

Patient Selection and Counseling for Urinary Diversion



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KEYWORDS

- Urinary diversion • Ileal conduit • Continent urinary diversion • Orthotopic neobladder
- Continent cutaneous diversion • Patient selection • Preop counseling

KEY POINTS

- Incontinent diversions should be offered to all patients and recommended for those with comorbidities precluding a continent diversion and inability or unwillingness to perform self-catheterization.
- Patients should be counseled regarding the impact of a urostomy and should have access to a skilled ostomy care team.
- Orthotopic neobladder should be offered to all patients without an absolute contraindication due to preserved body image and potential for volitional voiding.
- Continent cutaneous diversion is a good option for patients who are not candidates for orthotopic diversions but desire a continent diversion and preservation of body image.
- Patient selection for continent cutaneous diversion is critical because failure to perform regular self-catheterization may result in life-threatening complications.

INTRODUCTION

Modern urinary diversions (UD) are globally categorized as either “incontinent” or “continent.” The most commonly performed incontinent diversions use the distal ileum or the colon for the conduit. Cutaneous ureterostomies and pyelocutaneous stomas are less commonly used and are typically reserved for the pediatric and young adult population or for rare clinical scenarios in adults. Advantages of conduits include the relative ease of surgical technique, shorter operative times, and the elimination of the need for self-catheterization because of the passive nature of drainage.¹ However, the presence of a stoma and external appliance can be cosmetically unappealing and negatively affect body image.^{1,2}

Continent diversions (CDs) can be further subdivided into orthotopic and nonorthotopic reservoirs. Orthotopic diversions (OD) use detubularized bowel to construct a reservoir, which is attached to the proximal urethral stump. Le Duc and colleagues³ described the first OD in a male patient in 1979; however, the first female OD was not performed until the 1990s.⁴ The advantage of the orthotopic neobladder (ONB) is its cosmetic, anatomic, and functional resemblance to the native bladder. Some experts advocate OD as the gold-standard therapy for all appropriately selected patients.⁴

Nonorthotopic reservoirs are continent cutaneous urinary diversions that were developed in the early twentieth century and initially varied greatly in terms of technique and bowel segment

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used.^{4,5} Most were associated with high complication rates, preventing widespread adoption.⁴ Over time, several reliable techniques were developed making continent cutaneous diversion (CCD) more common.^{4,6–10} CCD precludes the need for an external appliance, making it more cosmetically acceptable. However, CCD remains technically challenging and requires a mastery of several different surgical techniques and comfort with bowel anatomy.⁴ Also, despite recent improvements, CCDs remain associated with the highest complication rates of all UD and are therefore not widely used.

Given the diversity of available options for UD, the surgeon must decide which to perform based on the clinical scenario, patient-related factors, and impact on patient quality of life (QoL). As such, patient selection and preoperative counseling are critical aspects of diversion selection.

INDICATIONS FOR URINARY DIVERSION

Indications for diversion involve clinical scenarios in which the native bladder poses a serious threat to a patient's long-term survival or QoL. Most broadly, these indications can be categorized as malignant or benign. Overall, the most common indication for undergoing UD is high-grade muscle-invasive bladder cancer requiring radical cystectomy.

Malignant

Cystectomy with UD is the gold-standard treatment for patients with muscle invasive urothelial cell carcinoma of the bladder or nonmuscle invasive cancer with poor prognostic features. Less commonly, urothelial cell carcinoma of the urethra may be an indication for cystectomy with urethrectomy and UD. Other nongenitourinary malignancies such as locally invasive colorectal or gynecologic cancers may necessitate pelvic exenteration and also require diversion of the urine following cystectomy.

Benign

Benign indications for UD encompass a more diverse set of conditions in which first-line treatments typically involve conservative nonsurgical management. Surgical diversion is reserved for situations in which less invasive medical management has failed. Indications for surgical intervention include preservation of renal function, intractable gross hematuria, recurrent severe infections, medically refractory urinary incontinence, elimination of the need for a permanent indwelling catheter, and rarely, chronic pelvic pain.

INCONTINENT URINARY DIVERSIONS

Conduit Diversion

Procedure

Conduit diversions are constructed using a short segment of bowel that passively diverts urine from the upper urinary tract through the abdominal wall where the urine drains into an external urostomy appliance. Conduits are most often made from the distal ileum and less commonly from colon. Historically, jejunum and stomach were used for creation of a conduit; however, these were found to be associated with unacceptable metabolic derangement, risk of secondary malignancies, and other complications, and their utilization was largely abandoned. Typically, the terminal 10 to 15 cm of ileum are spared to prevent malabsorption of vitamin B12, fat-soluble vitamins, and bile salts.

Patient selection

Ileal conduit (IC) is the gold standard of incontinent diversions and is the default for patients who are not candidates for a continent diversion (CD).^{2,4} ICs are the most commonly performed UD because of the familiar anatomy and relatively straightforward surgical technique.^{1,2} These advantages translate into lower complication rates and operative times.^{1,2,4} Conduits demand less rigorous, long-term care than CDs and are associated with lower rates of metabolic derangements.¹¹

Patients who are not candidates for a CD typically default to an IC. ICs eliminate the need for self-catheterization, which make them the preferred option for patients with physical or mental impairment, poor dexterity, advanced age, or poor motivation, or those who are unwilling to perform clean intermittent self-catheterization (CISC).² In addition, it is the preferred diversion in the setting of severe renal or hepatic dysfunction. There are multiple relative contraindications to CDs that do not preclude construction of an IC (**Table 1**).

Table 1
Absolute and relative contraindications to continent urinary diversions

Absolute Contraindications	Relative Contraindications
Renal insufficiency	Advanced age
Hepatic insufficiency	Multiple comorbidities
Inability to independently perform CISC	Prior pelvic radiation
Unwillingness to perform CISC	Inflammatory or malignant bowel disease
	Need for adjuvant chemotherapy

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