

## A Clinical Case Report on Radical Cystectomy with Urinary Diversion

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### ABSTRACT

**Background:** The conventional course of treatment for muscle-invasive cancer of the bladder is radical cystectomy. There are numerous techniques for urine diversion. Urinary diversion has changed over the past 150 years, going from cutaneous ureterostomy to the orthotopic neobladder. There have been significant improvements, particularly in the previous 20 years. They have now studied the existing strategies employed at various centers in India. They have also examined how the orthotopic substitution at our center diverged from the conduit.

**Presentation of case:** A 42-year-old female Patient came to the tertiary care hospital with complaints of pain in the abdomen in the lower region and burning micturition, Urinary incontinence, and urinary haematuria in the last 1 year. The patient was apparently alright 1 year back when she developed pain that is insidious, and progressive. After that, all necessary investigations were carried out such as history collection, and physical examination in that abdominal pain present at the time of abdominal palpation, all blood investigations have done Hb decreased that its 9%. The patient was evaluated clinically and advised for CT urography for further management. USG AND CT urography was done to suggest a well-defined intensely enhancing lesion in the post wall of bladder Polyp with neoplasm. After that surgeon has done transurethral resection patient received chemotherapy, but myometrial filtration was not done in transurethral resection due to this surgeon performed radical cystectomy and urinary diversion procedure. During this surgery, blood was lost and blood transfusion therapy was administered. The patient received the symptomatic treatment of opioid analgesic, antibiotic antipyretic, methylprednisolone, morphine, dextromethorphan, and gentamycin. Etc. The postoperative intervention provided to the client such as strict observation of surgical side stoma, bleeding, and infection output input. The patient's general condition was stable.

**CONCLUSION** Minimally invasive surgery might make it easier to recognize blood vessels. Based on the client's condition or GI function, urinary diversion must be performed.

### INTRODUCTION

The history of urinary diversion spans almost 150 years. On a patient with exstrophy in 1852, Simon conducted the first ureteroproctostomy. Since then, the practices have improved and patient outcomes have increased. To accomplish a ureterosigmoidostomy in 1878, Smith anastomosed the ureters and sigmoid colon together directly. Gersuny's invention of the rectal bladder in 1898 came next. Bricker carried out the ileal loop-only

urinary conduit creation in the 1950s. Camey invented the first ileal neobladder in 1959, but it wasn't until the late 1980s that orthotopic diversion became widely used. The primary factor for replacement of the bladder function has been urinary bladder cancer. The conventional treatment for muscle-invasive organ-confined cancer of the urinary bladder, first made prominent by Whitmore and Marshall, entails a radical cystectomy and pelvic lymph node dissection. The number of patients who can be operated on has increased as a result of improved chemotherapy procedures. A better reservoir structure has been made possible by a better understanding of urodynamics, allowing for better storage without raising storage pressures.<sup>1</sup>

The urinary bladder is specially crafted to efficiently empty fully during the micturition phase and to offer a low-pressure reservoir for urine storage during the filling phase. It is located in the extraperitoneal space of the pelvis behind the pubis. Due to the layered structure of the bladder and its intricate neurological control, a normal bladder can fill without any involuntary contractions and can empty by having the detrusor or other muscles contract in a highly coordinated manner as the urinary sphincter(s) relax to let urine out. The most typical location for cancer in the urinary system is the bladder. The gold standard for treating localized muscle-invasive bladder cancers, as well as some instances of non-muscle-invasive tumors, involves radical cystectomies, which involve removing the entire bladder and establishing some sort of urine diversion.<sup>2</sup>

Following cystectomy, there are two types of urine diversion techniques: continental and incontinent. In continental diversions, pee is held in a reservoir made by the gut segments before being actively emptied with catheterization or volitional voiding. When urine is diverted for incontinence, it enters an intestinal segment that is connected to the skin by an ostomy and allowed to continuously drain into a collecting bag.<sup>3</sup>

The sections of the bowel that are typically used for urinary diversions include the ileum and colon, while the stomach and jejunum have also been used on occasion. The utilization of intestinal segments in the urine diversion may have an impact on metabolism. Metabolic problems are influenced by the type of intestinal segment utilized, the surface area of the bowel segment used, and the amount of time the urine spends in touch with the gut.<sup>4</sup>

#### **CASE PRESENTATION:**

A 42-year-old female Patient came to the tertiary care hospital with complaints of pain in the abdomen in the lower region and burring micturition, Urinary incontinence, and urinary haematuria in the last 1 year. The patient was apparently alright 1 year back when she developed pain that is insidious, and progressive. After that, all necessary investigations were carried out such as history collection, and physical examination in that abdominal pain present at the time of abdominal palpation, all blood investigations have done Hb decreased that its 9%. The patient was evaluated clinically and advised for CT urography for further management. USG AND CT urography was done to suggestive of a well-defined intensely enhancing lesion in the post wall of bladder Polyp with neoplasm. After that surgeon has done transurethral resection patient received chemotherapy, but myometrial filtration was not done in transurethral resection due to this surgeon performed radical cystectomy and urinary diversion procedure. During this surgery, blood was lost and blood transfusion therapy was administered. The patient received the symptomatic treatment of opioid analgesic, antibiotic antipyretic, methylprednisolone, morphine, dextromethorphan, and gentamycin. Etc. The postoperative intervention provided to a client such as strict observation of surgical side stoma, bleeding, and infection output input. The patient's general condition was stable.

#### **DISCUSSION**

The treatment of patients who require cystectomy with urine diversion involves numerous healthcare teams. Nutritionists, anesthesia and pain management teams, geriatricians, smoking cessation counselors, physical and occupational therapists, and primary care teams must all be included in the preoperative and perioperative evaluation and management as part of multidisciplinary care. Even if an orthotopic neobladder is preferred as the primary reconstructive option, a trained enterostomal therapist must evaluate every patient undergoing cystectomy before surgery. Preoperative examination of the abdomen in various postures can enable for appropriate placement of the ileal conduit stoma or catheterized channel. The intraoperative evaluation may in rare cases require conversion to either ileal conduit or continent cutaneous urine diversion. Preoperative stoma site labeling helps the surgeon situate the ostomy correctly and enables more thorough preoperative counseling with the patient and his or her family. Preoperative marking has been linked to earlier return to normal activities, improved appliance administration, decreased stoma-related problems, and autonomous ostomy care. The right lower region of the abdomen is where the stoma is most frequently located. The precise location should be chosen so that it is both within the patient's line of sight and far enough from the midline abdominal incision to allow for postoperative wound healing. Throughout the cystectomy patient's life, routine postoperative care by the surgical, enterostomal, and primary care teams is necessary.<sup>5</sup>

There are several ways that urinary reconstruction after radical cystectomy can be accomplished that use a wide variety of techniques and substrates. While some procedures have clearly shown superiority relative to others, there is little high-level evidence that compares the urinary diversions that receive widespread use in the modern era, and much of the choice of the urinary diversion that a patient receives is based on surgeon experience and

patient preference. Future advances in the short term will likely be aimed at making the diversions that we already perform less invasive and improving peri-operative care. Ultimately, the hope is that one day we can obviate the need for intestinal segments, which entail most of the morbidity of these operations and engineer bespoke autologous urinary diversions.<sup>6-16</sup>

3,946 (14.5%) and 23,224 (85.5%) patients, respectively, received incontinent and continent diversion procedures. Diversion to the continent decreased from 17.2% in 2004–2006 to 12.1% in 2010–2013 (P 0.01). In a study of high-volume institutions, those that performed 75 percent minimally invasive radical cystectomy reported fewer continent diversions (10.2 percent) than centers with a greater proportion of open approach (19.7 percent); P 0.01 was obtained. The likelihood of having continent diversion was substantially correlated with higher income, facilities located in the West, academic programs, high-volume facilities, and patients traveling more than 60 miles for care. In the majority of patient- and hospital-related subgroups, the rate of continent diversion has decreased. Those in 2010 to 2013 were more likely to be older, have more comorbidities, and undergo surgery in a high-volume academic center compared to patients in 2004 to 2006. In the US, the continent diversion rate has decreased to 12.1%. The likelihood of suffering continent diversion is strongly correlated with hospital volume and kind, patient income, travel distance for care, and location. Even in high-volume and academic centers, continent diversion is decreasing at a faster rate.<sup>17-24</sup>

We demonstrate that there has been a decrease in continent diversion use in recent years. Neoadjuvant chemotherapy, proxies of life expectancy, and gender are significant predictors of continent diversion. Further investigation to determine the underlying cause of decreased utilization of CD is warranted.<sup>9</sup> Radical cystectomy with OBS reconstruction is a challenging procedure that carries a significant risk of short- and long-term complications. The technique is gaining popularity and should be offered to patients in the absence of absolute contraindications whilst taking into account oncological and patient.<sup>25-31</sup>

factors. It is important to manage patients' expectations and ensure that they are committed and fully engaged during the postoperative period. Ileal OBS with freely refluxing ureteroileal anastomosis is most commonly performed and although many techniques exist, no one technique is considered superior. Robotic-assisted radical cystectomy is gaining popularity, and although technically challenging intracorporeal OBS reconstruction is routinely performed in select centers. All patients with OBS reconstruction should have a regular long-term follow-up for oncological surveillance and to identify complications should they arise.<sup>32-40</sup>

Our weighted sample included 5,075 subjects (14.3%) who underwent continent urinary diversion and 30,295 subjects (85.7%) who underwent an ileal conduit. Independent correlates of continent diversion included younger age, male gender, having private insurance, and undergoing surgery at an urban teaching hospital. Hospitals performing continent diversions on more than 40% of their cystectomies had a yearly cystectomy volume of 0.8 surgeries. Subjects treated at high-volume hospitals trended toward lower rates of comorbid conditions. The authors identified substantial disparities in the continent diversion which, based on yearly trends, are unlikely to improve shortly. Continent reconstructions are not the exclusive domain of high-volume cystectomy centers. Yet efforts to increase rates of this complex reconstruction must concentrate on technique dissemination and better definition of the quality-of-life detriments incurred by cystectomy patients.<sup>41</sup>

## CONCLUSION

There is no ideal urinary diversion till now. Every diversion has its pros and cons. Comparing urinary diversion in their physical and mental component score, patients with ileal conduit have a statistically and clinically significant decreased mental quality of life compared with age and sex-matched population. The type of urinary diversion after radical cystectomy significantly impacts the patient's quality of life. Though the neobladder gives a good body image and sense of voiding preservation, it is associated with nocturnal incontinence in up to 40% and with intermittent clean catheterization required to empty the bladder in up to 15%. This diversion cannot be used in 100% of patients as its prerequisite is a cancer-free cut urethral margin on the frozen section. Therefore, we not only require refinement of the existing technology but also require further innovations so that the patient can have the experience of close to normal voiding.

**COMPETING INTERESTS:** The author declared there is no competing interests exist.

**FINANCIAL RESOURCE OF THE STUDY:** Self

**CONSENT:** Patients written consent had been taken.

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