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Do adult men with untreated ventral penile curvature have adverse outcomes?

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Summary

Introduction
Congenital ventral penile curvature without hypospadias is often treated surgically in childhood. The history of untreated ventral curvature is unknown.

Objective
This study's aim was to examine the association of untreated ventral penile curvature with various sexual and psychosexual outcomes.

Study design
An electronic survey was advertised to men older than 18 years on Facebook. Men with possible ventral penile curvature identified themselves by choosing sketches that most closely represented their anatomy. Outcomes assessed included: Sexual Health Inventory for Men, difficulty of intercourse because of curvature, International Prostate Symptom Score, Penile Perception Score, psychosexual milestones, paternity, infertility, sitting to urinate, and the CDC HRQOL-4 module.

Results
Among participants, 81 out of 684 men (11.8%) reported untreated ventral penile curvature. Participants with self-reported curvature noted more difficulty with intercourse because of curvature (4.5 vs 4.9, $p < 0.001$), more unhealthy mental days (8.6 vs 6.2, $p = 0.02$), and increased dissatisfaction with penile self-perception compared with men without reported curvature (8.6 vs 9.5, $p < 0.001$).

Discussion
Men with possible untreated ventral curvature reported worse penile perception scores, more mentally unhealthy days, and increased difficulty with intercourse secondary to curvature compared with men without curvature. A limitation to this study is selection bias; responses collected were self-reported from survey volunteers. Additionally, the question identifying ventral penile curvature is not validated but performed well in pretesting. Most questions were from validated surveys, but some were modeled after validated surveys and/or contained high face validity types of questions.

Conclusion
Men with possible untreated ventral penile curvature reported more dissatisfaction with penile appearance, increased difficulty with intercourse, and more unhealthy mental days. Given high success rates, low complications, and improved outcomes after surgical correction of penile curvature reported in the literature, our results support correction of congenital penile curvature in childhood.

Table Association of outcomes with possible untreated ventral curvature.

	No ventral curvature ($N = 598$)	Self-reported ventral curvature ($N = 81$)	p-Value[a]
Penile perception overall score	9.5 (2.0)	8.6 (2.3)	<0.001
CDC HRQOL-4	6.2 (9.3)	8.6 (10.6)	0.02
Mean number of mentally unhealthy days			
Penile curvature[b]	1.6 (0.5)	3.2 (0.6)	<0.001
Difficulty of intercourse secondary to penile curvature[c]	4.9 (0.6)	4.5 (0.7)	<0.001

Data presented as mean (standard deviation).
[a] Continuous outcomes compared by Student's t test, ordinal by Wilcoxon rank sum test, dichotomous by chi-square or Fisher's Exact test.
[b] Higher number corresponds to more ventral curvature.
[c] 1 = did not attempt intercourse; 2 = extremely difficult; 3 = very difficult; 4 = difficult; 5 = slightly difficult; 6 = not difficult.

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Introduction

Congenital ventral penile curvature or chordee is a congenital anomaly that occurs in approximately 1 in 167 male births [1]. Ventral penile curvature is also usually found in children with hypospadias, which is defined as an abnormal proximal location of the urethral meatus on the ventral penis. Although ventral penile curvature may not affect a child in terms of increased risk of urinary tract infection or urinary pattern, it is possible that untreated ventral curvature may affect outcomes as an adult such as sexual health, urinary symptoms, and quality of life. Therefore, in children with isolated ventral penile curvature, this is often surgically corrected in childhood. In addition, in children with mild forms of hypospadias such as glandular hypospadias, some advocate correction of the ventral penile curvature without urethroplasty as the ventral penile curvature is thought more likely to cause clinical issues than the glandular hypospadias [2].

The natural history of untreated ventral penile curvature is not well known, and there is limited information regarding what degree of ventral penile curvature is clinically significant and should be surgically corrected [3]. Prior work by Schlomer et al. utilized a social media advertised survey to study the natural history of adult men with untreated hypospadias [4]. Validated questionnaires were used when available and outcomes studied in this survey included sexual health, urinary symptoms, penile self-perception, psychosexual milestones, paternity and infertility, need to sit to urinate, ventral penile curvature and difficulty with intercourse from curvature, and quality of life. This study revealed that men with self-reported untreated hypospadias fared worse than men without hypospadias in their sexual health scores, urinary symptoms, and difficulty with intercourse secondary to curvature. Subset analysis showed that such differences were more pronounced with severe hypospadias. Utilizing data from the above mentioned study, we seek to compare the outcomes in men who identified themselves as having ventral penile curvature without hypospadias to men who did not report ventral penile curvature. We hypothesized that adult men who reported untreated ventral penile curvature would have worse outcomes than those men who did not report ventral penile curvature.

Methods

Survey

Following institutional review board approval, study data were collected over a 4-month period (October 2012—January 2013) and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at University of California San Francisco and described previously [4,5]. The predictor was whether or not a participant self-identified as having possible untreated ventral penile curvature and the severity of curvature based on answers to self-reported anatomy questions supplemented with penile sketches (Fig. 1). Outcomes included the Penile Perception Score (PPS) [6], the Sexual Health Inventory for Men (SHIM) score [7—9], the International Prostate Symptom Score (IPSS) [10,11], CDC Healthy Days Core Module (CDC HRQOL-4) (CDC), paternity status, history of infertility diagnosis or treatment, frequency of sitting to urinate modeled after IPSS questions, penile curvature based on sketches of curvature (Fig. 1), reported degree of difficulty with intercourse from penile curvature modeled after SHIM questions, and sexual milestones attained and age when attained. The entire survey has been published previously [4].

Pretesting

As a proxy measure for criterion validity for the self-reported penile curvature question, the question was pretested on 26 subjects without hypospadias or penile curvature that included 22 male and four females. The pretest subjects took an online survey that showed a series of penis images with varying anatomy from normal to severe ventral curvature. The subjects were asked to pick the sketch that best depicted the anatomy in question in the picture.

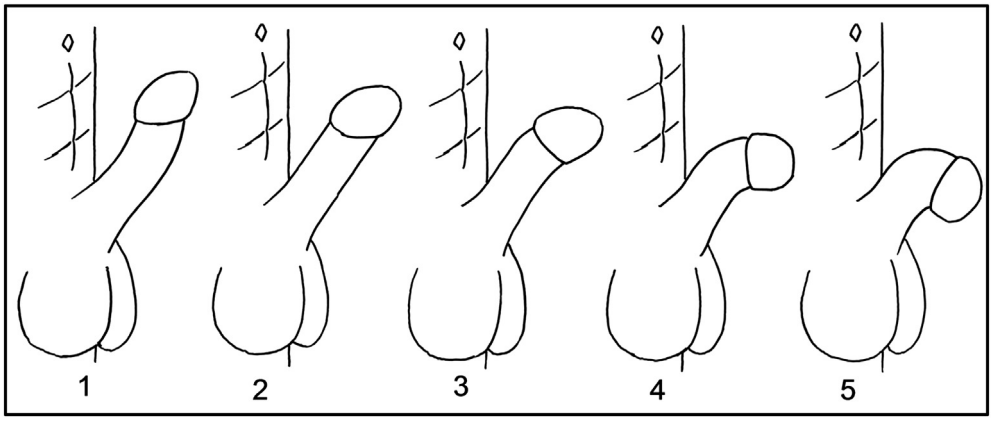

Figure 1 Sketches used for participants to report anatomy. Participants were asked to following question. Which of the above sketches is most like the curvature of your penis when you have an erection (penis gets hard)? We are only asking about up/down curvature not left/right curvature. Choose the best answer (1—5).