Robotic Radical Cystectomy

INTRODUCTION

Radical cystectomy is the treatment of choice for muscle invasive bladder cancer. Ileal conduit remains one of the most commonly performed urinary diversions. It is important to discuss this operation in detail with the patient, as this is a major surgery, an irreversible & life changing decision. Dr Manav Suryavanshi has made an effort to discuss all the benefits & side effects in detail.

Patients who get a recurrence of bladder cancer post radiotherapy need to undergo a Salvage cystectomy.

In younger patients, who are educated, motivated & dexterous a discussion of continent orthotopic diversions must be initiated by the patient with Dr Manav Suryavanshi who specializes in various techniques of neobladders.

The presence of a stoma may have difficulties for certain religions and must be discussed by the patients with us at Urofort Cancer Care.

Indications for Radical Cystectomy

• Post BCG failure Carcinoma in situ of bladder.
• Technically unresectable tumors like multiple papillary tumors of bladder uncontrolled by endoscopic means (Ta, T1) or growths on anterior wall of bladder.
• Muscle Invasive transitional cell carcinoma(TCC) of bladder (T2, T3).
• Bladder TCC invading the prostate (T4a).
• Squamous cell carcinoma of the bladder.
• Sarcoma of the bladder.

This is a major procedure and the patient must be assessed for fitness, independent of age.

PRE-OPERATIVE PREPARATION

Staging

An CECT Urogram with reconstructed images is necessary to exclude any other lesions of TCC in ureters or renal pelvis.

Various tests need to be carried out to stage the tumor and exclude metastatic disease.

Tests to stage the tumor and exclude metastatic disease
Imaging

• Chest radiograph

• Computerized tomography (CT) of pelvis and abdomen with reconstructed images.

Blood tests

• Complete Blood Count

• Urea, Creatinine, Sodium and Potassium

• Liver function tests

Others

• ECG

• Echocardiography (where indicated by significant cardiac disease)

• Bone scan - highest-risk patients, elevated alkaline phosphatase or new-onset bone pain.

• A Chest CT scan should be obtained routinely in patients with muscle-invasive disease or N+ disease in whom the risk of visceral metastasis is greatest.

• MRI abdomen & pelvis with reconstructed images - patients with an allergy to iodinated contrast or to resolve questions about an equivocal bone scan.

• Positron emission tomography (PET) in combination with CT is used increasingly in oncology. Although there is as yet no defined role for routine staging of nodal or visceral metastases in invasive bladder cancer, PET/CT can be particularly helpful in discerning nodal or visceral metastatic disease when these findings will determine the use of chemotherapy or surgery (Kibel et al, 2009).


Blood Grouping & Cross Match

4 units of packed cells

Theatre Allocation

We book an operating time of 6 hours. The procedure can take anywhere from 4-6 hours

Consent

Radical cystectomy implies pelvic lymphadenectomy of the iliac and obturator nodes and in addition:

• In the male, the bladder is removed en bloc, with the pelvic peritoneum, ureteric remnants, prostate and seminal vesicles and a small part of membranous urethra.
• In the female, the uterus, ovaries, fallopian tubes, vaginal vault and urethra are removed.

The surgical procedure to be performed is discussed in full by Dr Manav with the patient. It must be noted that sexual function is usually lost in both sexes.

Admission

The patient is admitted into the ward one day prior to surgery and started on a low residue diet. The stoma nurse discusses the practical aspects of the stoma and shows the patient the fitting of the appliance. The patient is shown how to change & manage the stoma and, after discussion, the site for the stoma is chosen below the belt line, paying particular attention to skin folds and avoiding previous scars. This site is marked with an indelible skin pencil.

On the day prior to surgery, the patient is only allowed clear fluids to drink in the evening. Low molecular weight Heparin is given subcutaneously on the day before surgery and until the patient is mobilized and compression (TED) stockings applied.

Peglac sachet mixed in 2 litres of water is given to the patient. Drink it over 2 hours from 4-6 p.m. in the evening. This will induce diarrhea that may last through the night. This is normal & induced to clean your bowel before surgery next day. Patient is given intravenous fluid overnight to prevent dehydration & dyselectrolemia. S. Electrolytes may be checked on the morning of surgery to identify hypokalemia.

Anesthesia

The procedure is done under G.A. Epidural analgesia is beneficial for pain managements in postoperative period and may be mandatory if the patient has pulmonary disease. It may at times delay the recovery of bowel function in postoperative period. Anesthetists insert a central venous pressure line and, where the patient is unfit, an arterial line.

Physiotherapy

Our physiotherapist instructs the patient on breathing and leg exercises. These form a vital part of postoperative management of the patient as pulmonary complications in postoperative period can have serious consequences.

Patient Position

The patient is placed in Steep Trendelenburg position. A small sheet behind the lumbar spine aids vision within the pelvis.

Surgery

Antibiotics are given intravenously soon after anesthetic induction. The patient is catheterized with a 16 French Foley catheter. Betadiene skin preparation is done to prevent wound infections. Patient is draped exposing the abdomen from xiphisternum to pelvis.
Port Placement

Standard 6 ports are placed. 4 robotic ports (1-12mm & 3-8mm) & 2 assistant ports (1-12mm & 1-5mm/12mm).

Surgical template

Radical cystectomy includes the bladder and surrounding perivesical soft tissue, prostate, and seminal vesicles in men and the ovaries, uterus/cervix, and anterior vagina in women.

In sexually active women, vaginal preservation and/or reconstruction is discussed and planned preoperatively. Recent reports challenge the dogma of removal of the internal female organs because involvement of the uterus, cervix, and ovaries is uncommon (Chang et al, 2002). Preservation of the vagina and uterus provides better support for a neobladder and the pelvic floor when the extent of the cancer or the age and general health status of the patient does not warrant anterior pelvic exenteration (Ali-El-Dein et al, 2002). Involvement of the urethra or bladder neck is an absolute contraindication to sparing the urethra in women, and a posterior-based invasive cancer is a relative contraindication.

The lymph nodes are dissected, taking all tissue medial to the genitofemoral nerve off the iliopectineus muscle and the external iliac vessels, including the fat pad at the inguinal ligament.

The lymph node (Cloquet’s node) at the femoral canal is also removed. The obturator nodes are removed and they lie between the external and internal iliac vessels. We also remove the common iliac lymph nodal packet going up to aortic bifurcation to complete the extended lymphadenectomy template.

**Lymph node (LN) metastasis** is found in 20% to 25% of patients who undergo radical cystectomy (RC) and pelvic lymphadenectomy for bladder cancer, and it is the most important prognostic factor in these patients, predicting significantly decreased recurrence-free survival and overall survival compared with that for patients without nodal metastases (Lerner et al, 1993; Poulsen et al, 1998; Stein et al, 2001).

**The anatomic extent and completeness of the node dissection deserve the most emphasis.** Small volume nodal disease is compatible with long-term survival, especially when the primary bladder cancer is organ confined.

Ileal Conduit

The terminal ileum is then identified (Figure 3) and a portion of ileum is isolated, avoiding the terminal 30 cm of terminal ileum, which is where bowel salts are reabsorbed. 15-20 cm of harvested ileal segment is used to create the ileal conduit. The ureters are joined with the harvested ileal segment so that urine flows into the conduit & out through matured ileostomy which is brought out on the premarked spot on the abdomen usually on the right side.

Usually a small incision 7-8 cm is made in the midline to bring out the bowel segment & create
the ileal conduit outside the body, which is then placed inside the body. Dr Manav Suryavanshi has also performed complete Intracorporeal reconstruction of the ileal conduit (i.e. creation of the ileal conduit inside the body through the robot) & was the first person to perform this operation with Dr Alex Mottrie in 2010 in Medanta – The Medicity. This was the first of its kind of surgery in India. Complete Intracorporeal reconstruction helps to provide the patient with a smaller & more cosmetic Pfannensteil (below the belt) incision.

However the creation of intra or extracorporeal ileal conduit is best left to the intraoperative decision making of the surgeon concerned as it depends on multiple factors like patient body habitus, surgical duration & anesthesia issues etc.

- Dr Manav Suryavanshi has also presented videos on Robotics in Urology at various National & Zonal forums.

1. Robotic Radical Cystectomy- Unfolded – USICON, Jan 2012, Bengaluru

The video links to these state of the art robotic surgeries, which provide minimally invasive benefits to the patient, are provided in our video section for you to see & get to know more about your surgery. You can also take access to our video channel for more details. Our video on Robotic Partial Nephrectomy – The Way 2 Go! has been awarded First Prize in Agra Urology Best Video Prize section in North Zone Urology Society of India held at Shimla, in 2011.

**Fashioning of the stoma**

A circular area of skin is excised at the premarked site for ileal conduit stoma. A tract is then fashioned through the muscle layers (preferably through rectus abdominis to avoid parastomal hernias), into the abdomen and the distal end of the conduit is brought out to the surface & everted onto the skin to create a spout.

**The finished conduit, with a good spout and a good blood supply**

**Drains & Tubes at the end of the procedure**
A nasogastric tube is placed to keep the bowel at rest & decompressed for initial 48 – 72 hours as patient undergoes bowel resection & anastomosis. A 28/30 Fr. drain is kept next to the bowel anastomosis. Another drain 24/26 Fr. may be kept in the pelvis. Two splints are placed, one in each ureter, which would come out into the stoma bag. A Foleys catheter is kept across the ileal stoma till the edema settles down. Another Foleys catheter would be placed in the pelvis through the urethra to act as the pelvic drain.

These drains act as safety valves & are important for early recovery & preventing complications in a patient, so one should not be apprehensive seeing the drains. Most of the tubes are removed by 5-7 days & the patient goes back home without the tubes.

**Postoperative Care**

We at Urofort Cancer Care follow a radical cystectomy care pathway. The nasogastric tube is removed when patient passes flatus. Parenteral nutrition is commenced from the first day after RRC for 4–5 days. The patient is then gradually moved from semisolid soft diets to solid foods. The drains are normally removed after 3 – 4 days, when the drainage is <100 ml. On the eighth day the ureteric stents are removed. Patient activity is encouraged as soon as possible, with most patients ambulating on the first postoperative day. Patients are discharged once they are fully ambulant and tolerate oral nutrition. Complete blood count (CBC), Serum Creatinine and electrolytes are measured before hospital discharge.

**SPECIFIC COMPLICATIONS**

Apart from any general complications, occurring with any major surgery, specific complications associated with the procedure are as follows:

**Complications associated with the procedure**

**Early complications**

- Urinary leakage
- Lymphatic leakage
- Ileus

**Late complications**

- Recurrent UTI
- Parastomal hernia
- Ureteric strictures – probably ischemic
- Stomal discoloration – ischemic
- Stomal retraction
- Stomal stricture
• Acidosis
• Bilateral hydronephrosis
• Renal stone

**Stoma Care**

The creation of a stoma on surface of the abdomen is a major change in the life of the patient. However it needs to be realized that people with stomas lead active lives. The psychological impact can be dealt with by talking to our previously operated such patients & sharing their experience. Dr Suryavanshis coordinator would arrange for you to talk & if possible meet such patients who have undergone such procedures subject to their consent.

Handling a bag in the initial days can be tricky at times till the patient becomes habitual. Usually a bag would last 7 or more days. It is advisable to change a bag after 7 days for reasons of hygiene. It is advisable that a person in the family of the patient along with the patient himself should take active interest in learning application of this bag, till the patient is confident to take care of himself.

We at Urofort Cancer Care can arrange for a person to give you initial support at home for the management of this bag on your request.

**Follow up**

The patient is supposed to follow up with us after 7 days of discharge by which time the histopathology report is available. You will be given an outpatient appointment at Urofort (+91-9910103545) or at our hospital with Dr Manav by Urology Coordinator (+91-9560398967) as per your convenience 5-7 days after surgery. Based on the report the follow up & the need for any adjuvant treatment like chemotherapy is decided.

**For More Information**

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