.
6. Perineal length (distance between the posterior fourchette to the central of anal canal).

7. Protrusion of labia minora (the length of the labia minora that protruded over the labia majora).

8. The appearance of the perineal color (defined as same or darker skin tone of genital area compared with surrounding skin of inner thigh).

9. Rugosity (smooth or ridge).

Sample size estimation and distribution

The sample size estimation of 155 cases, was done by calculation from the formula for infinite population mean (estimated standard deviation (0.63) of the mean of labia minora width from pilot study in 20 cases. The acceptable error was 1 mm).

Number of participants in each age group was recruited according to the age distribution of 2010 Population and housing census of Thailand from the National Statistical Office of Thailand.

Statistical analysis

The population's characteristics were described in number (%), mean \pm standard deviation (SD) or median (interquartile range (IQR)). The difference between pre and postmenopausal women were compared by the independent sample student's t test (parametric variables) and Mann–Whitney U test (non-parametric variables). Student's t test for paired samples and Wilcoxon signed rank test were used to compare right- and left-side measurements among groups. Statistical analyses were performed using SPSS version 22.0 (SPSS Inc., Chicago, IL, USA). The statistical significance level was set at 0.05.

Results

The mean \pm SD of body mass index and parity were 24.18 \pm 5.04 kg/m² and 1.5 \pm 1.0, respectively (Table 1).

Table 1. Population's characteristics (N= 155).

Characteristics	
	Mean \pm SD
Weight (kg)	59.2 \pm 13.2
Height (cm)	156.34 \pm 5.7
Body mass index (kg/m ²)	24.18 \pm 5.04
Parity	1.5 \pm 1.0
	n (%)
Age (year)	
20 - 30	37 (23.9)
31 - 40	39 (25.2)
41 - 50	34 (21.9)
51 - 60	27 (17.4)
61 - 70	18 (11.6)
Prior vaginal delivery*	74 (47.7)
Prior cesarean section	51 (32.9)
Contraception	
None	67 (62)
Condom	2 (1.9)
Oral contraceptive pills	9 (8.3)
DMPA	5 (4.6)
Implants	21 (13.6)
Intrauterine device	6 (5.6)
Tubal resection	9 (5.8)
Postmenopausal hormonal therapy	3 (6.4)

DMPA: depot medroxyprogesterone acetate, * prior vaginal delivery with previous medial episiotomy or no episiotomy or natural perineal tear

Table 2. Female genital appearance (n = 155).

Genital appearance		
	Mean ± SD	Min - Max
Clitoral length (mm)	23.35 ± 6.93	9.51 - 47.94
Clitoral width (mm)	6.70 ± 1.42	2.96 - 12.19
Clitro-urethral length (mm)	18.18 ± 5.60	6.36 - 38.82
Left labia majora length (mm)	81.76 ± 13.08	43.90 - 22.48
Right labia majora length (mm)	82.31 ± 13.37	43.19 - 131.37
Perineal length (mm)	27.79 ± 6.22	3.28 - 46.44
Median (interquartile range)		
Left labia minora width (mm)	10.46 (6.61, 14.12)	6.75 - 32.91
Right Labia minora width (mm)	9.69 (6.25, 14.62)	6.61 - 27.30
Left Labia minora length (mm)	30.93 (24.30, 42.73)	7.71 - 87.33
Right Labia minora length (mm)	30.91 (22.26, 41.42)	8.85 - 85.73
Protusion of labia minora (mm)	0 (0, 5.63)	0 - 15.81
n (%)		
Color		
- Same	81 (52.3%)	
- Darker	74 (47.7%)	
Rugosity		
- Smooth	111 (71.6%)	
- Ridge	44 (28.4%)	

The median (IQR) of left and right labia minora width were 10.46 (6.61, 14.12) and 9.69 (6.25, 14.62) mm (Table 2). The perineal length was 27.79 ± 6.22 mm (Table 2). Most women had the darker color of the perineum than the skin of inner thigh (47.7%). Forty-four women (28.4%)

reported of having ridge at the labia majora. When comparing the genital appearances in premenopausal and postmenopausal group, the clitoral length, clitro-urethral length, and labia minora length were statistically different ($p < 0.001$) (Table 3).

Table 3. Female genital appearance in Thai premenopausal (n = 108) and postmenopausal women (n = 47).

	Premenopause	Postmenopause	p value
	Mean ± SD		
Clitoral length (mm)	24.26 ± 6.41	21.26 ± 7.66	0.013*
Clitoral width (mm)	6.61 ± 1.38	6.89 ± 1.48	0.252
Clitro-urethral length (mm)	19.41 ± 5.74	15.20 ± 3.97	< 0.001*
Left labia majora length (mm)	82.74 ± 12.22	79.49 ± 14.76	0.156
Right labia majora length (mm)	82.77 ± 12.33	81.24 ± 15.59	0.514
Perineal length (mm)	27.90 ± 6.45	27.53 ± 5.71	0.74
	Premenopause	Postmenopause	p value
	Median (interquartile range)		
Left labia minora width (mm)	11.13 (6.83, 13.92)	8.89 (5.54, 14.22)	0.347
Right labia minora width (mm)	10.54 (6.44, 14.99)	9.25 (5.81, 14.10)	0.289
Left labia minora length (mm)	33.88 (26.60, 45.46)	24.67 (19.35, 36.01)	< 0.001*
Right labia minora length (mm)	32.20 (25.85, 45.51)	23.12 (17.25, 35.60)	< 0.001*
Protrusion of labia minora (mm)	0 (0, 6.14)	0 (0, 4.87)	0.243
n (%)			
Color			
- Same	56 (51.85%)	25 (53.19%)	0.879
- Darker	52 (48.15%)	22 (46.81%)	
Rugosity			
- Smooth	75 (69.44%)	36 (76.60%)	0.367
- Ridge	33 (30.56%)	11 (23.40%)	

Discussion

The high variation of female genital appearance was noted in our study. The upper limit of the labia minora width was 32.91 mm in women who were satisfied with their own

appearance. Many satisfied women had the ridge of labia majora with the skin of genitalia darker than the skin of inner thigh. Widening of labia minora and its protruding out of labia majora were the most common reason for dissatisfaction of

genital appearance to have cosmetic surgery^(14, 15). We found the protrusion of labia minora in 59 (38.1%) women without having any discomfort. The highest limit was 15.81 mm. Our study showed a high variation of genital appearance similar to the studies in British, Australian, and Turkish women^(9-11, 16, 17). It was also similar to Chinese women who seeking for the genital cosmetic surgery⁽¹²⁾. In order to have strong evidence to counsel Thai women who seeks for genital cosmetic surgery due to the dissatisfaction of genital appearance, the data from the population of their own country is needed.

This result confirmed that the satisfaction of their own genitalia did not depend on the appearance alone but also on their expectation from the social norm. Women who decide to have the genital cosmetic surgery due to feeling difference of the external genitalia without medical indications (such as recurrent vaginal yeast infection, discomfort when wearing tight sport suites, pain when having sexual intercourse) should be reassured about the normal variation of female genitalia^(2, 17).

The unnecessary genital cosmetic surgery can lead to many complications such as regret after surgery, infection, dyspareunia, scarring, distortion of external genitalia, etc^(4, 18, 19). The preoperative counselling about the real need for cosmetic surgery and understanding the normal variation of genital appearance are important to avoid those complications in unnecessary case. The complications of cosmetic surgery may lead to loss of self-esteem, distress, economic burden and legal issues^(18, 19). The reasons for genital cosmetic surgery are not only the appearances but also from many non medical reasons. In order to avoid the other unnecessary surgery, further study about non medical reasons in women who decide to have genital cosmetic surgery are advocated.

The strength of this study was that we only included the women who were satisfied with their

own genital appearance with the reliable instrument (GAS questionnaire) for the strong evidence for counselling the women who decide to have cosmetic surgery with the reason of dissatisfaction of appearance alone. The age distributions of sample size in our study followed the national consensus data of Thai women. We used the standard digital caliper which was very accurate to measure the genital appearance with single operator.

The limitation of this study was that this was a hospital base. We included only the women that attend our gynecologic clinic for annual examination. Anyhow, there should be little difference of the characteristic of our population with the country data as we distributed the age group according to the data statistics. Our study did not include the women who already decided to have genital cosmetic surgery as most cases were done in plastic surgery or private surgical hospital or clinic. To have the study done in private clinic or cosmetic clinic may take more effort and longer time to conduct due to confidentiality and small numbers of cases.

Conclusion

We found the wide range of the variation of female genital appearances in Thai women who were satisfied with their own genital appearance. This information would be useful for the preoperative counseling for Thai women who are not satisfied with her own appearance and seek the genital cosmetic surgery without medical indication to avoid the regret after surgery.

Potential conflicts of interest

The authors declare no conflict of interest.

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