

ORIGINAL RESEARCH

What is a Good Looking Penis? How Women Rate the Penile Appearance of Men with Surgically Corrected Hypospadias

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ABSTRACT

Introduction. Some men with corrected hypospadias perceive their penile appearance to be abnormal, although health professionals consider these results satisfactory.

Aim. The aim of this study was to investigate how relevant women consider single aspects of penile appearance to be. Moreover, we studied whether women perceive hypospadias-affected surgically repaired genitals (HASRGs) to be as normal-looking as circumcised genitals and identified the most relevant predictors that influence whether a penis is perceived as normal.

Methods. In this cross-sectional study, 105 women in different age groups (age range: 16–20, 25–30, and 40–45 years) completed a standardized questionnaire.

Main Outcome Measures. Participants had to rate the importance of eight penile aspects and to indicate how normal they found the appearance of standardized photos of 10 HASRGs and of 10 circumcised genitals. Furthermore, they were asked about demographic characteristics and their sexuality.

Results. Results showed that women considered the position and shape of the meatus as the least important penile aspect. Furthermore, results showed that HASRGs with distal hypospadias were perceived to be as normal-looking as circumcised genitals, whereas genitals with more proximal hypospadias were perceived as significantly less normal. However, the difference need not be considered clinically relevant, as the effect size was small. Observer-related predictors of a more positive perception of HASRGs were higher age, higher sexual interest, and perceiving the general cosmetic penile appearance as more important and penile length as less important.

Conclusions. Overall, women were found to consider the “position and shape of the meatus” as the least important penile aspect. These findings may stimulate reflections regarding the relevance of surgical correction of the meatus in minor forms of hypospadias. In addition, this study indicates that women perceived genitals of men with distal operated hypospadias (which represents the majority of hypospadias) to be as normal as nonaffected, circumcised genitals. **Ruppen-Greeff NK, Weber DM, Gobet R, and Landolt MA. What is a good looking penis? How women rate the penile appearance of men with surgically corrected hypospadias. J Sex Med** ****,**,**_**.**

Key Words. Hypospadias; Circumcision; Genital Perception; Appearance; Meatus; Penile Size; Sexuality; Patient Outcome Assessment; Penis

Introduction

Hypospadias is one of the most common penile malformations, occurring in approximately 1 of 200 to 1 of 300 live male births [1,2]. It is a misplacement of the urethral meatus, which may be located at the ventral surface of the penis to the perineum. In most types of hypospadias, the prepuce is split ventrally. More severe forms of hypospadias are associated with a curvature of the penis [1]. Today in Europe and the United States, almost all types of hypospadias are routinely corrected during the first year of life [2] to improve micturition and sexual function and to achieve a slit-like meatus at the tip of the glans [1,2].

Although satisfactory surgical results can be achieved, men with an operated hypospadias are reported to be more dissatisfied with their penile appearance [3–7] and size [3,7] than men without hypospadias. Furthermore, some men with hypospadias-affected surgically repaired genitals (HASRGs) are concerned about having an abnormal penile appearance [3,8]. However, this fear is also common among normal young men without genital malformations [3].

Up to now, it is not clear whether only hypospadias patients themselves consider the appearance of HASRGs to be less normal-looking than nonaffected genitals, or whether others (e.g. potential sexual partners) do too. It is also unclear which aspects of penile appearance are considered to be relevant by women and thus play a role in perceiving HASRGs as normal.

Aims

The aim of this study was threefold: first, to investigate which aspects of penile appearance are considered to be relevant by women; second, to know whether HASRGs are perceived to be less normal-looking than circumcised genitals; and third, to identify the most relevant observer-related predictors for penile perception.

Following a study [9] that demonstrated that the position of the meatus in a “normal” penis varied widely, we hypothesized that women would consider the position and the shape of the meatus as less important than other penile aspects. Furthermore, we expected women to perceive HASRGs to be as normal-looking as the genitals of nonaffected, circumcised men. Based on studies among nonaffected men [10,11], we further believed that women would not consider penile size to be as relevant as expected by hypospadias patients themselves.

In addition, we postulated that the following variables influence women’s perception of a penis positively: higher age, higher degree of sexual interest, and a higher number of sexual partners a woman has had during her life. Moreover, we expected that a women’s perception of a penis is affected by the importance she gives to the attributes of a penis, such as penile size or general appearance.

Methods

This cross-sectional study was conducted as part of a larger research project on hypospadias. In the current study, women were asked to rate photosets of men with HASRGs and men with circumcised genitals. Furthermore, they had to evaluate the importance of different aspects of a penis in general.

Subjects

Subjects were women of three different age groups (age ranges: 16–20, 25–30, and 40–45 years), which we supposed correlate with different degrees of sexual experience. They had no affiliation to the hospital or to any of the patients.

In the youngest age group (16–20 years), 33 of 136 female pupils (24.26%) from schools of two different educational levels agreed to participate. Further, two randomly selected population samples of women (400 women aged 25–30 years, and 400 women aged 40–45 years) were ordered from a local database agency. This agency manages a large address file, which may be regarded as representative of the population. Of those 800 women, 66 women (8.25%) participated in the survey, and 25 women (3.13%) were untraceable. In addition, another six women who were friends of the invited women participated. Finally, a total of 105 women completed the questionnaires.

Main Outcome Measures

Development of Photosets for Genital Appraisal

Photosets with four standard views of the nonerected penises of men with corrected hypospadias and of circumcised men (controls) were made by a medical photographer at the University Children’s Hospital (Figure 1). Circumcised men were chosen as controls because the absence of a foreskin means they have a similar penile appearance to men with a corrected hypospadias.

To acquire the photosets, an information letter about the study with a consent form was sent to a random sample of 218 men with corrected hypo-



Figure 1 Photo chart as presented to women (this example illustrates distal hypospadias). Reprinted from Weber et al. [12], with permission from Elsevier

spadias and 328 circumcised men (controls). Men of both groups were older than 18 years and had been operated at the University Children's Hospital. Nineteen (8.72%) of these 218 men with corrected hypospadias, 12 (3.66%) of the 328 circumcised men, and six other circumcised men agreed to participate.

A standardized questionnaire included 20 photosets: 10 of circumcised genitals and 10 of HASRGs. Photosets were paired according to the attributes of penile size, age, and body weight. In the questionnaire, photosets were shown in a random order. Half of the women ($n = 55$) received photosets in reversed order.

Six of the selected hypospadias patients had a distal hypospadias and four a penile or a more proximal form of hypospadias. They were operated between 1980 and 1994 using the following methods: MAGPI procedure ($n = 3$), Mathieu hypospadias repair ($n = 3$), Island Flap technique ($n = 2$) combined with Onlay Flap technique ($n = 1$), and Denis Brown technique ($n = 1$). On average, the first operation was carried out when the patients were 2.67 ± 1.98 years old (range 0.00–6.83). The final surgery was performed at the age of 4.07 ± 2.70 years on average (range 1.08–10.33). Seven patients underwent one procedure, and three were operated twice. At the time of the

current study, the patients were 20–28 years old, with a mean age of 24 years (standard deviation [SD] = 2.45).

In the control group, circumcised men were operated at a mean age of 5.56 years (SD = 4.75; range = 0.83–10.83; 3 missing data). Their age at participation was 30.40 ± 7.34 years (range: 22–44 years).

Genital Appraisal of Photosets

Women ($n = 105$) were asked to evaluate photos of surgically repaired genital malformations. They did not know that half the photosets showed “normal”, circumcised genitals.

For every photoset in the questionnaire, women had to indicate on a 4-point scale ranging from total disagreement (1) to full agreement (4) how much they agreed with the statement: “This is a normal (-looking) penis.”

Importance of Penile Aspects

In the questionnaire, women were also asked how important they consider eight different aspects of a penis on a 5-point scale ranging from very unimportant (1) to very important (5). The penile aspects were penile length, penile girth, position and shape of meatus, shape of glans, appearance of scrotum, shape of penile skin, appearance of pubic hair, and general cosmetic appearance. These penile aspects were chosen based on the Penile Perception Score (PPS) [12] and the work of Mureau et al. [13] and Winter [14].

We were not sure whether the exposure to multiple photos of HASRGs would affect the way women looked at genitals, with a possible influence on their evaluation of particular aspects of the appearance. Consequently, one half of the women ($n = 55$) evaluated the importance of the penile aspects before rating photosets of HASRGs and the other half ($n = 50$) after rating photosets of HASRGs.

Sexuality of Women

Furthermore, the questionnaire included questions on women’s own sexuality (e.g. numbers of sexual partners). A short Sexual Interest Scale (on the basis of the work of Bucher et al. [15]) was calculated by the averaged sum of two items, women’s level of sexual desire and women’s frequency of masturbation for the last 3 months. Both items were scored as follows: 0 = *never*, 1 = *less than once a month*; 2 = *once a month*; 3 = *twice or three times a month*; 4 = *once a week*; 5 = *twice or three times a week*; and 6 = *every or nearly every day*.

Socioeconomic Status (SES)

SES for adults was calculated on the basis of their education and occupation, and SES for adolescents was calculated on the basis of maternal education and paternal occupation. Education and occupation were scored on a 6-point scale. SES scores (range: 2–12 points) were subdivided into three social classes: lower (2–5 points); middle (6–9 points), and upper (10–12 points). This measure has proven to be a reliable and valid indicator of SES [16].

Procedure

The study was approved by the ethical committee of the Canton of Zurich, which is responsible for approval of all research studies. All selected women received an information letter about the study. Those who were interested were asked to return a signed consent form. Women younger than 18 years old had to provide a consent form signed by their parents to participate. After a few months, a reminder was sent to all nonresponders.

Adolescents were interviewed at school and adults at the hospital. After answering the questionnaires, participants had the opportunity to talk to a psychologist.

Statistical Analysis

Data were analyzed with SPSS (version 16) for Windows (SPSS Inc., Chicago, IL, USA). A $P < 0.05$ was considered significant. Two-sided tests were performed for all calculations. Effect sizes (Cohen’s d) were calculated to show the clinical relevance of group differences [17]. Mann–Whitney U -tests were performed for comparisons of the ratings of penile aspects that were made before and after the evaluation of photosets. Wilcoxon tests were computed regarding the appraisal of photosets.

Two multiple regression analyses were computed. After square-root transformation, both dependent variables were normally distributed (Kolmogorov–Smirnov test). Dependent variables were “normality of penile look of HASRGs” and “normality of penile look of circumcised genitals.” According to their significance in bivariate correlations with the dependent variable and based on a priori assumptions, the following predictors were chosen: age, number of sexual partners, sexual interest, importance of penile length, importance of position and shape of the meatus, and importance of general cosmetic appearance.

Table 1 Demographic characteristics and sexual characteristics of women (n = 105)

Age (years)		
16–20	33	31.4%
25–30	44	41.9%
40–45	28	26.7%
Mean (SD)	28.37	9.65
Median (range)	27.0	16–45
Socioeconomic status (n)		
Lower	7	6.6%
Middle	51	48.6%
Upper	47	44.8%
Relationship status (n)		
Living in a relationship	65	61.9%
Single	40	38.1%
Number of sexual partners		
Mean (SD)	7.22	7.75
Median (range)	4.5	0–40
Sexual interest scale		
Mean (SD)	3.44	1.29
Median (range)	3.50	0.00–6.00

SD = standard deviation.

Results

Characteristics of the Study Sample

Table 1 shows the demographic and sexual characteristics of the final study sample consisting of 105 women in three different age groups with a mean age of 28.37 years (SD = 9.65). Regarding their sexual experiences, only 18 of 33 women (54.5%) in the youngest age group (16–20 years) reported that they had experience of sexual intercourse. In contrast, all participants of the two older age groups (25–30 years and 40–45 years) had experience of sexual intercourse.

Importance of Several Penile Aspects

As displayed in Table 2, on average, “general cosmetic appearance” was rated as the most relevant

aspect of penile appearance, “penile length” was ranked sixth, and the item “position and shape of meatus” was ranked last.

Some penile aspects were considered significantly more important by the group of women who had seen photos of HASRGs previously than women who evaluated the aspects before having seen photos of HASRGs. These items were importance of shape of glans, importance of appearance of scrotum, importance of penile skin, and importance of penile length. Effect sizes were medium. However, penile length was still ranked sixth by women who were exposed to photosets of HASRGs. Interestingly, neither the general cosmetic appearance nor the position and shape of the meatus were perceived as more important by women before or after exposure to photosets of HASRGs.

Genital Appraisal of Photosets:

Women's Evaluation of the Normality of the Penile Look of HASRGs

Statistical analyses showed that the genital appearance of circumcised men ($M = 2.60$, $SD = 0.61$) was perceived as significantly ($P = 0.000$) more normal-looking than the genital appearance of hypospadias patients ($M = 2.45$, $SD = 0.60$). Although group difference was significant, effect size was small (Cohen's $d = 0.25$). However, photosets of distal hypospadias ($M = 2.53$, $SD = 0.62$) were perceived to be as normal-looking as photosets of circumcised men ($P = 0.16$; Cohen's $d = -0.11$). Accordingly, individuals with more proximal hypospadias ($M = 2.33$, $SD = 0.64$) were rated less normal than those of distal hypospadias

Table 2 Rating of eight aspects of penile appearance by women

Importance of eight penile aspects	Rating before evaluation of photosets (n = 55)			Rating after evaluation of photosets (n = 50)				
	Order	Mean	SD	Order	Mean	SD	P^\dagger	Cohen's d
Importance of penile length	6	3.19	0.75	6	3.54	0.87	0.02*	–0.43
Importance of penile girth	3	3.41	0.74	7	3.46	0.82	0.74	–0.06
Importance of position and shape of meatus	8	2.37	0.88	8	2.63	1.12	0.29	–0.26
Importance of shape of glans	5	3.28	0.90	3	3.71	0.90	0.005**	–0.48
Importance of appearance of scrotum	7	3.02	1.00	4	3.69	0.85	0.001**	–0.72
Importance of penile skin	3	3.41	1.00	2	3.89	0.89	0.02*	–0.51
Importance of appearance of pubic hair	2	3.43	1.16	5	3.60	1.20	0.38	–0.14
Importance of general cosmetic appearance	1	3.85	0.74	1	4.06	0.73	0.11	–0.29

* $P < 0.05$, ** $P < 0.01$.

† U-tests according to Mann–Whitney.

Bold indicates significant results.

1 = very unimportant; 2 = unimportant; 3 = neither important nor unimportant; 4 = important; 5 = very important.

Effect sizes according to Cohen: 0.20 small effect size; 0.50 medium effect size; > 0.80 large effect size.

SD = standard deviation.

Table 3 Multiple regression analyses for predictors of “normality of penile look”

Variable	B	SEB	Beta	P
Equation 1: normality of penile look: circumcised men				
Age	0.01	0.00	0.33	0.001**
Number of sexual partners	0.00	0.00	0.10	0.29
Sexual interest	0.04	0.01	0.23	0.02*
Importance of penile length	−0.06	0.03	−0.25	0.02*
Importance of “position and shape of meatus”	−0.02	0.02	−0.12	0.22
Importance of “general cosmetic appearance”	0.05	0.03	0.19	0.11
Equation 2: normality of penile look: hypospadias patients				
Age	0.01	0.00	0.26	0.009**
Number of sexual partners	0.00	0.00	0.13	0.18
Sexual interest	0.04	0.01	0.29	0.002**
Importance of penile length	−0.07	0.03	−0.29	0.008**
Importance of “position and shape of meatus”	−0.03	0.02	−0.15	0.12
Importance of “general cosmetic appearance”	0.06	0.03	0.24	0.03*

* $P < 0.05$, ** $P < 0.01$.

Bold indicates significant results.

Equation 1: $R = 0.48$ ($n = 100$, $F = 4.62$, $P = 0.000$), R^2 adj = 0.18.

Equation 2: $R = 0.49$ ($n = 101$, $F = 5.05$, $P = 0.000$), R^2 adj = 0.20.

SEB = standard error of B.

($P = 0.000$; Cohen's $d = -0.32$) and than those of circumcised men ($P = 0.000$; Cohen's $d = -0.43$). Effect sizes were small.

Determinants of Women's Evaluation of the Normality of the Penile Look of HASRGs and of Circumcised Genitals

Results of the multiple regression analyses are shown in Table 3.

Both regression models were significant. The predictors explained 20% of the variance of the dependent variable “perceiving HASRGs as normal-looking” and 18% of the variance of the dependent variable “perceiving circumcised genitals as normal-looking.” There were three variables that were significant predictors in both regression models: higher age of women, higher sexual interest of women, and evaluating penile length as less important.

Discussion

The present research showed that there is no single penile aspect that is essential for the evaluation of penile appearance. Women considered the general cosmetic appearance as most important, while all other penile aspects were regarded as clearly less relevant.

Participating women considered the position and shape of the meatus as the least important aspect of penile appearance, although mild types of hypospadias are often operated purely to achieve a slit-like meatus at the tip of the glans. Interestingly, this did not change in the group of women

who saw photos of HASRGs with less than optimal outcomes. The higher importance of the general appearance over the cosmetic aspects of the meatus has been confirmed in previous studies [9,18] among men with nonoperated hypospadias. Many of the affected men [9,18] and their sexual partners [9] were not even aware of the genital malformation.

Although men with [3,7] and without hypospadias [19] are often concerned about their penile size, in the present study, penile length was not considered as very relevant by women. Other studies have confirmed that most women find penile size “unimportant” or even “totally unimportant” [10] and that most women are satisfied with their partner's penis size [11].

We also investigated whether women perceived HASRGs as normal-looking. Our study indicated that the genitals of men with corrected distal hypospadias (which represents the majority of hypospadias) were considered to be normal. The more proximal forms of HASRGs were evaluated as less normal-looking than circumcised genitals. However, the perceived difference is most probably not clinically relevant, as the effect size was small. In addition, more recent surgical techniques than those applied to this cohort of patients, who were operated up to 36 years ago, may lead to better surgical results.

The present study also investigated attributes of the observing women that influence their evaluation of whether a penis is to be considered as normal. In line with our expectations, the multiple regression analyses indicated that the older

and the more sexually interested a woman is, the more normal she perceives the appearance of a penis to be. Possibly, women develop a more realistic body image with increasing sexual experience at a higher age. In line with our results, a positive association between better genital perception and increasing age [20] and a correlation between a positive genital perception and higher sexual interest (or sexual desire) was also found in studies on the genital self-perception of women [21,22].

As expected, our findings showed that the less important a woman considers penile length and the more important she considers general cosmetic appearance, the more normal she evaluates photosets of HASRGs.

Limitations

A strength of this study is its comprehensive methodological design. However, some limitations should be noted which may restrict the generalization of our results. First, because of the low response rate of men who accepted photo documentation, it is possible that participants with better surgical results were overrepresented in our photo sets. However, their surgical results were not considered to be particularly favorable by the urologists among the authors. Second, genitals of hypospadias patients were compared only with those of circumcised men and not with those of noncircumcised ones. Third, participants of middle and upper socioeconomic status were overrepresented. Fourth, it is possible that mainly sexually open-minded women participated in the study. Fifth, only photosets of men with corrected hypospadias were presented to women, and no photosets of men with noncorrected hypospadias. Therefore, the meatus might well be evaluated as more important by women when the questionnaire contained such photosets of noncorrected hypospadias. Sixth, the present study only evaluated the opinions of women regarding the relevance of penile aspects and the appearance of hypospadias-affected genitals. Hence, the results may not be generalized to men.

Clinical Implications

The findings of this study are relevant for patient counseling. Patients and their parents should be informed that women consider the penile appearance of distal HASRGs to be as normal-looking as that of nonaffected genitals. In addition, they should know that women look rather at the

overall genital appearance than at individual penile aspects such as the position and shape of the meatus or penile size. This information may help prevent the development of shame because of penile appearance and the emergence of an impaired genital perception. Both feelings of shame about penile appearance [23] and negative genital self-perception [24] were found to be risk factors for an impaired health-related quality of life in hypospadias patients.

Interestingly, some case reports about nonoperated hypospadias showed that the malformation was not recognized by many of the patients [9,18,25] or their sexual partners [9], or even by professionals [26]. Functional deficits are rare in mild forms of hypospadias [9], and they are often only operated to achieve a slit-like meatus at the tip of the glans. Nevertheless, hypospadias repair can lead to complications, and the treatment is assumed to be psychologically traumatic for patients [27,28]. Our study found that women rated the position and shape of the meatus as the least important aspect of penile appearance. In line with other authors [9,18,29], the question arises whether every distal type of hypospadias benefits from routine surgical correction in early childhood. Surgical correction in early childhood could be limited to severe forms that impair sexual function, for instance. In mild forms, a simple circumcision could be considered instead of a surgical correction.

Conclusions

The present research showed that, although mild types of hypospadias are often only operated to achieve a slit-like meatus at the tip of the glans, women considered the "position and shape of the meatus" as the least important aspect of a penis. This may stimulate reflections regarding the relevance of correction of the meatus in minor forms of hypospadias, although the women participating in our study were not exposed to photos of noncorrected hypospadias.

In addition, our study indicates that most HASRGs, particularly mild distal forms, are perceived as normal genitals. As a consequence for clinical management, we suggest that patients and their parents should be informed about these results to prevent the development of shame.

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