Bladder Cancer
An Overview

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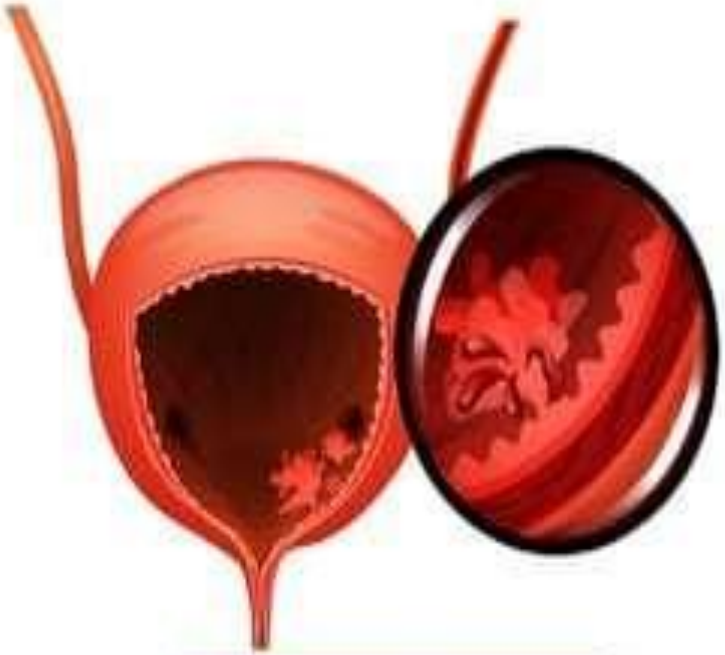
In this session.....

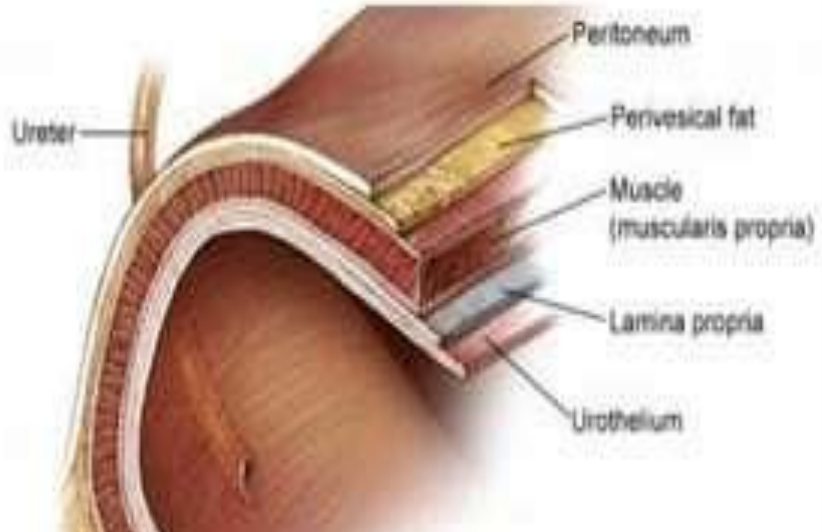


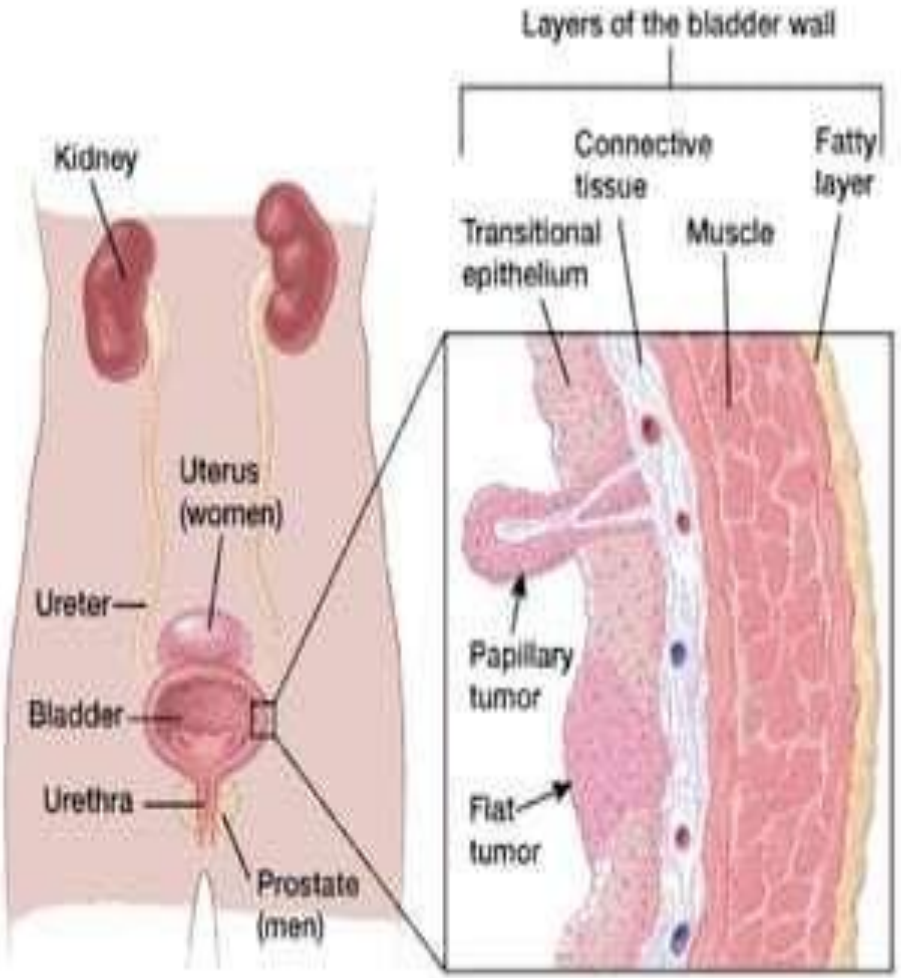
Bladder Cancer

- Bladder, Ureter, urethra
- Definition
- Epidemiology
- Types
- Risk Factors
- Clinical manifestation
- Staging
- Diagnosis
- Management - Medical & Surgical
- Nursing Management
- Prevention

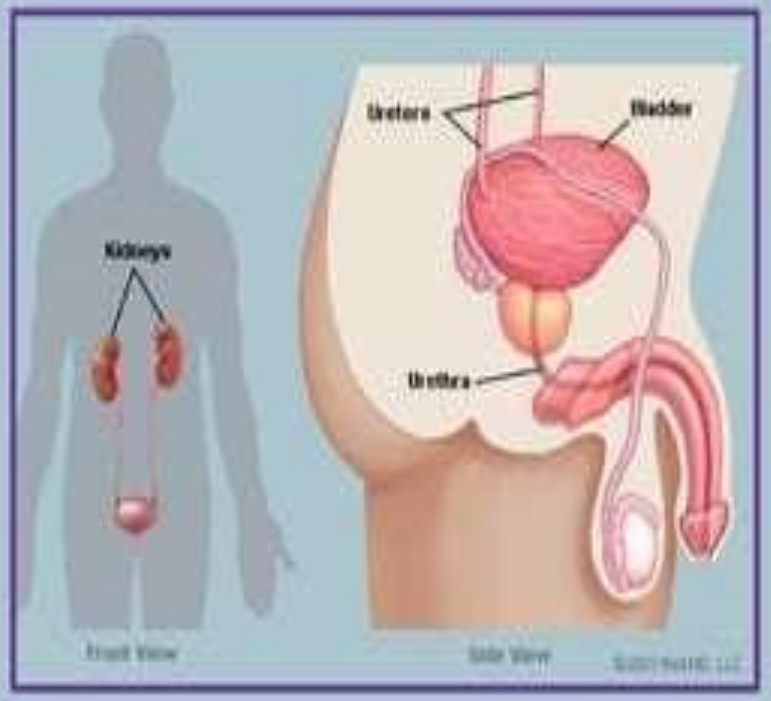
Bladder

- The bladder is a hollow organ in the lower pelvis.
- **Function** - To store urine.
- During urination, the muscles in the bladder contract, and urine is forced out of the bladder through a tube called the urethra.

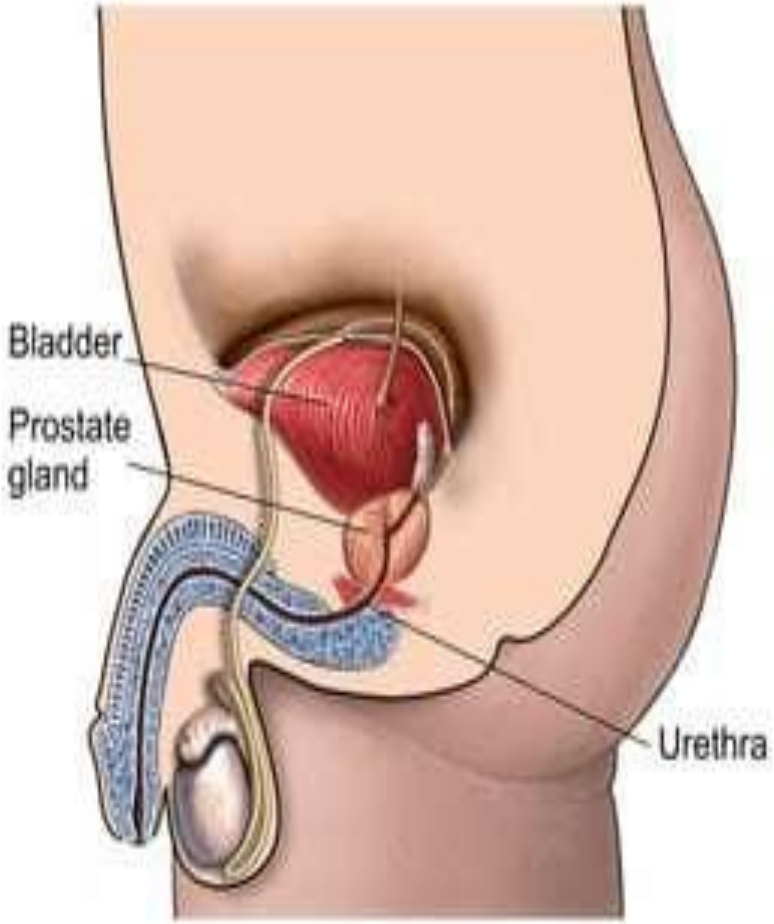


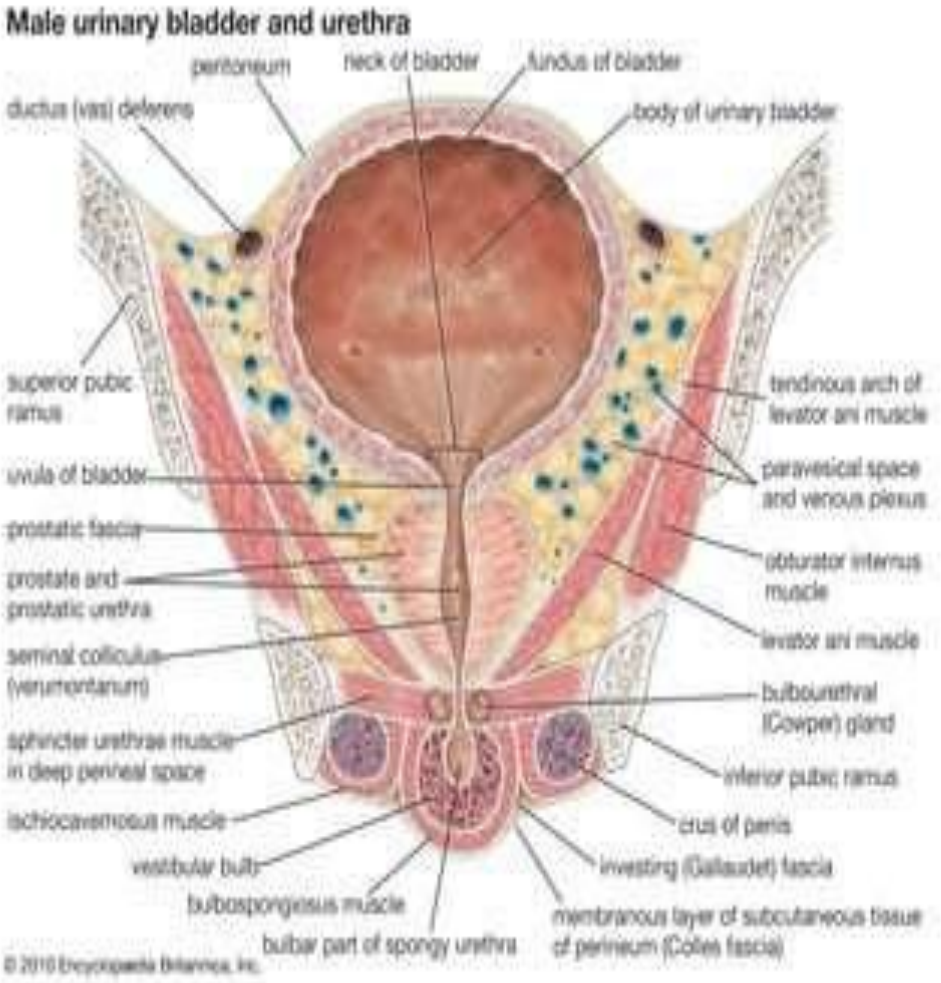

Layers of the bladder wall
Connective tissue
Fatty layer
Transitional epithelium
Muscle
Kidney
Uterus (women)
Ureter
Bladder
Urethra
Prostate (men)
Papillary tumor
Flat tumor

Male Bladder



Male Bladder




Male urinary bladder and urethra
peritoneum
neck of bladder
fundus of bladder
ductus (vas) deferens
body of urinary bladder
superior pubic ramus
tendinous arch of levator ani muscle
uvula of bladder
paravesical space and venous plexus
prostatic fascia
prostate and prostatic urethra
obturator internus muscle
levator ani muscle
seminal colliculus (verumontanum)
bulbourethral (Cowper) gland
sphincter urethrae muscle in deep perineal space
inferior pubic ramus
ischiocavernosus muscle
crus of penis
vestibular bulb
investing (Gallaudet) fascia
bulbospongiosus muscle
membranous layer of subcutaneous tissue of perineum (Colles fascia)
bulbar part of spongy urethra
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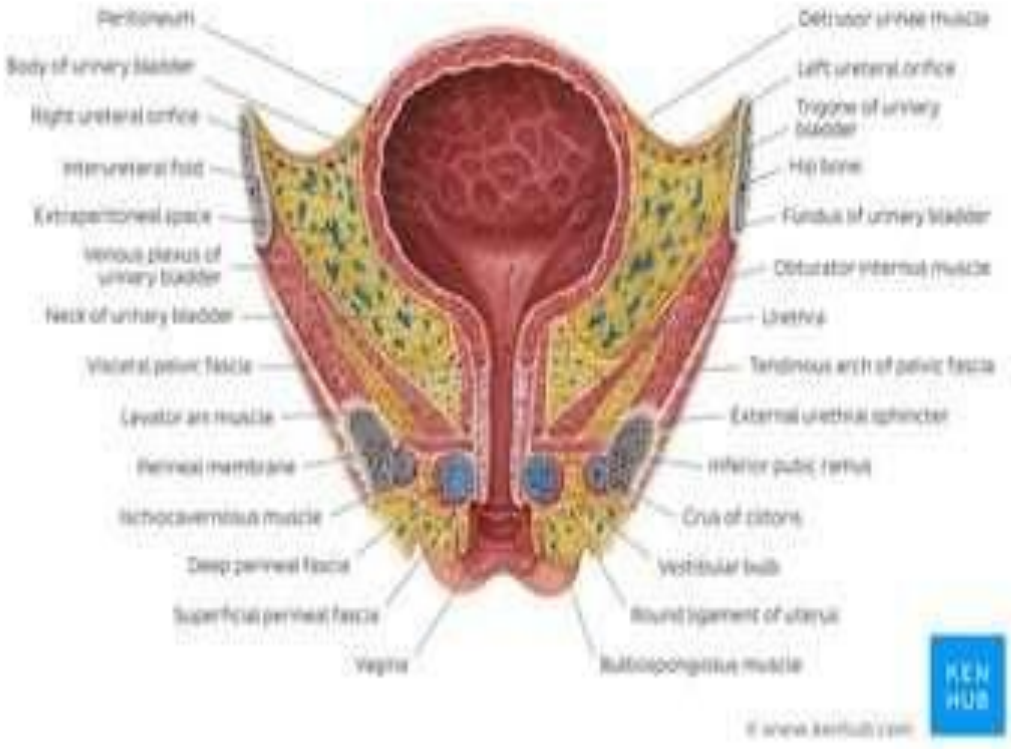
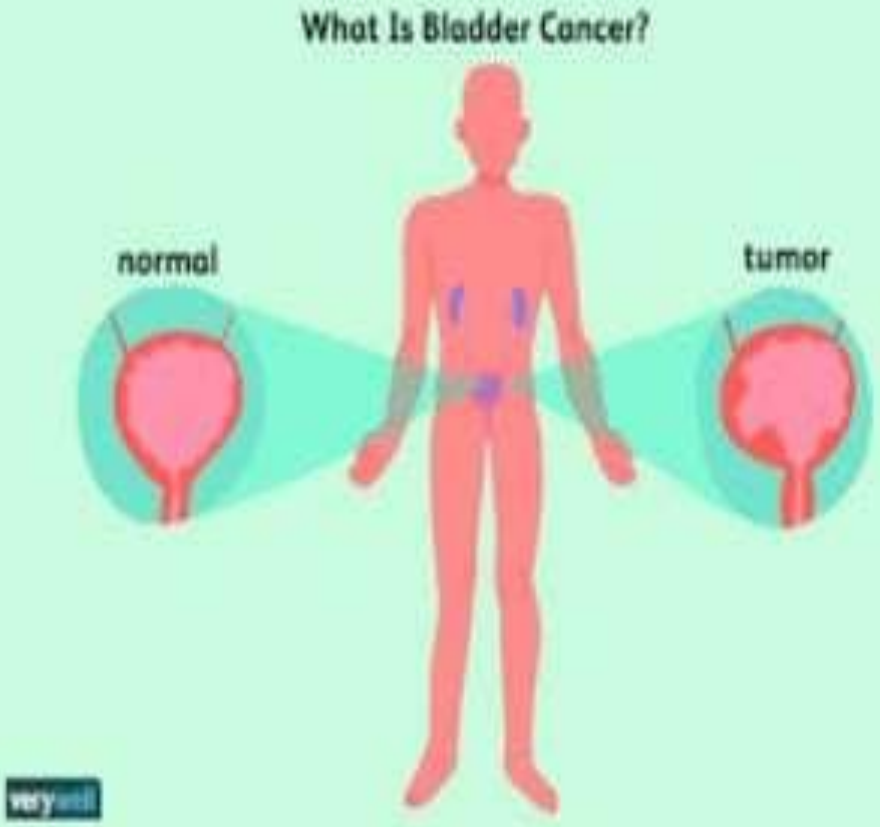
Female Bladder

Female Bladder

Female bladder




What Is Bladder Cancer?
normal
tumor
verywell

Introduction

BLADDER CANCER

- Bladder cancer is papillomatous growth in the bladder urothelium that undergo malignant changes and that may infiltrate the bladder wall
- Most common type of cancer
- Occurs in age group but mostly in elderly patient
- Men are more affected than women

Incidence

- Bladder cancer is the sixth most commonly occurring cancer in men and the 17th most commonly occurring cancer in women.
- There were almost 550,000 new cases in 2018.


6th
most commonly
occurring cancer
in men[1]


17th
most common
cancer in women
globally[1]

Types of Bladder Cancer

Urothelial carcinoma:

Adenocarcinoma:

Squamous cell carcinoma:

Urothelial carcinoma (Transitional cell carcinoma)

- TCC is **common** type of bladder cancer.
- These cancers start in the **urothelial cells** that line the inside of the bladder.
- Urothelial cells also line other parts of the **urinary tract,** such as the part of the kidney that connects to the ureter (called the renal pelvis), **the ureters, and the urethra.**

Squamous cell carcinoma

- Squamous cell are found on the surface of the skin.
- All squamous cell carcinomas of the bladder are invasive.

Sarcoma

- Sarcomas start in the muscle cells of the bladder, but they are very rare.
- These less common types of bladder cancer

Adenocarcinoma

- Only about 1% of bladder cancers are adenocarcinomas.
- These cancer cells have a lot in common with gland-forming cells of colon cancers .
- Invasive in nature.

Small cell carcinoma

- Less than 1% of bladder cancers are small-cell carcinomas.
- They start in nerve-like cells called **neuroendocrine cells.**
- Grows quickly
- It should be treated with **chemotherapy**


Risk
Factor

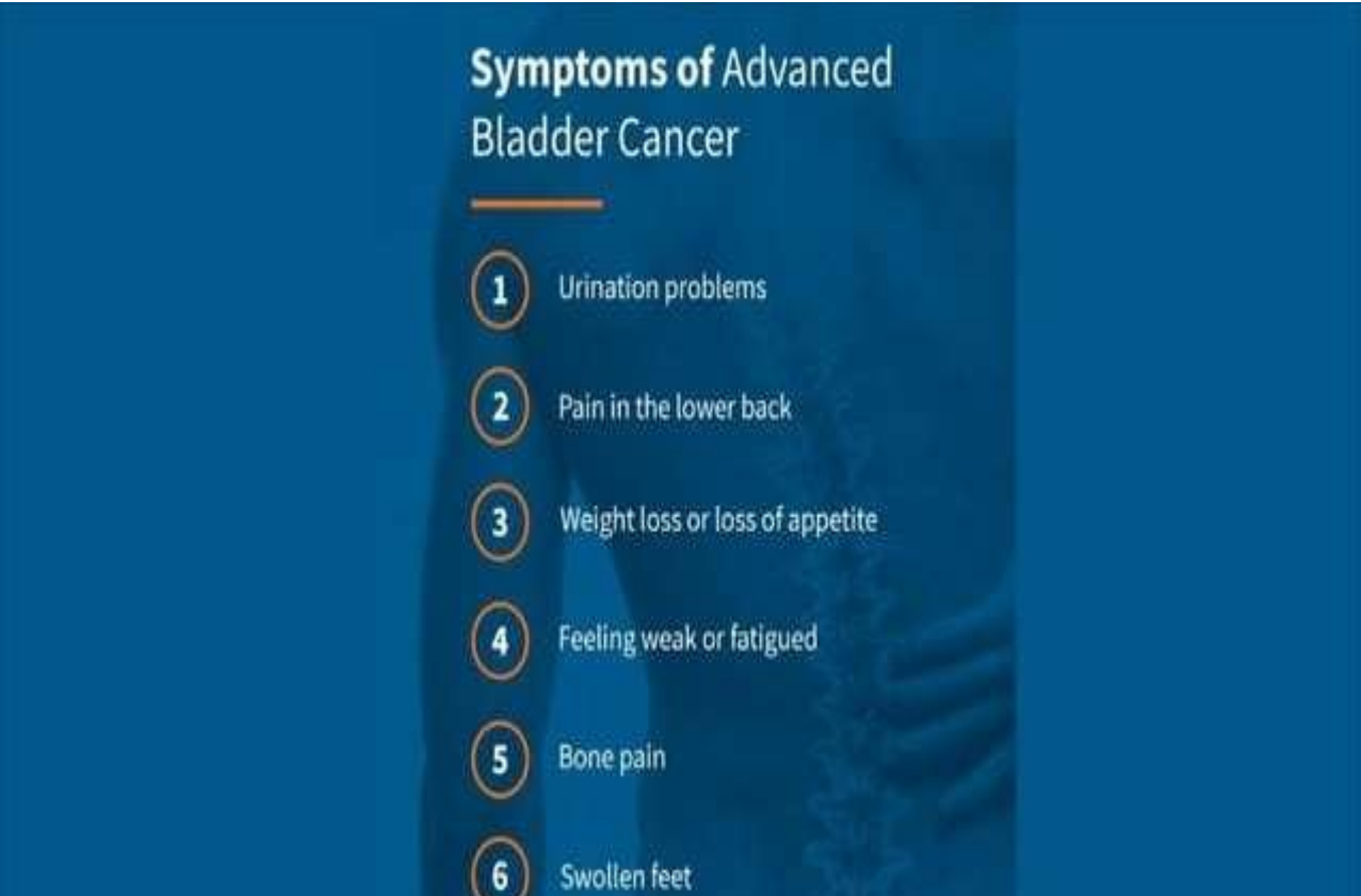
- **Tobacco use** - most common risk factor is cigarette smoking, Smokers are 4 to 7 times more likely to develop bladder cancer than nonsmokers.
- **Age** - More than 70% of people with bladder cancer are older than 65.
- **Gender** - Men are 4 times more likely to develop bladder cancer than women, but women are more likely to die from bladder cancer than men.
- **Race** - White people are more than twice as likely to be diagnosed with bladder cancer, but black people are twice as likely to die from the disease.
- **Chemicals** - used in the textile, rubber, leather, dye, paint, and print industries and naturally occuring aromatic amines can increase the risk of bladder cancer.

- **Chronic bladder problems** - Bladder stones, Recurrent UTI, chronic use of urinary catheters
- **Chemotherapy** - cyclophosphamide
- **Diabetes drug** - pioglitazone for more than 1 year may have a higher risk of developing bladder cancer.
- **Previous history of bladder cancer**
- **Schistosomiasis**- parasitic disease
- **Lynch syndrome** - hereditary nonpolyposis colorectal cancer or HNPCC
- **Arsenic exposure** - found in drinking water (well water)


CLINICAL
FINDINGS


Early Symptoms of Bladder Cancer
Blood in the Urine
Irritation or Changes in Bladder Habits

- Blood clots in the urine, Dysuria
- Frequent urination
- Feeling the need to urinate many times throughout the night
- Feeling the need to urinate, but not being able to pass urine
- Lower back pain on 1 side of the body
- Gross hematuria /microscopic hematuria
- **Metastasis**
  i. *Lungs* - cough or shortness of breath
  ii. *Liver* - abdominal pain or jaundice (yellowing of the skin and whites of the eyes)
  iii. *Bone* - bone pain or a fracture (broken bone).


Symptoms of Advanced Bladder Cancer
1 Urination problems
2 Pain in the lower back
3 Weight loss or loss of appetite
4 Feeling weak or fatigued
5 Bone pain
6 Swollen feet

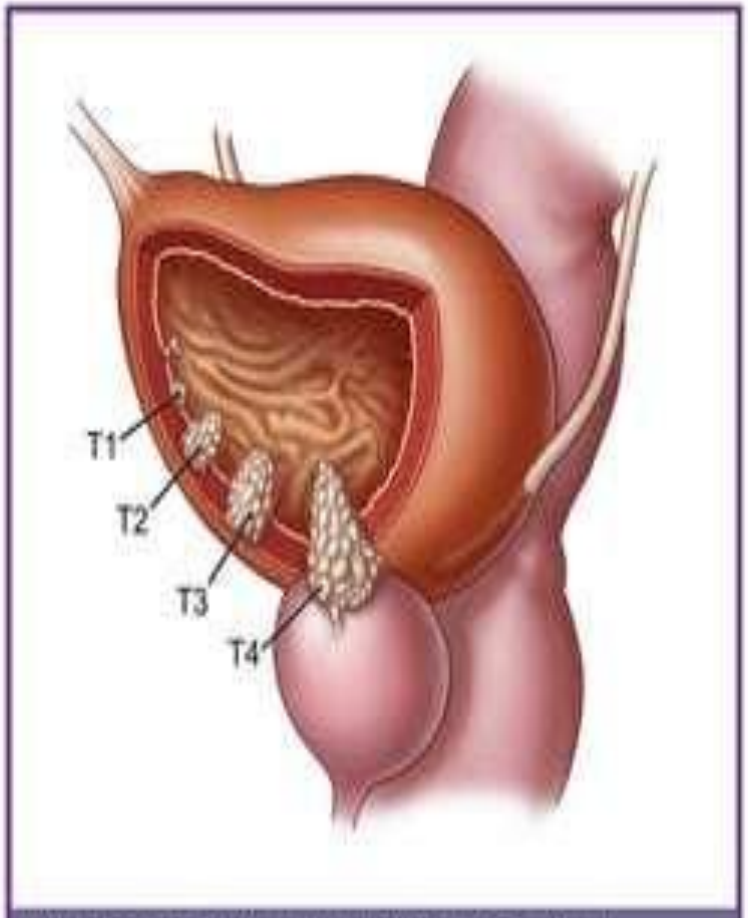
STAGES OF BLADDER CANCER

1 degree
changes in cell morphology

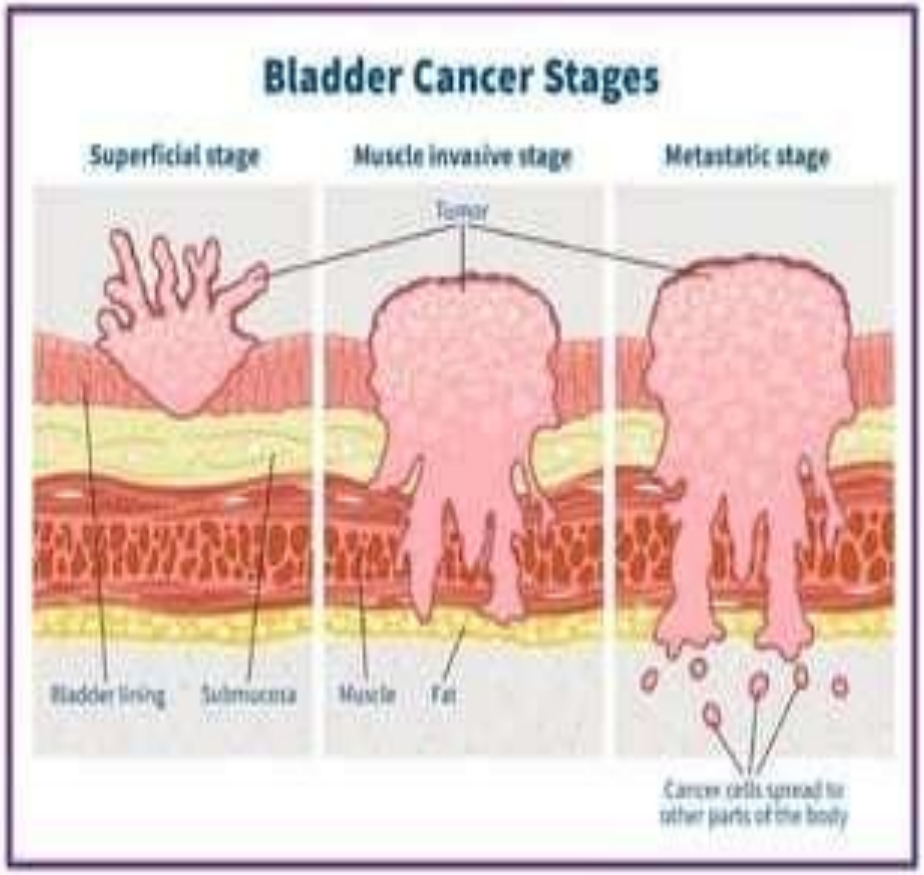
2 degree
changes in histological structure

3 degree
metastasis to regional lymph nodes
and blood flow

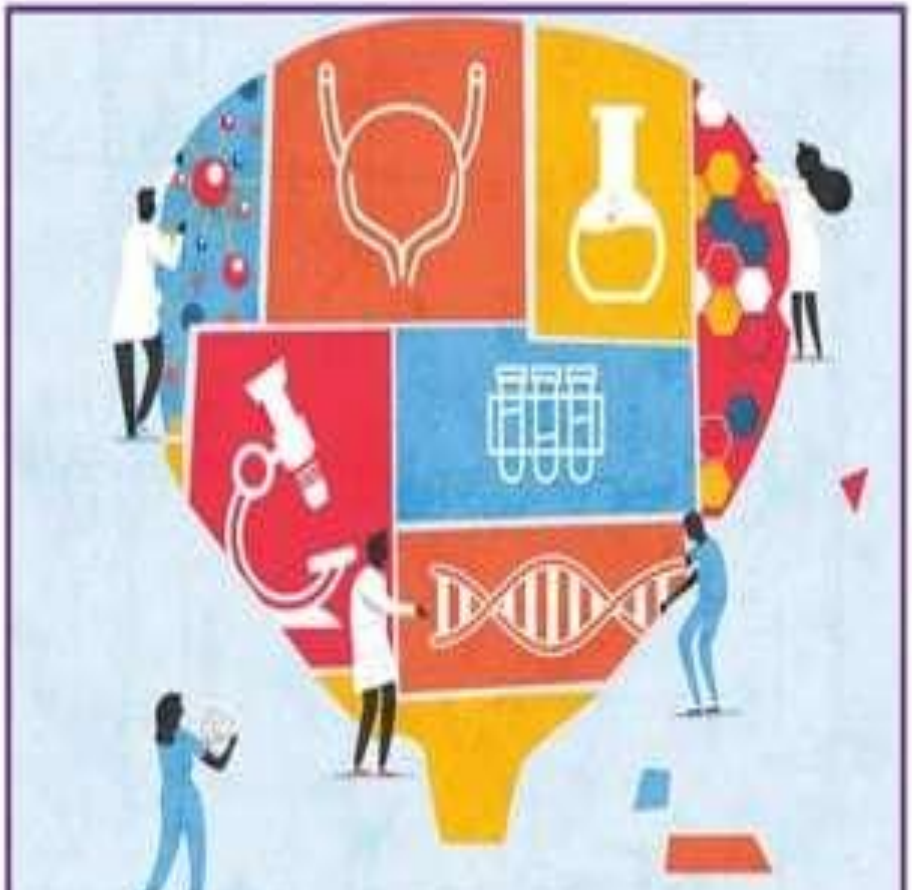
Stages



Descriptor	Definition
Tumor	
Tx	Primary tumor cannot be evaluated
T0	No primary tumor
Ta	Noninvasive papillary carcinoma
Tis	Carcinoma in situ
T1	Tumor invades connective tissue under the epithelium (surface layer)
T2	Tumor invades muscle
T2a	Superficial muscle affected (inner half)
T2b	Deep muscle affected (outer half)
T3	Tumor invades perivesical fat
T3a	Tumor is detected microscopically
T3b	Extravesical tumor is visible macroscopically
T4	Tumor invades the prostate gland, uterus, vagina, pelvic wall, or abdominal wall
Node	
Nx	Regional lymph nodes cannot be evaluated
N0	No regional lymph node metastasis
N1	Metastasis in a single lymph node <2 cm in size
N2	Metastasis in a single lymph node >2 cm but <5 cm in size, or multiple lymph nodes <5 cm in size
N3	Metastasis in a lymph node >5 cm in size
Metastasis	
Mx	Distant metastasis cannot be evaluated


Bladder Cancer Stages
Superficial stage
Muscle invasive stage
Metastatic stage
Tumor
Bladder lining
Submucosa
Muscle
Fat
Cancer cells spread to other parts of the body

Investigations



Assessment

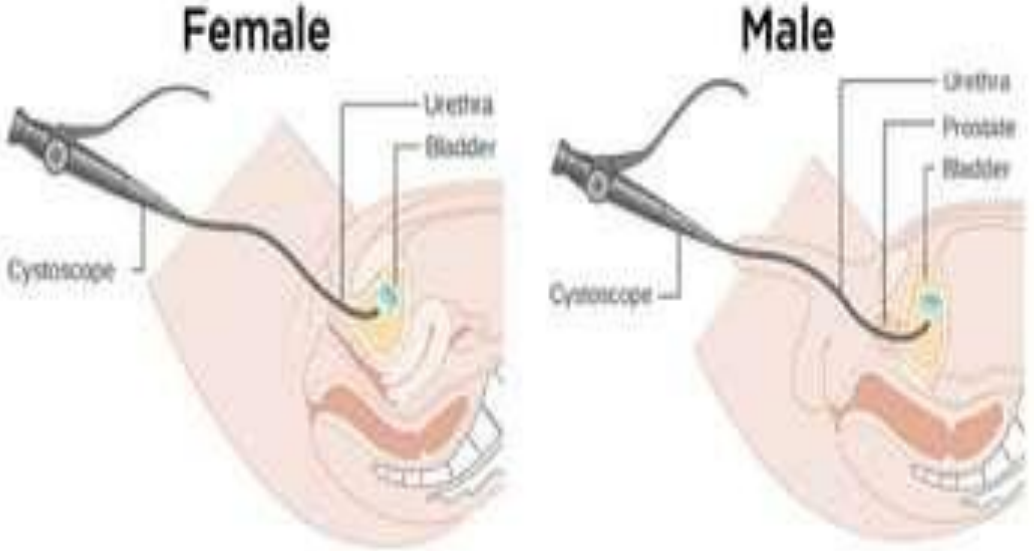
- Painless hematuria
- Dysuria
- Gross hematuria
- Obstruction of urine flow
- Development of fistula (urine from the vagina, fecal material in the urine)

Diagnostic Evaluation

- **Ultrasonography** - KUB
- Bimanual examination
- Cytologic evaluation of fresh urine and saline bladder washings
- Molecular assays, bladder tumor antigens
- **Urine Analysis** - Microscopic Eamination for RBC, Cancer cells

Cystoscopy

- It is the key diagnostic procedure for bladder cancer.
- This short procedure can detect growths in the bladder and determine the need for a biopsy or surgery



Transurethral resection of bladder tumor (TURBT)

- Biopsy of If abnormal tissue is found during a cystoscopy under a microscope *under anesthesia.*

- To visualize ***any masses*** can be felt.

- It is used to diagnose bladder cancer and find out the ***type of tumor, depth of tumours*** in the layers of the bladder, and identify any additional microscopic cancerous changes, called carcinoma in situ (CIS)

CT scan

- X- rays are used to obtain 3D image that shows abnormalities or tumors.
- To measure the **tumor's size and to identify enlarged lymph nodes**, which may indicate that cancer metastasis
- Contrast medium - *IV or orally* before the scan to provide better detail on the image.
- **Pre - Procedure**
  1. Ask for Iodine allergy
  2. RFT - Urea, Cr

MRI

- Magnetic field is used
- To measure the tumor's size and to identify enlarged lymph nodes, which may indicate that cancer metastasis.
- Contrast medium - IV/Oral

PET-CT scan

- A PET scan is a way to create pictures of organs and tissues inside the body.
- A small amount of a radioactive substance is injected into the patient's body.
- This substance is taken up by cells that use the most energy.
- Because cancer tends to use energy actively, it absorbs more of the radioactive substance.
- A scanner then detects this substance to produce images of the inside of the body.

Medical management

Pharmacologic Intervention

- Topical Chemotheraphy with a combination of methotrexate, 5-fluorouracil (5-FU), vinblastine, doxorubicin (Adriamycin), and cisplatin (M-VAC) and new agents gemcitabine and taxane, chemotheraphy
- Intravesical - BCG for TCC
- Cytotoxic agent infusions
- Formalin, phenol, or silver nitrate instillations - hematuria and strangury (slow and painful discharge of urine)

Radiation Therapy

- Bladder cancer are poorly radio sensitive and require ***high doses*** of radiation
- ***Intracavitary radiation*** - to protect adjacent normal tissues.
- For best results - **External radiation + chemotherapy/surgery**

Complications:

i. Bacterial cystitis
ii. Proctitis
iii. Fistula formation
iv. Ileitis or colitis
v. Bladder ulceration and hemorrhage

Care of skin in external radiation therapy

- Instruct the patient to wash skin gently with mild soap, rinse with warm water, and pat the skin dry each day but not to wash off the ink marking that outlines the radiation field.
- Encourage the patient to avoid applying any lotions, perfumes, deodorants, or powder to the treatment area.
- Encourage the patient to wear nonrestrictive soft cotton clothing directly over the treatment area and to protect the skin from sunlight and extreme cold.
- Follow-up visits


CHEMOTHERAPY

Intravesical Instillation

- An **alkylating** chemotherapeutic agent is instilled into the bladder
- Thiotepa, mitomycin (Mutamycin), doxorubicin (Adriamycin), cyclophosphamide (Cytoxan), and BCG
- The medication is injected into a urethral catheter and **retain for two hours.**
- Following instillation, the **clients position is rotated every 15 to 30 minutes**, starting in the supine position to avoid lying on full bladder.

Nurses Responsibility

i. After 2 hours, the client voids in a sitting position and is instructed to increase fluids to flush the bladder.
ii. Treat the urine as biohazard and send to radioisotope laboratory for monitoring.
iii. For 6 hours following intravesical therapy, disinfect the toilet with household bleach after the client has voided.

Systemic chemotherapy

- It is used to treat inoperable or late tumors.
- Agents used may include, cysplatin (Platinol), doxorubicin (Adremycin), cyclophospamide (Cytosan), methotrexate (Folex) and Pyridoxine

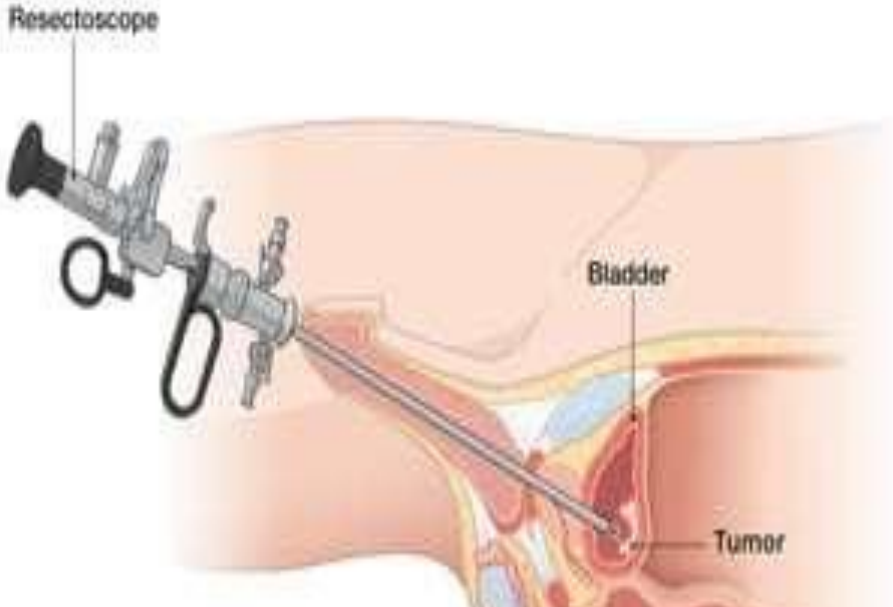
Complications of chemotherapy

- Bladder irritation
- Hemorrhagic cystitis

Surgical Management

Transurethral resection of the bladder (TURB)

- Local resection
- Destruction of tissue by electrical current through electrodes place in direct
- contact with the tissue
- Perform for early tumor for cure or for inoperable tumors for palliation.



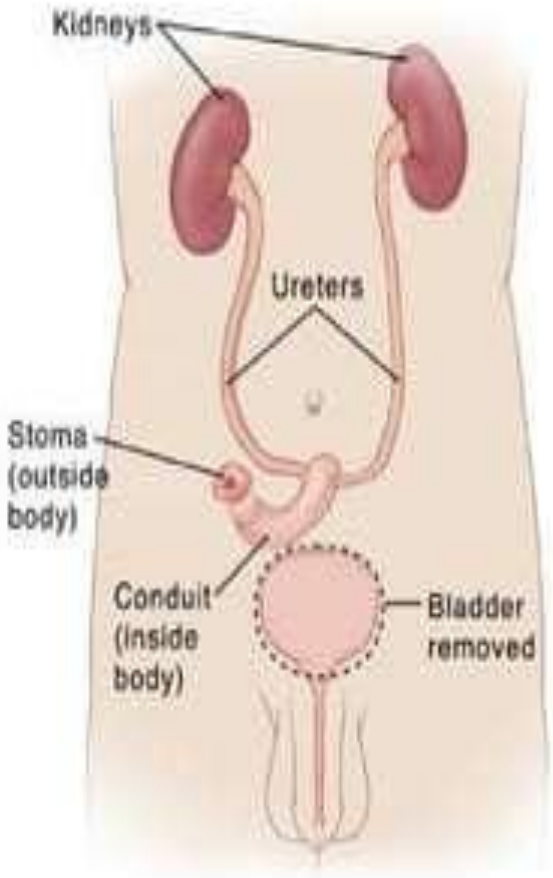
Partial Cystectomy

- It is the removal of affected portion of the bladder
- **Indication** - early tumors and for clients who cannot tolerate radical cystectomy.
- During the initial postoperative period bladder capacity is reduced greatly to about *60 mL*; Normal capacity *200 -400 mL*.
- Maintenance of a continuous output of urine following surgery is critical to prevent bladder distention and stress on the suture line.
- A urethral catheter and a suprapubic catheter maybe in place, in the suprapubic catheter maybe left in place for 2 weeks until healing occurs.

Cystectomy and urinary diversion

- Removal of the bladder and urethra in the women,
- Bladder, the urethra, and usually the prostrate and seminal vesicles in men.
- When the bladder and urethra are remove, permanent urinary diversion is required.
- The surgery maybe performed into stages if the tumor is expensive, with the creation of the urinary diversion first and the cystectomy several weeks later.
- If a radical cystectomy is performed lower extremity lymphedema may occur as a result of lymp node dissection, and impotence may occur in the may client.

Cystectomy and Ileal Conduit



The ileal conduit also is called ureteroileostomy or Bricker's procedure.
Ureters are implanted into a segment of the ileum, with the formation of an abdominal stoma.
The urine flows into the conduit and is propelled continually out through the stoma by peristalsis.
The client is required to wear an appliance over the stoma to collect the urine.
Complications include obstruction, pyelonephritis, leakage at the anastomosis site, stenosis, hydronephrosis, calculuses, skin irritation and ulceration, and stomal defects

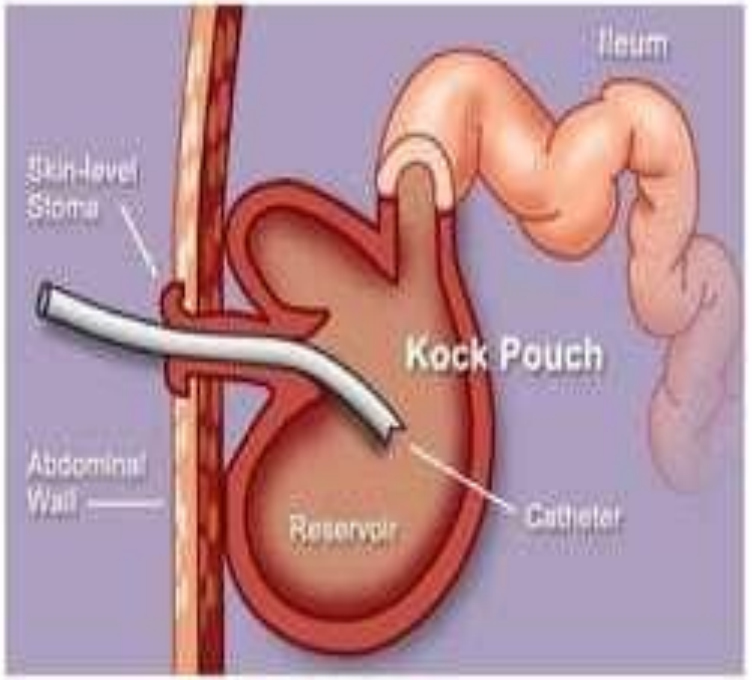
The Koch pouch is a continent internal ileal reservoir created from a segment of the ileum and ascendingcolon.

The ureters are implanted into the side of the reservoir, and a special nipple valve is constructed to attach the reservoir to the skin.

Postoperatively, the client will have a 24 to 26 Foley catheter in place to drain urine continuously until the pouch has healed.

The catheter is irrigated gently with NS to prevent obstruction from mucus or clots.

Following removal of the catheter, the client is instructed in how to self-catheterize and to drain the reservoir at 4 to 6 hour intervals.



Indiana pouch

A continent reservoir is created from the ascending colon and terminal ileum, making a pouch larger than the Koch pouch.
Postoperatively, the client will have a 24 to 26 Foley catheter inplace to drain urine continuously until the pouch has healed.
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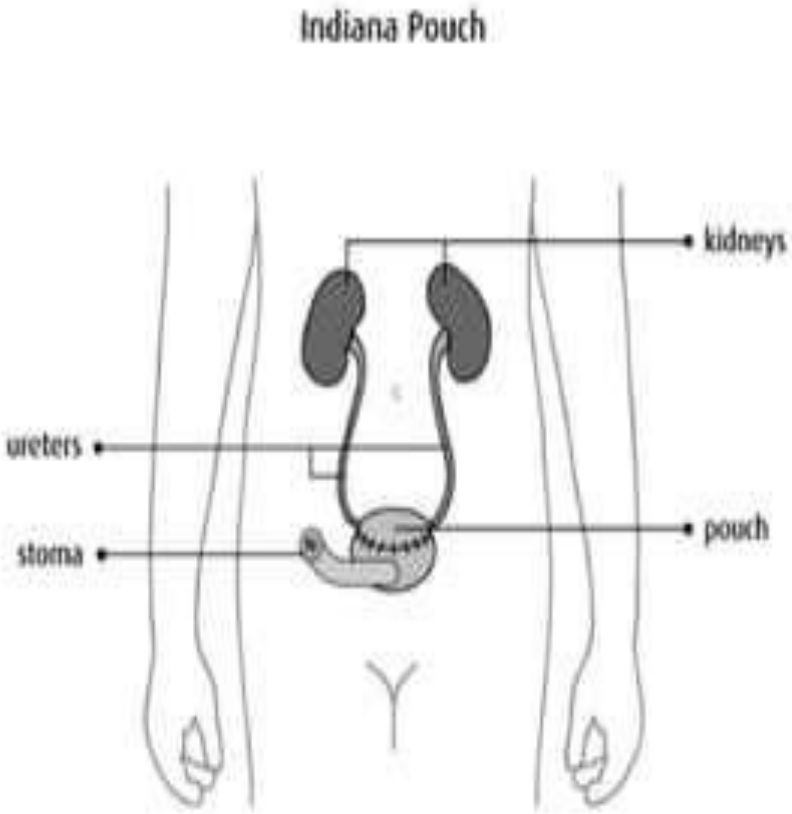
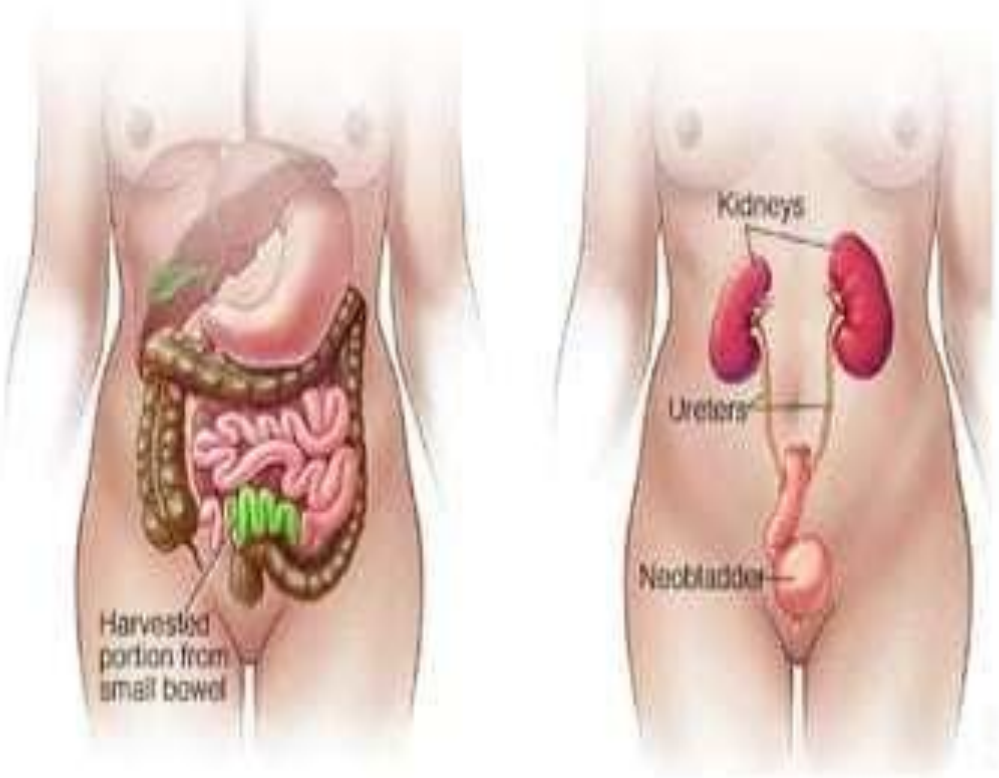


Creation of a neobladder

Creation of an internal reservoir, with the difference being that instead of emptying through an abdominal stoma, the bladder empties through a pelvic outlet into the urethra.

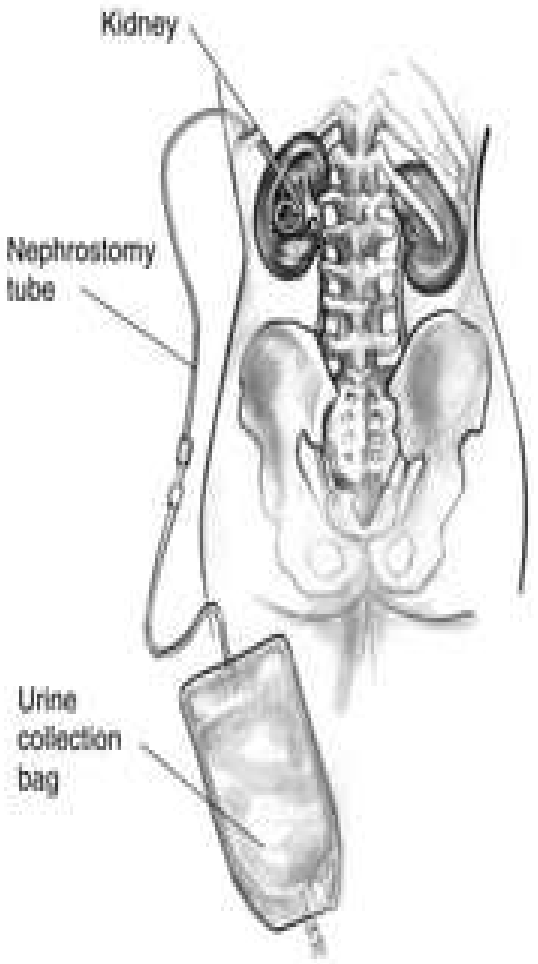
The client empties the neobladder by relaxing the external sphincter and creating abdominal pressure or by intermittent self- catheterization.



Percutaneous nephrostomy or pyelostomy

It is indicated whencancer is inoperable to prevent obstruction.

The procedures involve a percutaneous or surgical insertion of a nephrostomy tube into the kidney for drainage.

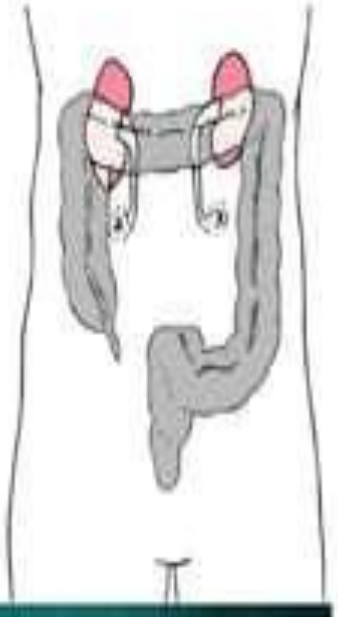


Nursing interventions

i. Stabilizing the tube to prevent dislodgement
ii. monitoring Urine output.

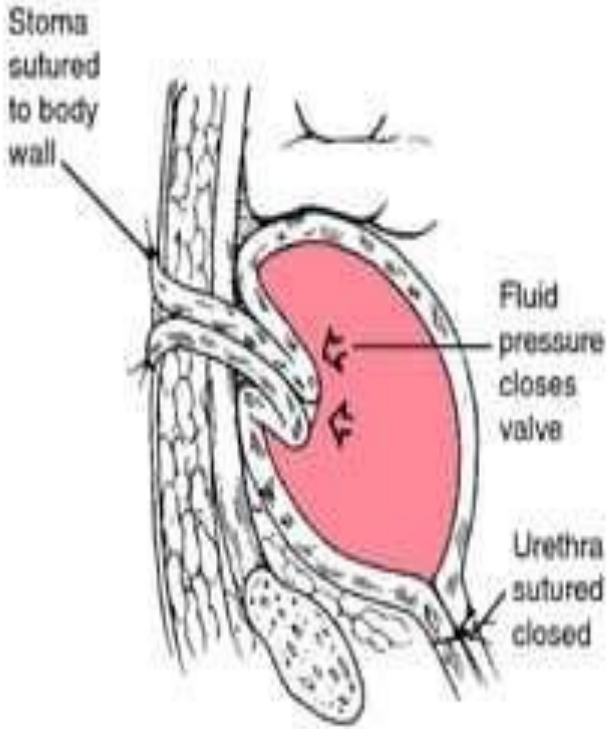
Ureterostomy

Palliative procedure if the ureters are obstructed by the tumor.
The ureters are attached to the surface of the abdomen, where the urine flows directly into a drainage appliance without a conduit.
Potential problems include infection, skin irritation,and obstruction to urinary flow as a result of strictures at the opening.



Vesicostomy

The bladder is sutured to the abdomen, and a stoma is created in the bladder wall. The bladder empties through the stoma.



Nursing Diagnosis

- Acute pain related to disease condition
- Dysurea related to disease condition
- Disturbed sleep pattern due to urgency & frequency of micturition
- Altered nutrition secondary to pain due to disease condition
- Anxiety related to surgery
- Disturbed body image related to surgery
- Risk for altered urinary elimination related to the obstruction of urinary flow

Preoperative interventions

Administer bowel preparation as prescribed, which may include a clear liquid diet, laxatives and enemas, and antibiotics to lower the bacterial count in the bowel.

Assist the surgeon and the enterostomal nurse in selecting an appropriate skin site for creation of the abdominal stoma.

Encourage the client to talk about his or her feelings related to the stoma creation.

Post-Operative Care Intervention

- Monitor Vital signs.
- Assess incision site.
- Assess stoma (should be red and moist) every hour for the first 24 hours.
- Monitor for edema in the stoma, which may be present in the immediate postoperative period.
- If the stoma appears dark and dusky, notify the physician immediately because this indicates necrosis
- Monitor for prolapse or retraction of the stoma.
- Monitor for hematuria.
- Assess for return of bowel function; monitor for peristalsis, which will return in 3 to 4 days.

- Maintain NPO status as prescribed until bowel sounds return.
- Monitor urine flow, which is continuous (30 to 60 mL per hour) following surgery.
- Notify the physician if the urine output is less than 30 mL an hour or if no urine output occurs for more than 15 minutes.
- Ureteral stents or catheters may be in place for 2 to 3 weeks or until healing occurs; maintain stability with catheters to prevent dislodgment.
- Monitor urinary output closely and irrigate catheter (if present) gently to prevent obstruction, as prescribed, with 60 mL of NS.
- Monitor for signs of peritonitis.

- Monitor for bladder distention following a partial cystectomy.
- Monitor for shock, hemorrhage, thrombophlebitis, and lower extremity lymphedema following a radical cystectomy.
- Monitor the urinary drainage pouch for leaks, and check skin integrity.
- Monitor the pH of the urine (do not place the dipstick in the stoma) because strong alkali urine can cause skin irritation and facilitate crystal formation.
- Instruct the client regarding the potential for urinary tract infection or the development of the calculuses.
- Instruct the client to assess the skin for irritation and to monitor the urinary drainage pouch for any leakage.
- Encourage the client to express feelings about changes in body image, embarrassment, and sexual dysfunction.


Patient
Education

- Suggest the use of a leg bag during the day and a Foley drainage bag at night.
- Once the pouch has healed and the Foley catheter, ureteral stents, and pelvic drain have been removed, teach the patient to "push" or "bear down" with each voiding.
- Instruct the patient on methods for performing Kegel exercises during and between voidings to minimize incontinence.
- Suggest wearing incontinence pads until full control is achieved.
- Also instruct the patient on self-catheterization techniques in case the patient is unable to void.
- Instruct patients where to obtain ostomy pouches, catheters, and other supplies.
- Teach the patient how to clean and store catheters between use following the clean technique.

- Following creation of an ileal conduit, teach the patient and care taker the **care of the stoma** and urinary drainage system.
- Follow-up home nursing care or visits with an enterostomal therapist.
- Teach the patient to catheterize the continent cutaneous pouch or reservoir.
- A simple stoma covering made from a feminine hygiene pad can be worn between catheterizations.
- Stress the need for the patient to wear a *medical ID bracelet*.
- Following orthotopic bladder replacement, teach the patient how to irrigate the Foley catheter.


nd well-being
entive healthcare
Prevention
health and social

BLADDER CANCER PREVENTION

- Don't smoke
- Drink plenty of liquids
- Eat lots of fruits and vegetables
- Limit exposure to certain chemicals in the workplace
- Report any symptoms
- Eat a well-balanced diet

The Best Foods to Eat to Aid in Bladder Cancer Prevention

Vegetables

- Cruciferous vegetables
- Leafy greens
- Orange, yellow, and red pigmented veggies

Fruits

- Citrus fruits
- Berries
- Melons

Tea

- Green tea
- Oolong tea
- Black tea

Organic Food

- Organic eggs
- Organic, lean poultry
- Organic produce