

MINIMAL IMPACT URETHROPLASTY ALLOWS SAME-DAY SURGERY IN MOST PATIENTS

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ABSTRACT

Objectives. To present our evaluation of the safety and feasibility of decreasing the impact of anterior urethroplasty by minimizing the surgery time, maximizing adjuvant pain therapy, and using anesthetic agents that decrease the incidence and severity of side effects, which allows most patients to leave the hospital comfortably within 4 hours of surgery.

Methods. A retrospective chart review of 54 consecutive anterior urethroplasty patients from August 2000 to August 2004 (34 anterior anastomotic and 20 ventral onlay buccal mucosal graft urethroplasty) was performed.

Results. Historically, 27% of patients had undergone same-day surgery (SDS). After the initiation of minimal impact surgery and early discharge, 85% did so. All but one admission was planned (1 patient [2%] had hypotension in the recovery room and was admitted). No postoperative readmissions or emergency room visits occurred. The admitted patients had comparable stricture length to, but slightly older age (49 years compared with 42 years) than, the SDS patients. The perioperative complications were mild (small wound gap, small scrotal hematoma) and were seen in 5% of SDS patients and 0% of admitted patients. Late complications (chordee, mild erectile dysfunction, and urinary tract infection) were seen in 19% of SDS patients and 18% of admitted patients. The incidence of recurrences after a mean follow-up of 27 months was comparable (3% for the SDS and 6% for the admitted group).

Conclusions. Decreasing the impact of urethroplasty surgery allows safe early discharge for most patients. Unexpected admissions were uncommon, and we continue to plan for admission only for the extremely elderly, those with severe comorbidities, and those expected to undergo lengthy (longer than 5 hours) surgery. UROLOGY 66: 850–853, 2005. © 2005 Elsevier Inc.

During the past decade, a shift has occurred in all surgical fields toward performing more outpatient surgery and the use of procedures that minimize the overall impact of surgery on the patient.¹ Shorter procedure times, better analgesia techniques, and improved preparation of the patient more often allow patients to leave the hospital within a few hours after even invasive surgery.

Urethroplasty has proven to be an effective, successful treatment of urethral stricture disease with little morbidity.² Traditionally, patients are admitted to the hospital for 1 to 3 days after surgery,² although a single early report described success

with 23-hour “short stay” anterior urethroplasty in selected patients.³ Those investigators defined outpatient surgery as discharge within 24 hours after the procedure. In the current study, we endeavored to determine whether this within-24-hour hospital stay after urethroplasty could be safely shortened further. We allowed most of our anterior anastomotic or buccal mucosal onlay urethroplasty patients to go home the day of surgery and compared the complications, readmissions, and recurrence rates with those of a historical group that had been generally admitted to the hospital after surgery.

MATERIAL AND METHODS

We reviewed the records of 54 consecutive patients who underwent urethroplasty performed by a single surgeon (R.A.S.) from August 2000 to August 2004. Before January 2002, most patients (73%) were admitted to the hospital after urethroplasty. After January 2002, most patients who were not extremely elderly, were without significant multiple comorbidities, and who had an operative time of less than 5 hours were discharged home (85%).

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The procedures included 34 anastomotic (63%) and 20 ventral (37%) onlay buccal mucosal graft urethroplasties. Of the 54 patients, 42 (78%) received prior treatment, including urethral dilation (9%) or direct vision internal urethrotomy (35%), or both (28%). Two patients had undergone prior urethroplasty (4%), and one had undergone direct vision internal urethrotomy and urethroplasty (2%).

Preoperative retrograde urethrography was performed in all patients to determine the stricture severity, location, and length. The urethroplasty technique was then determined using the retrograde urethrogram findings. Patients were counseled concerning the proposed surgery, potential complications, and postoperative expectations before scheduling the procedure. A "same day procedure" implies that the patient was discharged home from the recovery room within 4 hours after the procedure. Same day surgery (SDS) selection took into account the patient's age and comorbidities, the difficulty and duration of the reconstructive surgery, and social considerations. Patients who were eligible for SDS were either without any previous medical problems or had one or two comorbidities that were well controlled. Patients who desired admission because of social considerations were always admitted.

All patients received local anesthesia with 0.5% bupivacaine (Marcaine) with epinephrine 1:200,000 before skin closure. Once the patient was awake and alert in the postanesthesia care unit, they received an oral cyclooxygenase-2-specific inhibitor such as celecoxib (Celebrex) 400 mg. We continued to use these agents in the short-term perioperative period despite recent concerns about cardiac toxicity, because the reported adverse events have been limited to very-high-dose use for very long periods (18 months).⁴ Ice was placed at the surgical site intermittently for 24 hours.

The criteria for discharge from the recovery room included stable vital signs, pain well controlled with oral medication, and no evidence of surgical bleeding. Patients were given detailed postoperative care instructions (including when to remove the dressing, what complications could occur, how to reach us, and feeding instructions for buccal mucosal patients) and any questions were answered. Patients received Foley leg bag training by the nursing staff before discharge. All patients were sent home with a prescription for oral narcotic medications (acetaminophen with hydrocodone [Vicodin]). Antibiotic prophylaxis (Macrodonatin [Macrobid] 100 mg twice daily) was given until 3 days after the catheter was removed. Patients were able to reach one of our team by telephone when needed although they seldom needed to call. Voiding cystourethrography and catheter removal was scheduled 3 days to 2 weeks postoperatively, depending on the type of urethroplasty. Patients were discharged to their homes, except for 1 patient from out of state who stayed at a nearby hotel for 1 night.

Patients were followed up closely after surgery for recurrence, as has been previously described.² Urinary symptoms were reviewed and uroflow rates and postvoid residual urine volumes were measured 3, 6, 9, 12, and 24 months after surgery.³ Patients underwent retrograde urethrography if obstructive voiding signs or symptoms were seen.

RESULTS

Patients who were admitted were similar in characteristics to those who underwent SDS (Table 1). The stricture location was 80% bulbar, 7% penile, and 13% bulbomembranous. Overall, 37 (69%) of the 54 patients were discharged home the day of surgery. This percentage increased over time with the increasing comfort level of the surgeon. Patients undergoing buccal mucosal grafts and anas-

TABLE 1. Patient characteristics for same-day surgery versus hospital admission

Characteristic	Same-Day Surgery	Admitted
Mean age (yr)	42 (18–75)	49 (24–78)
Stricture length (cm)	2.3 (0.5–7)	2.2 (0.5–5)
Previous instrumentation (%)	78	76

Data in parentheses are ranges.

tomotic urethroplasty had similar SDS discharge rates (14 [70%] of 20 and 23 [68%] of 34, respectively). During the first 17 months of the study, 27% of the patients were discharged home the day of surgery, with an average hospital length of stay of 0.85 day. During the following 32 months, we realized that nearly all patients could be discharged home the day of surgery, and 85% of the patients were sent home, with an average length of stay of 0.3 day. Only 1 patient was unexpectedly admitted after undergoing an otherwise uneventful buccal mucosal onlay graft repair. The patient developed acute respiratory distress after extubation in the recovery room that required reintubation and admission to the intensive care unit. The patient was treated for aspiration pneumonia and urosepsis, which developed despite oral antibiotics for the 3 days before the procedure and intravenous ampicillin/gentamicin on the morning of surgery. The rest of his hospital course was unremarkable, and he was discharged home on postoperative day 7. He was stricture free at the last follow-up visit.

Early complications in the SDS group were mild and occurred in 2 (5%) of 37 patients, including one small wound dehiscence and one mild scrotal hematoma. An unplanned admission occurred in 1 patient with urosepsis, as described above. No readmissions or emergency room visits occurred in either group.

Late complications occurred in 7 (19%) of the 37 patients in the SDS group and included 2 patients with urinary tract infection, 1 with chordee, and 4 with mild erectile dysfunction responsive to sildenafil (Viagra). Delayed complications occurred in 3 (18%) of 17 patients in the admitted group (1 with chordee and 2 with mild erectile dysfunction responsive to sildenafil).

Success was defined as the lack of a need for any postoperative instrumentation. The follow-up period ranged from 3 to 51 months (mean 27). The success rates were comparable between the two groups (Table II).

COMMENT

A recently published report suggested that urethroplasty could be safely performed with a less

TABLE II. Success rate of same-day surgery and admitted patients by procedure type

Procedure Type	Same-Day Surgery Group (%)	Admitted Group (%)
Anastomotic	22/23 (96)	10/11 (91)
Ventral buccal mucosal onlay graft	14/14 (100)	6/6 (100)
All	36/37 (97)	16/17 (94)

than 24-hour stay.³ We agree that short-stay surgery is safe for most anterior urethroplasty patients. Thus, we endeavored to study the outcomes of patients discharged within 4 hours of surgery. As our comfort level increased, we were more confident in discharging patients home the same day as their procedure, and our rate of discharge went from 31% to 85% with time. Our average length of stay was 0.9 day the first 17 months of our study and had decreased to 0.3 day in the latter 32 months. Of the patients undergoing anastomotic repairs and those undergoing buccal mucosal grafts, 31% and 0%, respectively, were discharged home on the day of surgery during the first 17 months; these percentages increased to 90% and 78%, respectively, after SDS was fully embraced at our center.

WHICH PATIENTS ARE ADMITTED?

In our series, as in the series of Lewis *et al.*,³ older patients and those with long strictures requiring extensive repair were more likely to be admitted to the hospital postoperatively. On average, patients who were admitted were older by 7 years.

Even when admitted, however, patients did not need to stay long. The average length of stay was only 1.5 days (range 1 to 7), and 93% of patients were discharged within 24 hours after surgery. Most of the patients who were not discharged had significant comorbidities, such as extreme age or illness, that prompted their planned admission to the hospital overnight.

Psychological preparation and logistical planning for discharge the same day of surgery is mandatory for the success of any SDS program.⁶ Letting the patients know they are to be discharged allows them to understand and plan for their surgical day.

OUTCOME

Our data have indicated that complications and outcome are not related to the length of hospital stay after anastomotic or buccal urethroplasty. The success rates of 97% for SDS patients and 94% for admitted patients (mean follow-up 27 months) were comparable to each other and to that seen in published reports (87% to 96%).⁶⁻⁸ Early compli-

cations were likewise similar and generally mild, except for 1 patient with urosepsis. Late complications were also similar and were limited to urinary tract infection, chordee, and mild erectile dysfunction.

The follow-up period in our study averaged 2 years and should be adequate to determine any major differences between the two groups. Overall, patient satisfaction remained high in the SDS and admitted groups, and no complications were attributable to early discharge.

MINIMAL IMPACT SURGERY

A modern trend toward what has been called "minimal impact surgery" has helped to create a surgical experience from which the patient can more easily recover. This greatly facilitates their discharge home. Newer inhalation anesthetic agents such as desflurane (Suprane) and injectable agents such as propofol (Diprivan) allow quicker recovery from anesthesia.⁹ Aggressive intraoperative maintenance of normothermia, adequate intravenous hydration, and newer, more effective, antiemetics have further decreased the anesthetic impact on the patient.^{9,10} Our use of a long-acting local anesthetic (bupivacaine) into the surgical wound before closure has allowed nearly painless awakening for most patients. Early use of oral cyclooxygenase-2-specific inhibitors has decreased perioperative pain¹¹ and has been shown to improve long-term recovery in some nonurologic procedures.¹² Ice packs on the surgical wound for the first 24 hours adds further to patient comfort.^{13,14} Such a commitment toward multimodal pain control has been shown to greatly facilitate patient comfort.⁹ A significant percentage of our patients (20%) reported that they did not even need to fill their prescription for narcotic pain medications after the surgery.

Another aspect of minimal impact surgery is shortening the operating time as much as is practical. We seldom require longer than 2 hours to complete an anastomotic urethroplasty or 3 hours to complete a buccal mucosal graft onlay. This results in less anesthetic use, less blood loss, and less potential for operation-induced local and systemic inflammation injury, and thus a quicker recovery.

COSTS

Several studies have shown that outpatient urologic surgery costs 40% to 60% less than the same procedure performed on inpatients.¹⁵⁻¹⁷ The cost of a hospital bed per night at our institution is approximately \$2000, so patients sent home the same day of surgery can see a savings compared with patients who require an inpatient stay. Additional savings are anticipated by the decreased use of expensive hospital goods and medications during admittance. Finally, safe SDS urethroplasty means

that selected cases can be performed in an outpatient surgery center with its attendant benefits in terms of surgeon/patient convenience and cost control.

CONCLUSIONS

Anterior urethroplasties performed as a same day procedure appear to be safe and well tolerated, without compromising functional outcomes. Successful same day urethroplasty further minimizes the impact of surgery on the patient and makes it even more comparable to less-invasive (but less efficacious)¹⁸ therapies such as direct vision internal urethrotomy. We believe with appropriate preoperative counseling, patient selection, expedient surgery, and excellent postoperative analgesia, most patients undergoing urethroplasty can be safely and comfortably discharged the day of surgery.

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