Original Article

Penile length and circumference: are they related to nose size?

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Background: We investigated the relationship between the size of the penis and that of the nose.

Methods: We retrospectively analyzed 1,160 patients whose nose and penis sizes were measured. These participants were selected from a subset of 1,531 patients who visited the Dr. JOMULJU Urology Clinic between March and October 2022. Patients aged <20 years and those who underwent surgery for the nose and penis were excluded. Nose size was determined by measuring the length, width, and height of the nose, which were used to calculate the volume of the triangular pyramid. Stretched penile length (SPL) and penile circumference before erection were measured. The participants' height, weight, foot size, and serum testosterone levels were measured. Testicular size was measured using ultrasonography. Predictors of penile length and circumference were assessed using linear regression analysis.

Results: The participants' average age was 35.5 years, mean SPL was 11.2 cm, and mean penile circumference was 6.8 cm. Univariate analysis revealed that body weight, body mass index (BMI), the serum testosterone level, and nose size were associated with SPL. Multivariable analysis revealed that BMI (P=0.001) and nose size (P=0.023) were significant predictors of SPL. Univariate analysis revealed that penile circumference was related to an individual's height, weight, BMI, nose size, and foot size. Multivariable analysis revealed that body weight (P=0.008) and testicular size (P=0.002) were significant predictors of penile circumference.

Conclusions: Nose size was a significant predictor of penile size. The sizes of the penis and nose increased with a decrease in BMI. This interesting study confirms the truth of an erstwhile myth about penis size.

Keywords: Penis; nose; androgen; body mass index (BMI)

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Introduction

Traditionally, penile size has been associated with tremendous stamina and vitality. A small penis is associated with anxiety and dissatisfaction, whereas a large penis is generally associated with masculinity and strength (1). Various indicators and myths have been put forth in an attempt to predict the size of the penis, one of which is the ratio of the length of the fingers to the size of the nose (2,3). The ratio of the second to fourth digit length is lower in men than in women, indicating sexual dimorphism (2,4). These differences are determined during the early stages of development and are not limited to the fingers; they are also observed in the development of the toes, extremities, and urogenital system, including the testes, ovaries, and penis (5).

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Therefore, it is commonly believed that limb formation is related to gonadal development (5,6).

The face is a simple yet characteristic indicator of sex, and the degree of masculinity of the face is also considered emblematic of dominance and health (7). These sex-based differences can be observed on the skull and facial surfaces (8). Several studies have identified sexual dimorphisms in various craniofacial phenotypes using the hard tissue of the skull. Other studies have included measurements of the facial surface i.e., the soft tissue covering the skull (7,9). A bald head, angled chin, and large nose are typical facial features that are considered masculine. In contrast, an angled chin can appear masculine in women, and making the chin smaller and slimmer can increase the femininity of a woman's appearance. Although the specific sex-based differences in facial shape and timing of their occurrence during development are not well-known, the facial features most strongly suggestive of masculinity are thought to be related to serum testosterone levels (10,11). Therefore, it seems likely that the size of the male genitalia is related to the size of the nose, both of which are similarly exposed to serum testosterone. Numerous studies have investigated the association between facial shape and gonadal size. However, studies examining facial features and penis size are lacking. Therefore, in this study, we investigated the relationship between penile and nose sizes. We present this article in accordance with the STROBE reporting checklist (available at https://tau.amegroups.com/article/view/10.21037/tau-22-869/rc).

Methods

Study participants

We retrospectively analyzed 1,160 patients whose nose and penile sizes were measured. These participants were selected from a group of 1,531 patients who visited the Dr. JOMULJU Urology Clinic between March 2022 and October 2022. Patients <20 years old and those who had a history of Peyronie's disease and prior history of penile surgery, prostatectomy, or rhinoplasty were excluded. This study was conducted in accordance with the Declaration of Helsinki (revised in 2013). Patient data, including physical and laboratory information were retrospectively reviewed without the need for informed consent. Since the study did not collect or record personally identifiable information, and used only simple contact measuring equipment or observation equipment that did not induce physical changes, it doesn't require ethical approval.

Exposure measures

Stretched penile length (SPL) and penile circumference before erection were measured. Penis size was measured by two urologists (S Hong and W Choi), and the mean value was used in the analysis. SPL was defined as the linear distance extending from the pubo-penile skin junction to the tip of the glans along the dorsal side of the penis, while penile circumference was measured at the middle of the shaft (12). All measurements of penis size were conducted at room temperature (23 ℃) in the supine position, and the penis was placed at an angle of 90° to the body.

Nose size was determined by measuring its length, width, and height, which were then used to calculate the triangular pyramid volume (1/3 × base area × height). Nose size was measured by two otorhinolaryngologists (KW Lee and YT Lee), and the mean value was used in the analysis. Nose length was defined as the longest distance between the midpoint of the left and right medial ocular angles and the midpoint of the left or right nasal wings. Nose width was defined as the distance between the wings of the left and right sides of the nose, and nose height was defined as the distance from the philtrum to the tip of the nose. The sizes of the penis and nose were measured separately without investigators being aware of the measured values for the different outcomes. In addition, participants' height, weight, foot size, and serum testosterone levels were measured. Foot size was defined as the length measured vertically from the line of the big toe to the line of the heel. Blood samples for serum testosterone measurement were collected between 08:00 am and 11:00 am to minimize daily fluctuations in testosterone levels. The testicular size was measured using ultrasonography. During the examination, the longest line connecting the upper and lower poles of the testis was taken as the length, the line from the epididymal attachment site

Highlight box

Key findings
- Nose size was a significant predictor of penile size.

What is known and what is new?
- The sizes of the penis and nose increased with a decrease in BMI.

What is the implication, and what should change now?
- This was an interesting study that confirmed the truth of an erstwhile myth.

Table 1 Characteristics of the overall study population

Variables	Value
Number of patients	1,160
Age (years)	35.5±8.2 [20–79]
Height (cm)	174.9±7.6
Weight (kg)	80.1±13.1
BMI (kg/m^2)	26.1±3.7
Testosterone (ng/mL)	5.0±2.1
Testis size (cm^3)	24.4±7.7
Nose width (cm)	4.1±0.3
Nose lengths (cm)	4.5±0.3
Nose height (cm)	1.6±0.2
Nose volume (cm^3)	5.2±1.8
Foot size (cm)	266.8±10.0
Penile lengths (cm)	4.9±1.2
SPL (cm)	11.2±1.3
Penile perimeter (cm)	6.8±0.6

Values are presented as mean ± SD [range]. BMI, body mass index; SPL, stretched penile length.

to the opposite side was considered as the width, and the line perpendicular to the length and width was taken as the height. Hence, testicular volume was calculated using the formula: 0.71 × length × width × height (13). The average size of the testes was used in this study.

Statistical analysis

The relationships between age, height, weight, serum testosterone levels, nose size, foot size, and penile size were assessed, and differences were compared according to various factors. Additionally, the relationship between nose and penile sizes was represented using a scatterplot diagram. The predictors of penile size were assessed using linear regression analysis. A multivariable linear regression model was fitted, and stepwise selection of the least significant factor was performed. All statistical tests were two-tailed, and a P value <0.05 indicated statistical significance. All statistical analyses were performed using Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, version 24.0; IBM, Armonk, NY, USA).

Results

The mean age of the 1,160 patients was 35.5 years. The participants' average height and weight were 174.9±7.6 cm and 80.1±13.1 kg, respectively. The average body mass index (BMI) was 26.1±3.7 kg/m^2. The average serum testosterone level was 5.0±2.1 ng/mL. The mean flaccid penile length and SPL were 4.9±1.2 cm and 11.2±1.3 cm, respectively, and the penile circumference was 6.8±0.6 cm. The mean length, width, and height of the nose were 4.5±0.3 cm, 4.1±0.3 cm, and 1.6±0.2 cm, respectively, and the volume of the nose was 5.2±1.8 cm^3 (*Table 1*).

The linear analysis model revealed that body weight (β =–0.254; –0.039 to –0.017; P=0.001), BMI (β =–0.312; –0.152 to –0.080; P=0.001), the serum testosterone level (β =0.155, 0.035 to 0.169, P=0.003), and nose size (β =0.146; 0.060 to 0.351; P=0.006) were significant predictors of SPL. Multivariable analysis revealed that BMI (β =–0.325; –0.151 to –0.080; P=0.001) and nose size (β =0.116; 0.0023 to 0.299; P=0.023) were significant predictors of SPL (*Table 2*). Scatterplots were drawn to demonstrate the relationship between the SPL and nose size, and it was confirmed that the SPL increased gradually with an increase in nose size (*Figure 1*).

Univariate analysis revealed that penile circumference was associated with height (β =0.125; 0.003 to 0.027; P=0.015), weight (β =0.201; 0.005 to 0.015; P=0.001), BMI (β =0.167; 0.011 to 0.045; P=0.001), nose size (β =0.169; 0.041 to 0.167; P=0.001), and foot size (β =0.146; 0.003 to 0.016; P=0.005). According to multivariable analysis, weight (β =0.151; 0.02 to 0.012; P=0.008) and testicle size (β =0.173; 0.004 to 0.019; P=0.002) were significant predictors of penile circumference (*Table 3*). The scatterplot graph shows that penile circumference increases in parallel with an increase in nose size (*Figure 2*).

Discussion

We confirmed the positive relationship between nose size and penis length in our study. This coincides with what has been published in studies (2,3). Numerous studies have shown that obesity can affect the development of the male gonads (14-17). The frequency of infertility is reportedly high obese patients with obesity, which is mainly explained by hypotestosteronemia and a deficiency in various hormones (14,15). Thus, the lack of testosterone may inhibit gonadal growth during the developmental

Table 2 Factors predictive of stretched penile length

Variables	Univariate analysis			Multivariable analysis*		
	Beta	95% CI	P value	Beta	95% CI	P value
Age			0.432			
Height			0.090			
Weight	−0.254	−0.039, −0.017	0.001			
BMI	−0.312	−0.152, −0.080	0.001	−0.325	−0.151, −0.080	0.001
TTT	0.155	0.035, 0.169	0.003			
Testis size			0.549			
Nose volume	0.146	0.060, 0.351	0.006	0.116	0.023, 0.299	0.023
Foot size			0.395			

Significant variables (P<0.05) according to the univariate analysis were included in the multivariable analysis. *, Linear regression model (stepwise selection). BMI, body mass index; TTT, testosterone.

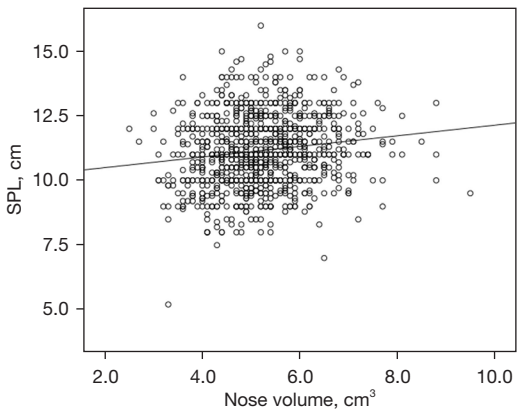

Figure 1 Relationship between nose volume and stretched penile length (SPL).

phase and affect the development of the penis (15,16). The facial features that were most frequently associated with masculinity showed the strongest correlation with serum testosterone levels, regardless of age. Baldness, an angled chin, and a large nose are facial features that suggest masculinity, and their correlation with the ratio of the second to fourth digits, indicating the degree of exposure to male hormones, has also been confirmed (2,18).

Several studies have suggested that androgen exposure during the prenatal period affects the growth of reproductive organs and that constant exposure is required after birth to achieve growth potential (19,20). The length of the penis mainly changes before puberty and remains fairly constant thereafter (20). Our study confirmed the relationship between penile length and the serum testosterone level, which was not significant in multivariable analysis. This could be attributed to several factors. The first is the difficulty in measuring serum testosterone levels. Testosterone levels are affected by circadian rhythms and the time interval between measurement and blood collection (21). It is also affected by age and other individual characteristics, such as obesity (20,22). The last factor, which is difficult to account for, and lacks an adequate measurement method, is the duration or degree of androgen exposure.

Nose size was an important indicator of penile size in our study. Various studies on penile length and circumference have described appropriate measurement methods, but few have included the investigation of nose size (3,12). The most commonly used indicators of nose size are length and height. The volume was calculated considering the width, length, and height. Assuming that the shape of the nose is a triangular pyramid, the obtained volume may be slightly inferior in terms of accuracy. However, in addition to volume, nose length and height were confirmed to be related to the penile size. The factors affecting penile circumference differed from those affecting SPL, and weight was a significant factor affecting the former. Penile circumference might have been affected by body weight because the fat tissue around the penis was also measured.

This study, which showed the relationship between the penis and nose sizes, seems to have limited clinical significance. In addition, the number of patients who visited our urologic clinic was insufficient to represent the general

Table 3 Factors predictive of penile circumference

Variables	Univariate analysis			Multivariable analysis*		
	Beta	95% CI	P value	Beta	95% CI	P value
Age			0.063			
Height	0.125	0.003, 0.027	0.015			
Weight	0.201	0.005, 0.015	0.001	0.151	0.002, 0.012	0.008
BMI	0.167	0.011, 0.045	0.001			
TTT			0.688			
Testis size	0.213	0.007, 0.021	0.001	0.173	0.004, 0.019	0.002
Nose volume	0.169	0.041, 0.167	0.001			
Foot size	0.146	0.003, 0.016	0.005			

Significant variables (P<0.05) according to the univariate analysis were included in the multivariable analysis. * Linear regression model (stepwise selection). BMI, body mass index; TTT, testosterone.

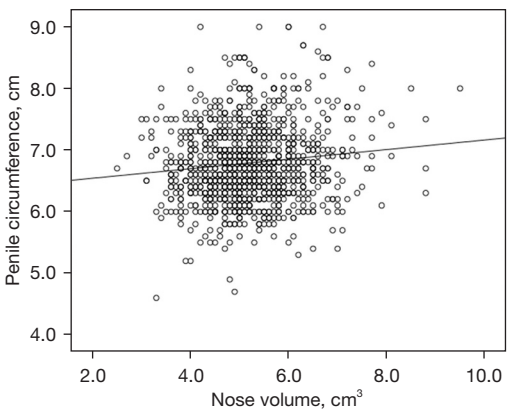

Figure 2 Relationship between nose volume and penile circumference.

population; however, the average size of the penis did not differ from that of the general population. Moreover, this finding is important in light of the relationship of the growth process of the penis and facial features with androgens, especially testosterone. Importantly, studies have found that sufficient serum testosterone exposure is important not only for the development of gonadal function but also for the growth of the penis and face (7,16,19). In addition to reproductive and sexual functions, the penis also plays a psychological role in self-satisfaction (23). In this regard, the association between penile size and obesity in our study provides an important clue. Importantly, obesity is reversible. It is possible that the size of the penis or reproductive function, which is determined during the developmental phase, can be improved by controlling obesity. Although we believe that our findings are interesting, further research with a larger sample population is needed.

Conclusions

Nose size was a significant predictive factor for penis size. This was an interesting study that confirmed the truth of an erstwhile myth. Further research is needed to determine whether it is possible to enhance the size of the penis and facial features as well as the reproductive function by controlling obesity.

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Footnote

Reporting Checklist: The authors have completed the STROBE reporting checklist. Available at https://tau.amegroups.com/article/view/10.21037/tau-22-869/rc

Data Sharing Statement: Available at https://tau.amegroups.com/article/view/10.21037/tau-22-869/dss

Conflicts of Interest: All authors have completed the ICMJE

uniform disclosure form (available at https://tau.amegroups.com/article/view/10.21037/tau-22-869/coif). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. This study was conducted in accordance with the Declaration of Helsinki (revised in 2013). Patient data, including physical and laboratory information, were retrospectively reviewed without the need for informed consent. Since the study did not collect or record personally identifiable information, and used only simple contact measuring equipment or observation equipment that did not induce physical changes, it doesn't require ethical approval.

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