

## Patient-Reported Social, Psychological, and Urologic Outcomes After Adult Buried Penis Repair



Maria A. Voznesensky, W. Thomas Lawrence, Jerrod N. Keith, and Bradley A. Erickson

<b>OBJECTIVE</b>	To assess changes in hygiene, urination, and sexual activity after surgery for adult-acquired buried penis.
<b>MATERIALS AND METHODS</b>	The study included men who underwent buried penis repair from 2011 to 2015. Patients were asked pre- and postoperative questions on hygiene, urinary difficulties, sexual difficulties, and difficulties with activities of daily living (modified Post-Bariatric Surgery Quality of Life Questionnaire). Postoperative satisfaction was assessed at a minimum of 6 months. Pre- and postoperative data were compared with chi-squared analyses.
<b>RESULTS</b>	Of 14 eligible patients, 12 completed postoperative questionnaires. Buried penis repair required debridement of penile skin with split-thickness skin grafting to penis (n = 11; 92%), escutcheonectomy (n = 12; 100%) and abdominoplasty (n = 10; 83%), scrotoplasty (n = 7; 59%), and securing the supra-penile dermis to the pubic dermal or periosteal tissue (n = 12, 100%). The average length of follow-up was 31 months ( $\pm 20$ months). Mean age was 50 ( $\pm 10.5$ years) and mean body mass index was 55 ( $\pm 13.7$ kg/m <sup>2</sup> ). Wound complications (all Clavian Grade 1) occurred in 9 of 12 patients. Patients reported improvement in hygiene (100%), urination (91%), and sexual function (41%); 92% of patients reported they would choose to have the surgery again; and 83% felt that surgery had led to a positive change in their lives. The ability to perform most activities of daily living, as assessed by the Post-Bariatric Surgery Quality of Life Questionnaire, improved significantly. Over 90% of men had lost additional body weight at last clinical follow-up.
<b>CONCLUSION</b>	Buried penis repair positively impacts social, psychological, and functional outcomes for patients. Wound complications should be expected but are easily managed. UROLOGY 103: 240–244, 2017. Published by Elsevier Inc.

Adult buried penis is an acquired condition secondary to morbid obesity, radical circumcision, or penoscrotal lymphedema.<sup>1,2</sup> The obesity epidemic in western societies is making this a more prevalent condition.<sup>2,3</sup> Because the condition leads to decreased visible and functional penile length, hygiene issues with the penile skin and foreskin (often leading to severe phimosis), and subsequent sexual dysfunction, men often suffer both physically and psychologically. Unfortunately, weight loss alone does not always improve the condition and thus many men will seek surgical consultation.

There are a multitude of techniques for adult buried penis repairs, but all generally aim to expose the penis so that the patient is able to perform routine genital hygiene. Short-term outcome studies have focused mostly on complication rates, success of penile grafts, and cosmetic appearance (eg, functional length) of the penis.<sup>4</sup> These studies report that surgical outcomes are excellent,<sup>2,3,5,6</sup> although patient-

reported outcome measures that address quality of life issues, such as daily hygiene, directable urination, and sexual activity, have not been fully addressed. Whether these measures improve after buried penis repair is mostly unknown.

The purpose of our study was to assess genital specific quality of life measures after buried penis repair. We hypothesized that successful surgical repairs will also improve these patient-reported outcomes.

### MATERIALS AND METHODS

#### Patient Cohort

Institutional review board approval was obtained to retrospectively review the medical records of all men undergoing buried penis repair from 2011 to 2015. Men who had not been seen in clinic for over a year were contacted by phone and offered an in-person clinic visit or the opportunity to fill out a questionnaire via the Internet using Survey Monkey (SurveyMonkey Inc., Palo Alto, CA; [www.surveymonkey.com](http://www.surveymonkey.com)).

#### Surgical Repair Principles

All cases involved urology (BE) and plastic surgery (TL or JK). Surgical cases of this nature are heterogeneous, but surgical principles for all buried penis repairs at our institution include the following: (1) removal of escutcheon with or without full

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From the Department of Urology, University of Iowa, Iowa City, IA; and the Division of Plastic Surgery, Department of Surgery, University of Iowa, Iowa City, IA

Address correspondence to: Bradley A. Erickson, M.D., M.S., Department of Urology, University of Iowa Health Care, 3126 RCP, 200 Hawkins Drive, Iowa City, IA 52242. E-mail: [brad-erickson@uiowa.edu](mailto:brad-erickson@uiowa.edu)

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abdominoplasty with the goal of allowing for full exposure of the underlying penis while the patient is standing; (2) aggressive removal of diseased or phimotic penile skin with split-thickness skin grafting (STSG), the harvest site being either the abdominoplasty specimen or lateral thigh; (3) aggressive removal of diseased or edematous scrotal tissue with scrotoplasty using medial thigh and posterior scrotal or perineal skin (generally nondiseased skin with a separate lymphatic drainage); and (4) tacking of the supra-penile dermis (minimum of 4-cm skin bridge between abdominoplasty and penile wounds) to the pubic symphysis periosteum (or overlying connective tissue). In cases where an STSG was deemed unnecessary (eg, if the penile skin was not phimotic and was healthy appearing), tacking was also performed ventrally to reestablish the penoscrotal angle.

### Drain Management

All patients undergoing abdominoplasty and/or scrotoplasty are managed with Jackson-Pratt (JP) surgical drains. The drains remain in place until output is <20 cc/day from respective sites, which means our patients are often discharged with a drain in place.

### Skin Graft Management

All patients receiving an STSG to the penis are managed postoperatively with negative pressure wound vacuum therapy (NPWT; KCI V.A.C., Dublin, Ireland) for a minimum of 4 days. Before the NPWT sponge is placed onto the penile graft, the penis is first wrapped with a silicone mesh (Mepitel; Molnlycke, Gothenburg, Sweden), which we have found facilitates the removal of the NPWT and the transfer of exudate to the secondary dressing. The NPWT setting goal is 100 mmHg and to maintain a sufficient seal, new Tegaderm dressings (3M, Maplewood, MN) should be applied as necessary during the postoperative stay. Patients are kept on bed rest for 48 hours then allowed to walk with the NPWT clamped. Subcutaneous heparin is started on the day of surgery. Urethral catheters are removed after the dressing is removed, at which time the penis is covered with Vaseline-impregnated gauze (Englewood Cliffs, NJ) and a lightly wrapped self-adherent compressive dressing (Coban; 3M).

### Patient-Reported Outcome Measures

A modification of the Post-Bariatric Surgery Quality of Life Questionnaire (PBSQoL) was used to assess both pre- and postoperative hygiene, urinary difficulties, and sexual difficulties.<sup>7</sup> We asked additional nonvalidated questions about weight loss before and after surgery, as well as patient satisfaction with the procedure. Cases performed from 2011 to 2013 (n = 5) were asked about preoperative functioning retrospectively. In all other cases, these factors were assessed in a prospective fashion. All postoperative questions were asked at a minimum of 6 months after surgery.

### Data Analysis

Comparisons were then made between pre- and postoperative PBSQoL answers using chi-squared tests. Pertinent operative details, including operative time, blood loss, and specimen weight, as well as postoperative complications, were also described.

## RESULTS

### Patient Demographics

Of 14 eligible patients, 12 returned for an in-person follow-up visit during the study period and were able to complete pre- and postoperative patient-reported outcome measures questionnaires. The average follow-up time was 31

months ( $\pm 20$  months). The mean patient age was 50 ( $\pm 10.5$  years) and mean body mass index was 55 ( $\pm 13.7$  kg/m<sup>2</sup>). The average American Society of Anesthesiologists classification score was 2.9 ( $\pm 0.6$ ).

### Surgical Findings

Of the 12 included patients, all underwent escutcheonectomy, 10 required a concomitant abdominoplasty (83%), 7 required scrotoplasty (59%), and 11 (92%) required debridement of penile skin with STSG. Average specimen weight was 6.2 kg ( $\pm 5.4$ ), operative time was 175 minutes ( $\pm 58$  minutes), and estimated blood loss was 326 cc ( $\pm 270$  cc). No patients required postoperative blood transfusions.

### Postoperative Complications

Clavian Grade 1 wound complications occurred in 9 of 12 (75%) patients. The locations of the wound infections were penile or scrotal in 5 (55%) and abdominal in 4 (45%). No wounds required subsequent surgical intervention. The average time for the operative wounds to stop requiring daily care was 1.8 ( $\pm 1.3$ ) months.

### Patient-Reported Outcome Measures

PBSQoL results are shown in Figure 1A. Although all areas improved clinically, statistically significant improvements were seen with skin rashes, difficulty fitting into clothing, embarrassment about genitalia, and difficulty shopping for clothing. The vast majority of men reported less difficulty with hygiene, urination, and sexual activity (Fig. 1B). Before surgery, 83% had lost no weight in preparation for the procedure. Postoperatively, besides the weight lost during surgery, 91.7% reported losing additional weight, with 33% reported losing an additional 10-20 lb, while another 33% lost >30 lbs.

### Patient Satisfaction

On the satisfaction questionnaire, patients reported improvement in genital hygiene (92%), improvement in urination (92%), and improvement or the same degree of sexual activity (75%). Patients reported they would choose to have the surgery again (92%) and felt that surgery had led to a positive change in their lives (83%). Some examples of patients who underwent buried penis repair are shown in Figures 2-4.

## DISCUSSION

Adult buried penis is generally an acquired condition secondary to extreme weight gain. It is hypothesized that in patients developing a large abdominal or suprapubic pannus, the loose "fascial" attachments that connect the suprapubic skin to the pubis can be stressed and become lax, allowing the skin and pannus to advance beyond the tip of the penis. Although at first this may seem like a cosmetic concern only, men with suprapubic pannus will often present to urologists and plastic surgeons with complaints of recurrent urinary tract infections, painful erections, and the inability to urinate normally into a toilet, the last of which leads to embarrassing hygiene issues that can significantly reduce quality of life. More recently, acquired buried penis has been linked to the

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