

Long-Term Followup of Men Born with Hypospadias: Urological and Cosmetic Results

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Purpose: We present data on long-term functional and cosmetic results after hypospadias surgery.

Materials and Methods: Males older than 18 years with hypospadias treated in Sweden were asked to participate in the study, as well as age matched controls and circumcised men. All participants answered questionnaires, and a subgroup was examined during an outpatient visit. Relationships with outcome were analyzed using analysis of variance and regression analysis.

Results: A total of 167 patients with a mean age of 34 years and 169 controls with a mean age of 33 years answered the questionnaire. Of the patients 63% had distal, 24% mid and 13% proximal hypospadias. A total of 46 patients and 49 controls presented for physical examination. Patients were significantly less satisfied with the penile cosmetic outcome regarding all parameters of the Penile Perception Score. There was a difference in penile length between patients and controls (mean 9.7 vs 11.6 cm, $p < 0.001$). More patients than controls reported voiding dysfunction symptoms ($p = 0.003$). Patients had a lower maximum urinary flow rate than controls ($p = 0.001$). These differences were most prominent between patients with proximal hypospadias and controls.

Conclusions: Men operated on for hypospadias were less satisfied with the cosmetic result than controls, and had a shorter penile length. Patients presented with more symptoms of voiding dysfunction and displayed a lower maximum urinary flow rate. Patients with proximal hypospadias were more affected than those with milder hypospadias. Our results indicate that patients with hypospadias can be subgrouped and that those with severe phenotypes should be followed more closely during childhood as well as later in adulthood.

Key Words: body image, cosmetic techniques, follow-up studies, hypospadias, urodynamics

HYOSPADIAS is one of the most common congenital malformations, with an incidence of 1 in 125 boys in Sweden.¹ The diagnosis is made postnatally when the urethral opening is localized on the ventral side of the penis.² Classification of severity is

based on meatal position, penile curvature and location of corpus spongiosum division, which are assessed during surgery.^{3,4} Most retrospective studies classify hypospadias according to the meatal location. Treatment is surgical and is often done in early

Abbreviations and Acronyms

BES = body esteem scale
PPS = Penile Perception Score

Accepted for publication September 22, 2014.
Supported by Swedish Research Council, Stockholm City Council and Freemason Foundation (Frimurare), Stockholm.
Study received approval from ethics committees of Karolinska Institutet and Sahlgrenska Academy.

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childhood, with the aim being to reconstruct the urethra to allow the patient to void while standing with a normal flow, to correct curvature, and to provide a satisfactory cosmetic result and sexual function.⁵ A few small studies with long-term followup after hypospadias surgery have been performed, demonstrating low satisfaction with cosmetic results and voiding dysfunction, although outcomes have varied.^{6–10} We investigated the long-term outcome of the cosmetic and urological results in a large group of patients with hypospadias according to severity, using questionnaires, physical examination and uroflowmetry to optimize followup. We hypothesized that patients with severe hypospadias may need more support during childhood.

PATIENTS AND METHODS

Patients

A total of 1,030 men identified from a local register who were born between 1959 and 1994 and operated on for hypospadias in Stockholm or Gothenburg were asked to participate in the study. All diagnoses were confirmed by chart review. The control population consisted of age matched males from the Swedish Population Registry, healthy students at Karolinska Institutet and circumcised men operated on for phimosis (fig. 1). Hypospadias was classified as distal, mid or proximal, according to

preoperative meatal positioning (fig. 2). Approval was obtained from the ethics committees of the Karolinska Institutet and Sahlgrenska Academy.

Methods

A letter informing invitees about the study was mailed out. Two reminders were sent to nonresponders. All participants were asked to complete a questionnaire. Patients with proximal hypospadias and every other patient with milder hypospadias, as well as matched controls were invited to the hospital for an outpatient visit (fig. 1). Exclusion criteria were wrong diagnosis and inability to speak and/or understand Swedish.

Questionnaire

The questionnaire consisted of validated and non-validated instruments, and the main outcomes were anatomical result, patient satisfaction, body esteem, voiding function and urinary tract infection. Categorical questions and visual analogue scales (1 to 10) were used. The validated questionnaire PPS was administered in Swedish, after a forward and back translation technique, to evaluate patient satisfaction with cosmetic result postoperatively (supplementary table, <http://jurology.com/>).^{8,9}

Clinical Report Form

The extended study participants presented for an anatomical evaluation, which included examination of the testes and scrotum, sensitivity testing, uroflowmetry

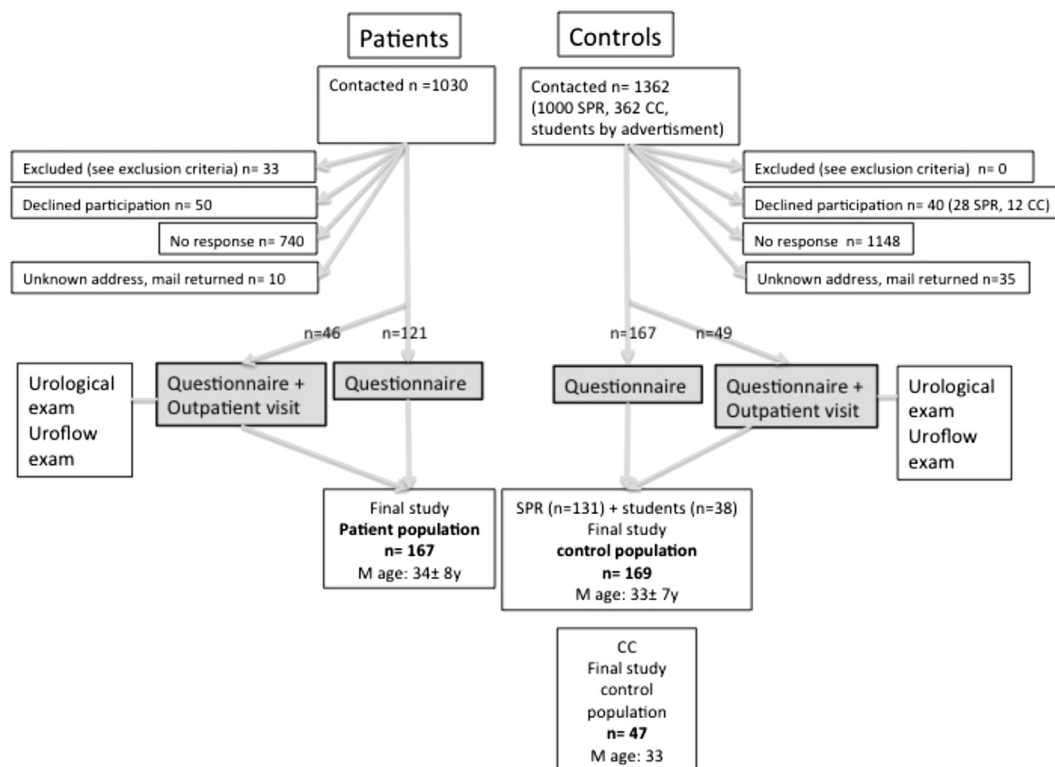


Figure 1. Flowchart of study design for patients and controls. Patient response rate for study participation was 19%, and response rate for questionnaire among participating patients was 85%. Response rates in controls were 17% and 90%, respectively. CC, circumcised controls. M, median. N, number. SPR, Swedish Population Registry. y, years.

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