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## Indications

- Neurogenic bladder with noncompliance with catheterization regimen
- Deterioration of renal function with a continent urinary diversion
- Patients' desire to have urinary diversion that does not require catheterization
- Prior bladder perforation because of trauma or noncompliance

## Essential Steps

1. Low midline incision.
2. Mobilize peritoneum off of the bladder anteriorly and laterally.
3. Identify the ileocecal valve and measure 15 cm proximal to the ileocecal valve.
4. Identify a section of ileum (no closer than 15 cm to the ileocecal valve) that is mobile enough to reach the bladder.
5. Isolate 15–20 cm of ileum with GIA stapler out of this mobile section of intestine.
6. Reanastomose the intestine in a standard side-to-side fashion stapled anastomosis.
7. Close the mesenteric defect.
8. Excise the staple line off the isolated portion of ileum and irrigate the intestine with saline.
9. An inverted U incision is made on the anterior superior portion of the bladder to accommodate the spatulated intestine.
10. Anastomose the ilium to the bladder with interrupted Vicryl suture.
11. Reinforce the anastomosis of the ilium to the bladder with interrupted Vicryl sutures through the detrusor and the serosa of the bowel.
12. Place a large Foley through the ileum and into the bladder and inflate the bladder with sterile water (ensure that the balloon is in the bladder and not in the ileum).
13. Identify an area on the abdomen appropriate for the stoma (ideally marked by enterostomal nurses prior to the beginning of surgery).
14. Bring the distal end of the bowel up through the skin and mature the stoma in a brooked fashion.
15. Irrigate the peritoneum with copious amounts of sterile saline.
16. Close the abdomen in standard fashion.
17. Place enterostomal appliance on the urinary stoma with Foley in the stoma bag.
18. A urethra foley or suprapubic tube should be left in place as a secondary mode of drainage during healing to keep the bladder empty.

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## Note These Variations

- Colon can be utilized for the urinary conduit if deemed appropriate
- The length of bowel necessary for the conduit varies based on the patient's body habitus and body wall thickness
- Urinary conduit can be performed with a minimally invasive technique, typically robotic assisted. Port placement is as follows: 12-mm camera port at the umbilicus, 8-mm robotic ports placed 8–10 cm lateral in a line across the abdomen and an additional 8-mm port in the right lower quadrant, 1–2 cm superior and medial to the anterior superior iliac spine. A 12-mm assistant port is also typically necessary in the left upper quadrant for retraction and stapler use

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## Complications

- Injury to the surrounding structures (bowel or vasculature)
- Stomal stenosis
- Stomal prolapse
- Poor drainage of urine from the incontinent stoma

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## Template Operative Dictation

**Preoperative Diagnosis** Neurogenic bladder

**Postoperative Diagnosis** Same

**Procedure** *Ileovesicostomy/Colovesicostomy*, and reanastomosis of bowel

**Indications** This is a/an \_\_\_\_-year-old *male/female* with *myelomeningocele/anorectal malformation/neurogenic bladder* whose bladder has been managed with clean intermittent catheterization but because of *poor compliance with catheterization program and renal insufficiency/prior bladder perforation/patient preference*, we discussed options and the patient and family have opted for an incontinent urinary diversion. After

discussion of the surgical options, risks, benefits, and alternatives of ileovesicostomy procedure, the family agreed to proceed with surgery.

**Procedure in Detail** After informed consent was attained, the patient was brought to the operating room and placed on the operating room table in the supine position. General endotracheal anesthesia was induced and all of the patient's pressure points were padded appropriately. An operative time out was performed to confirm patient identification and procedure to be performed. The patient was prepped and draped in the normal sterile fashion with chlorhexidine. A Foley catheter was placed in the bladder per the urethra on the sterile field and the balloon inflated with sterile water.

A low midline incision was made extending from just inferior to the umbilicus down to the pubic symphysis. Dissection was carried down to the level of the fascia and the abdomen was entered in the midline distally, paying special attention to split the rectus muscle in the midline. Upon entering the space of Retzius, the peritoneum was carefully dissected off the anterior and lateral portions of the bladder, freeing the bladder from its peritoneal attachments. With the bladder adequately freed, the peritoneum was then entered and a *Bookwalter/Denis-Browne* retractor was placed in the incision and we identified the terminal ileum and cecum.

### [Choose One:]

***Ileovesicostomy:*** A 20-cm portion of ileum that was freely mobile was identified and we measured to ensure that it was greater than 15 cm proximal to the ileocecal valve. A robust vascular arcade was clearly visualized supplying this portion of the ileum so the mesentery was carefully dissected off the bowel, and the LigaSure™ was used to isolate the section of ileum. A GIA 60 stapler was used to transect the ileum. The ileum was then reanastomosed in the standard side-to-side fashion using a stapler technique. The two staple lines were then excised off the isolated piece of ileum. The bowel was then irrigated out clear with an asepto syringe.

**Colovesicostomy:** The redundant sigmoid colon was identified and a 20-cm section of colon with a generous vascular pedicle was marked out with silk stay sutures to mark the proximal and distal margins of the bowel resection. A robust vascular arcade was clearly visualized supplying this portion of the colon so the mesentery was carefully dissected off the bowel, and the LigaSure™ was used to isolate the section of colon. A GIA 60 stapler was used to transect the colon. The colon was then reanastomosed in the standard side to side fashion using a stapler technique. The two staple lines were then excised off the isolated piece of colon. The bowel was then irrigated out clear with an asepto syringe.

The bladder was then opened using an inverted U shaped incision at the anterior superior portion of the bladder using electrocautery. The bladder was opened and the Foley catheter was visualized in the urethra. The opening was widely patent and the proximal portion of the bowel was then anastomosed to the bladder, starting with the posterior portion of the anastomosis. This was performed with interrupted, absorbable sutures and once the bowel was anastomosed circumferentially, reinforcing sutures were placed as a second layer through the serosa of the bowel to the detrusor muscle circumferentially. A large bore Foley (22 Fr) was passed through the conduit to ensure that the anastomosis was widely patent where it communicated with the bladder.

The previously marked stoma site on the abdomen was then identified and a circumferential skin incision was made by grabbing the skin with a Kocher clamp and we dissected out the fat down to the level of the fascia. A cruciate incision was made in the fascia and stretched the fascial opening to accommodate the conduit. The distal end of the bowel was then brought up through the fascia and the stoma was created and brooked in the standard fashion. A large bore Foley (22 Fr – 24 Fr) was placed through the conduit and into the bladder. The balloon was filled and we ensured that the balloon was all the way in the bladder by feeling the balloon manually before closing the abdomen.

The abdominal cavity was copiously irrigated with sterile saline and the retractor was removed. The fascia was closed with interrupted 0 Vicryl sutures in a figure of eight fashion. The subcutaneous tissue closed with 4-0 Vicryl and the skin closed with 5-0 Monocryl subcuticular stitch. Steri-Strips were placed on the incision and Telfa, and Medi-pore tapes were placed on the incision as a dressing. A stoma appliance was placed on the stoma with the Foley draining into the urostomy bag.

Sponge and needle counts were correct  $\times 2$  at the end of the procedure. The patient was extubated and taken to the recovery room in stable condition.