



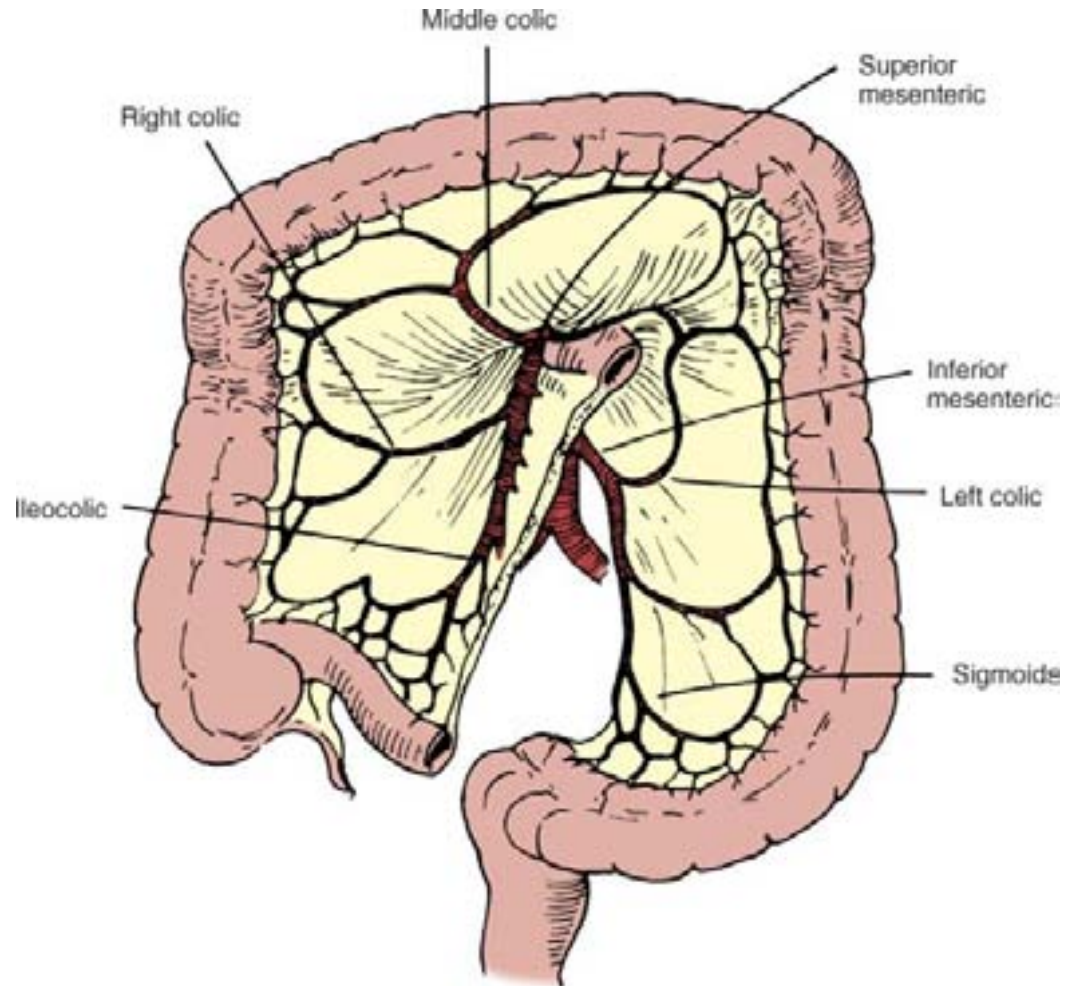
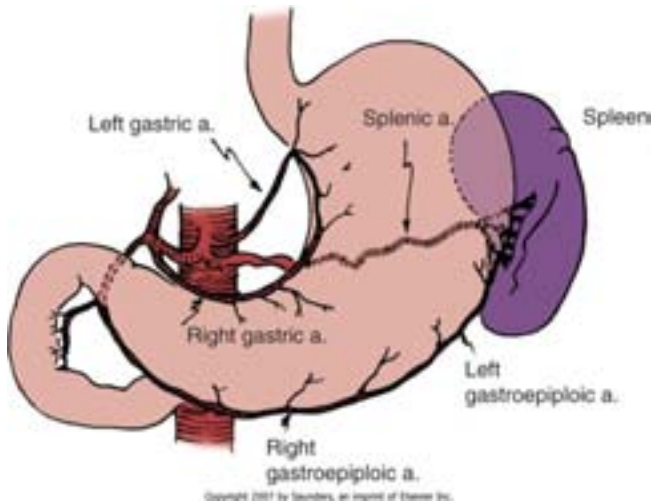
# Urinary Diversions: What a Patient Should Know?

Shahin Tabatabaei, MD  
Massachusetts General Hospital  
Harvard Medical School

# What Do We Miss After Bladder Removal?

- Urine Reservoir
- Urine Emptying
- Non absorbable reservoir

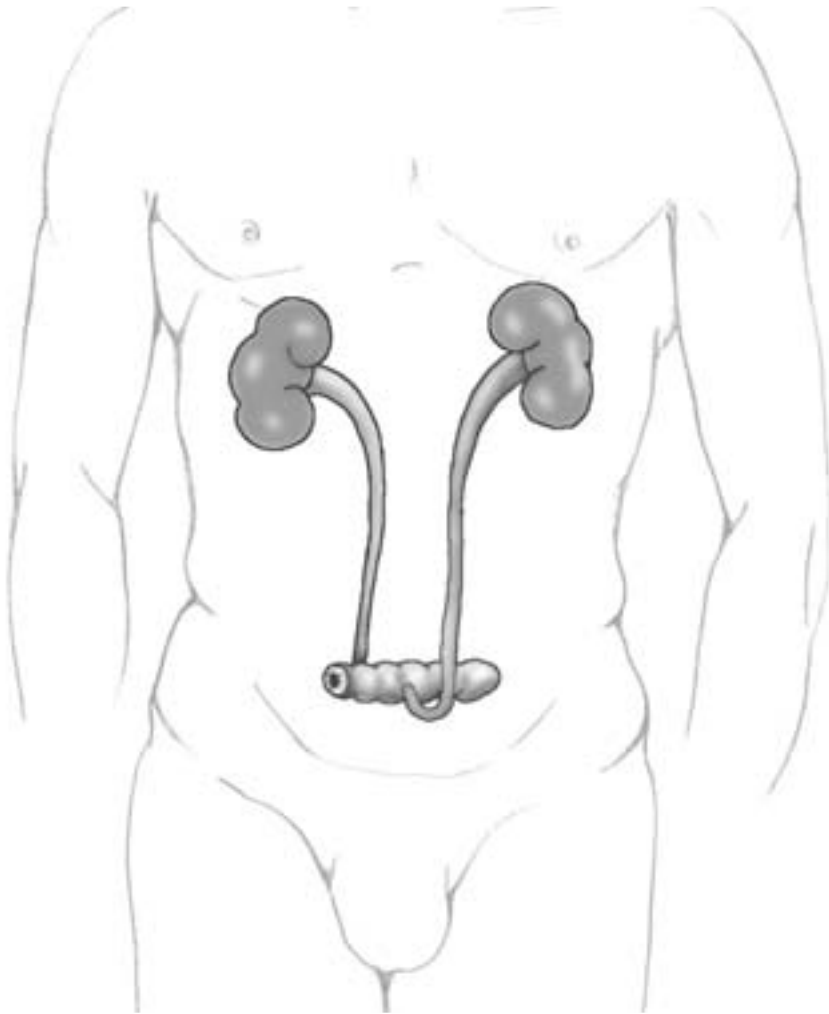
# Stomach, small and large intestine are used for urinary diversion



# Urinary Diversion

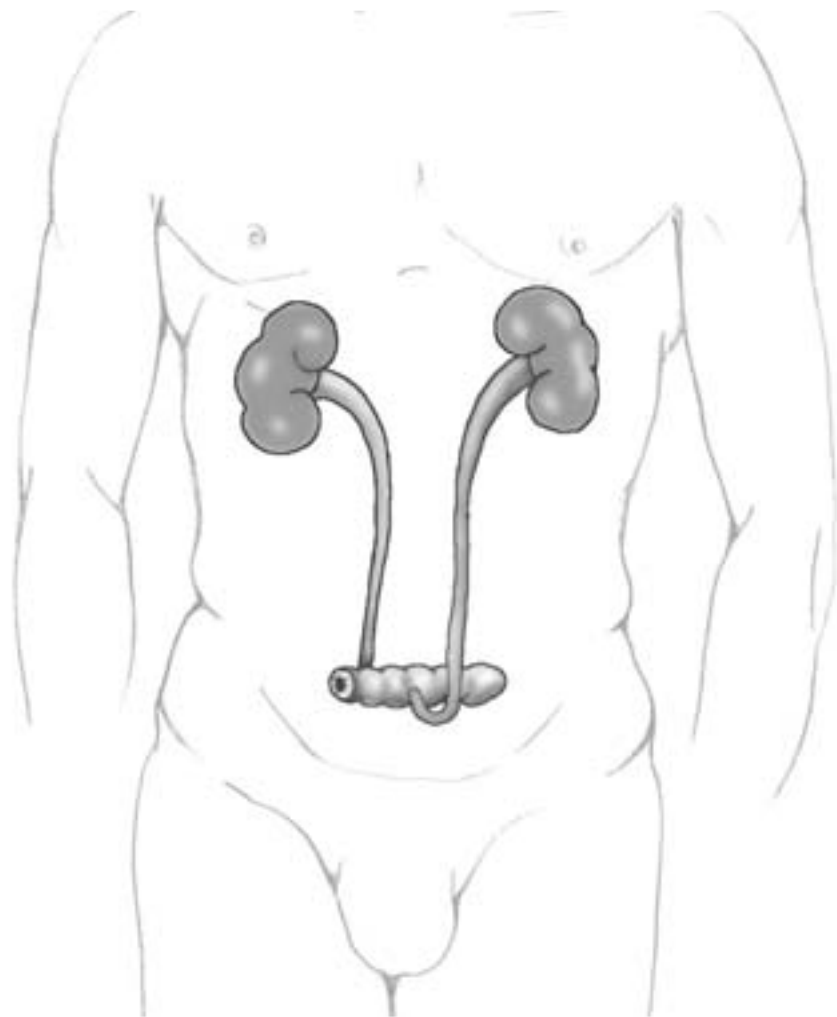
- A passage tube –conduit- for urine to exit the body
- Reservoir to store urine
  - Emptying through stoma: Cutaneous Continent Urinary Diversion
  - Emptying through urethra: Orthotopic Urinary Diversion

# Ileal Conduit



- Most common urinary diversion
- 8 inches of small intestine (ileum) is used.
- Surgically less demanding
- Long term results are overall good.

# Ileal Conduit

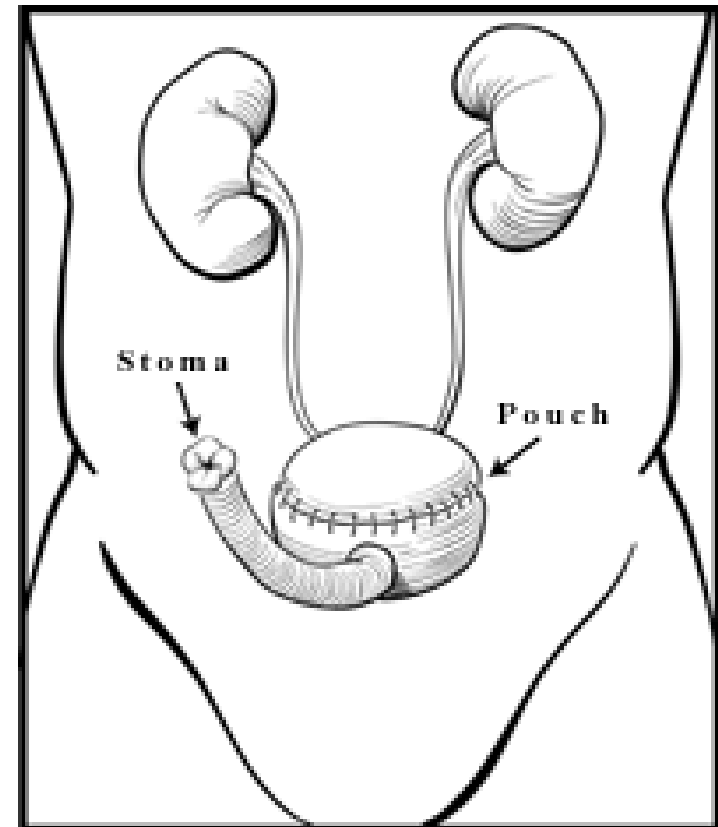


- Requires an external appliance.
- Change in body image
- Urine refluxes (returns) back to kidneys, increasing the risk of urinary tract kidney infections

# Cutaneous Continent Urinary Diversion (Continent Pouch)

## Advantages:

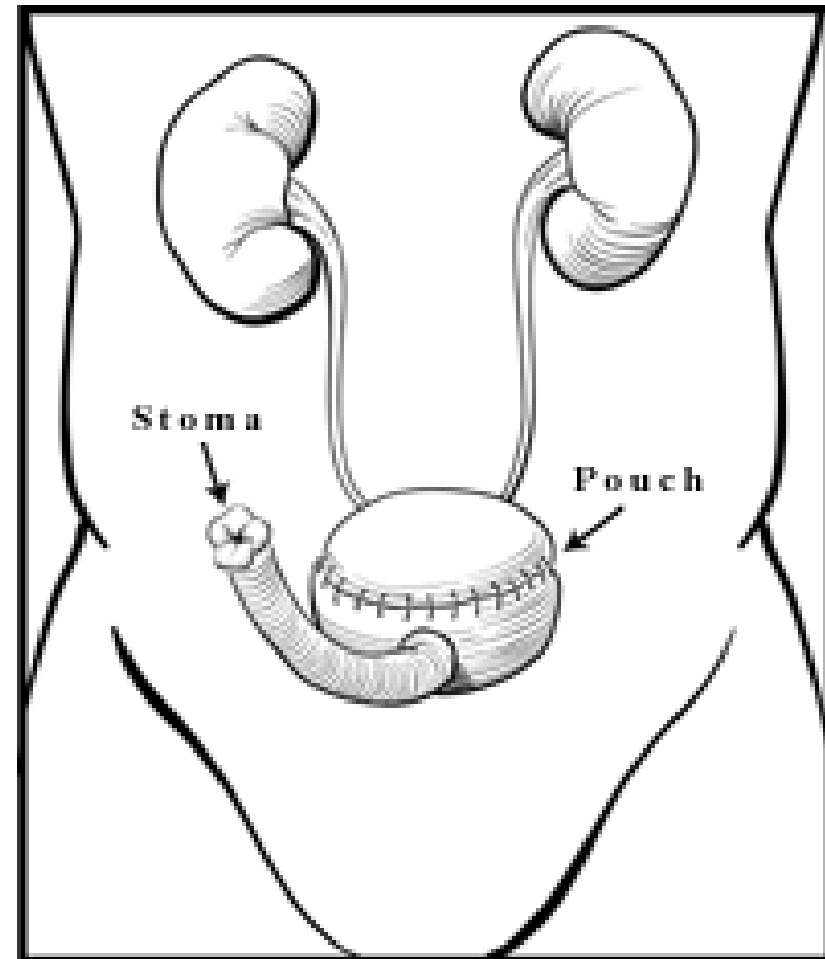
- No external appliance
- Less or no odor
- Superior body image over ileal conduit.
- Less risk of reflux of urine into the kidneys.



# Cutaneous Continent Urinary Diversion (Continent Pouch)

## Disadvantages:

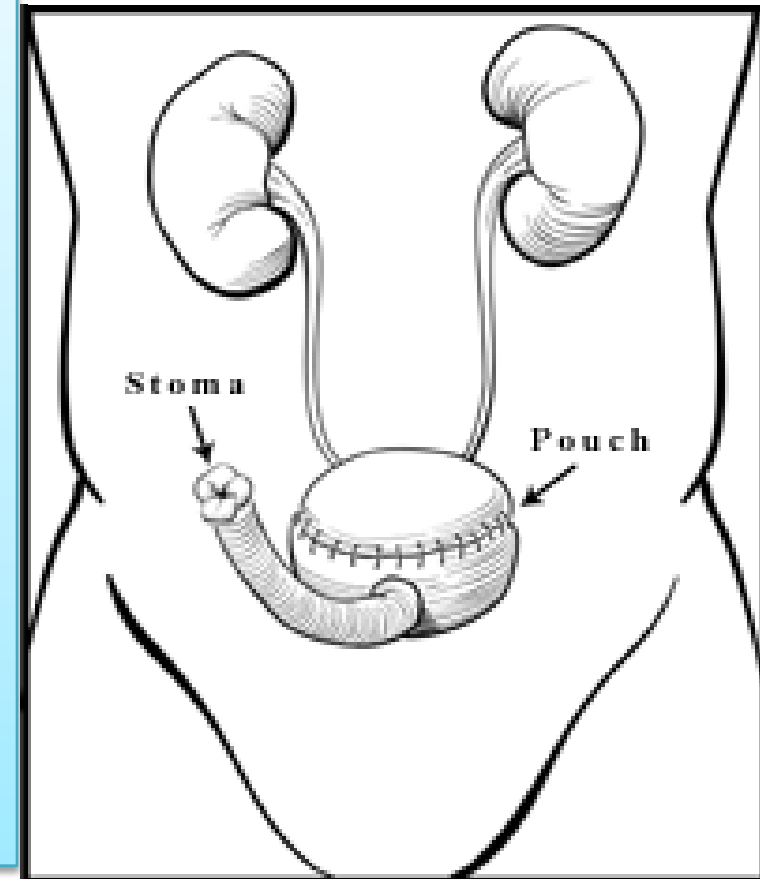
- Technically more demanding
- Durability of the continent stoma is in question
- Poor patient compliance could lead to over-distension or even rupture of the pouch.
- High risk of stone formation in the pouch.
- Catheterization could be technically demanding.
- More risk of metabolic abnormalities



# Cutaneous Continent Urinary Diversion (Continent Pouch)

## Contraindications:

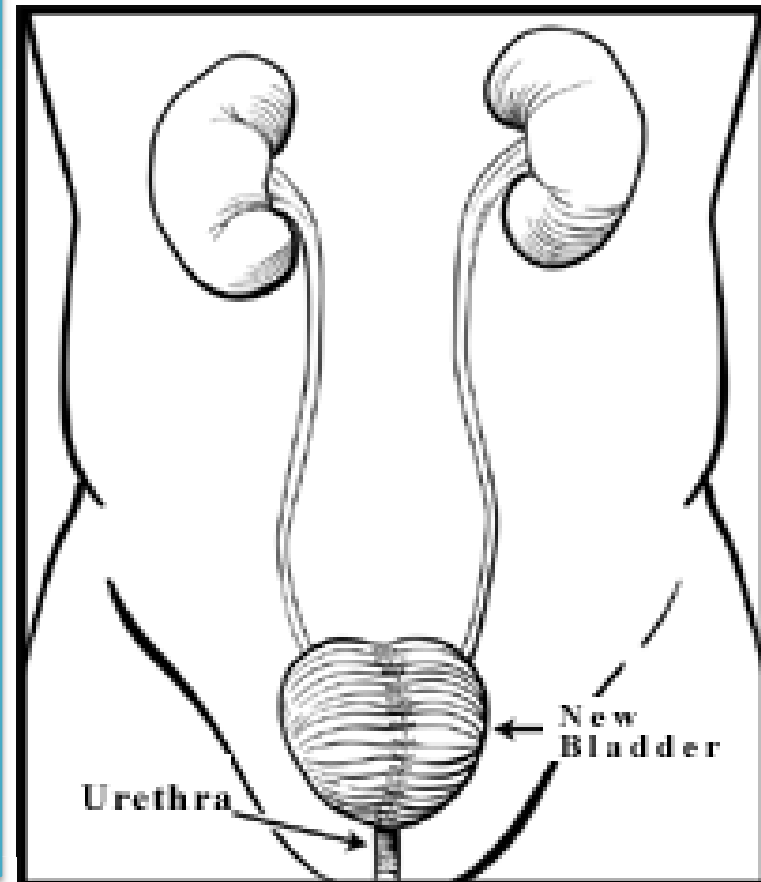
- Poor kidney function
- Poor compliant patients
- Patients with mental and/or physical disabilities that make regular catheterization difficult



# Orthotopic Urinary Diversion (Neobladder)

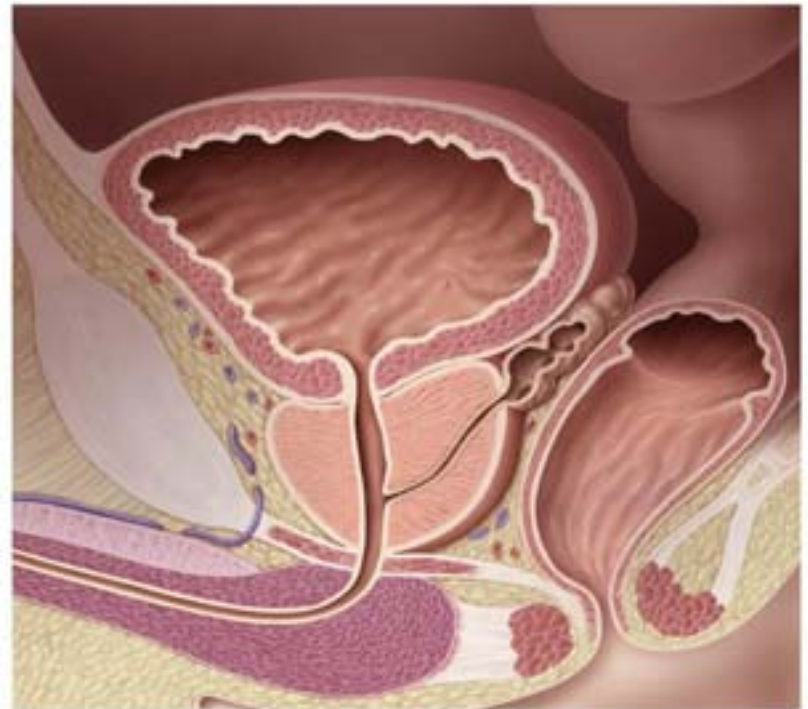
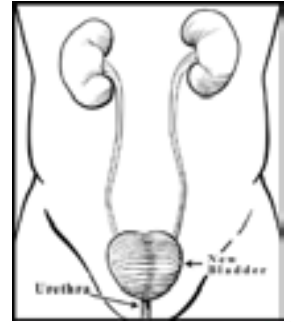
## Advantages:

- Closest to normal voiding
- No Stoma or skin collection device is needed and body image is excellent
- Kidneys are protected from urine back up and infection.
- Voiding occurs by relaxing external sphincter and increasing intra-abdominal pressure
- The majority of patients are continent and empty their bladder completely



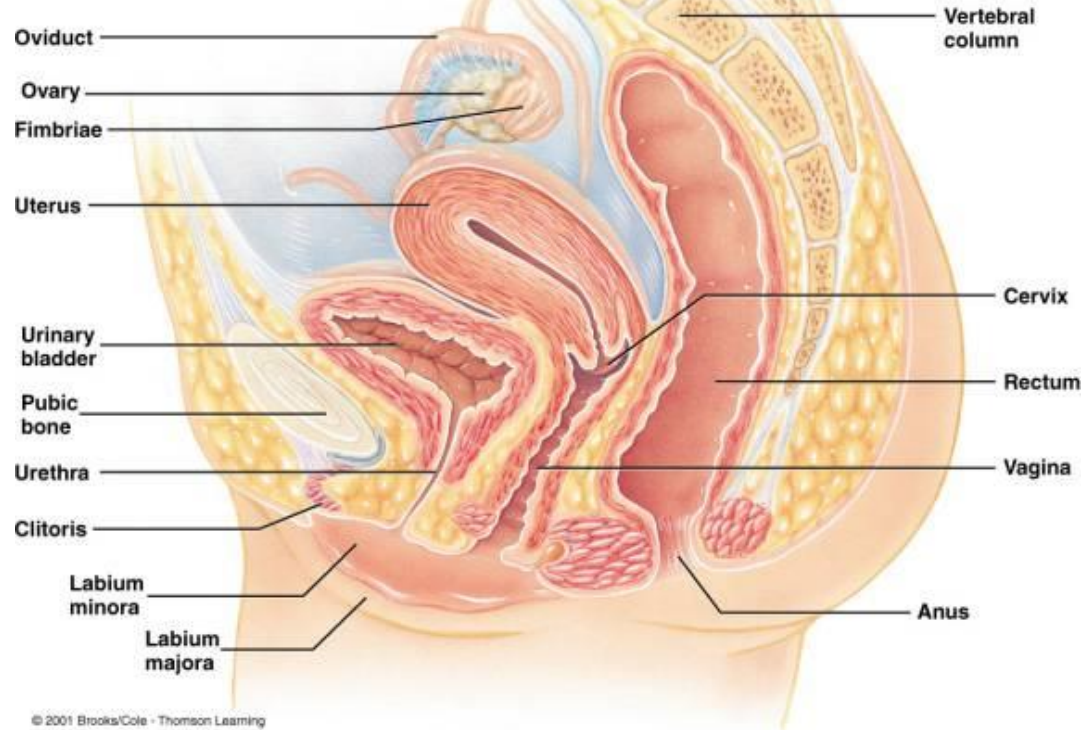
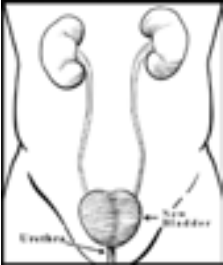
# Orthotopic Urinary Diversion (Neobladder)

- ❖ Procedure was first described in male patients, mainly because of preservation of external sphincter.
- ❖ Prostate sparing cystectomy improves continence rate further.



# Orthotopic Urinary Diversion (Neobladder)

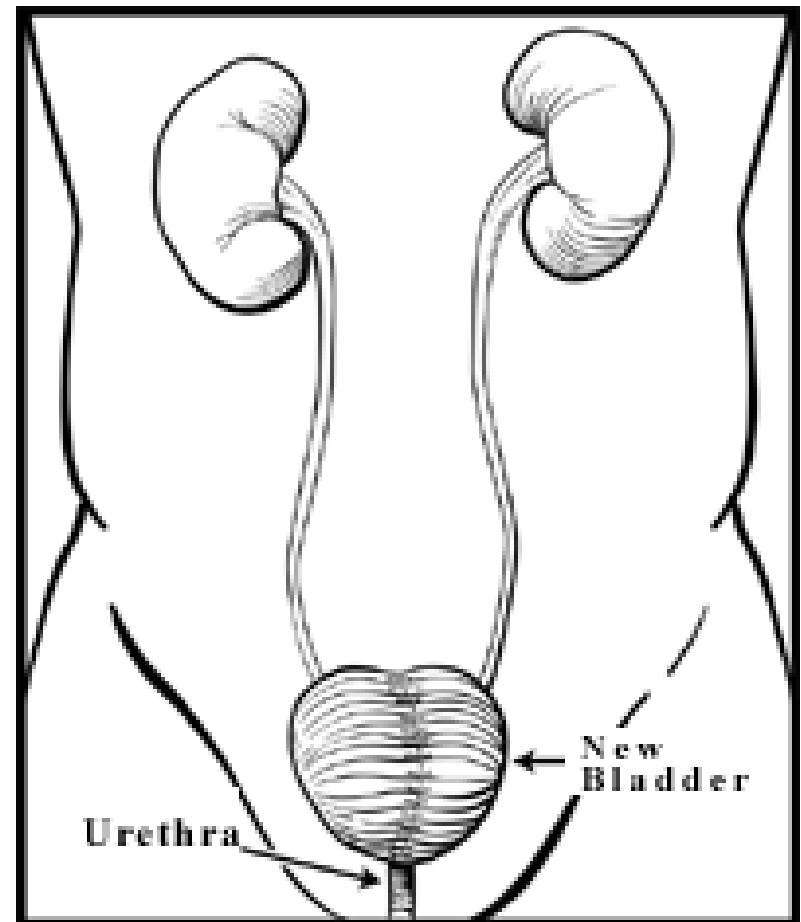
- ❖ In female patients with negative tumor at the bladder neck, urethra could be safely preserved.
- ❖ These patients are potential candidates for neobladder reconstruction.



# Orthotopic Urinary Diversion (Neobladder)

## Disadvantages:

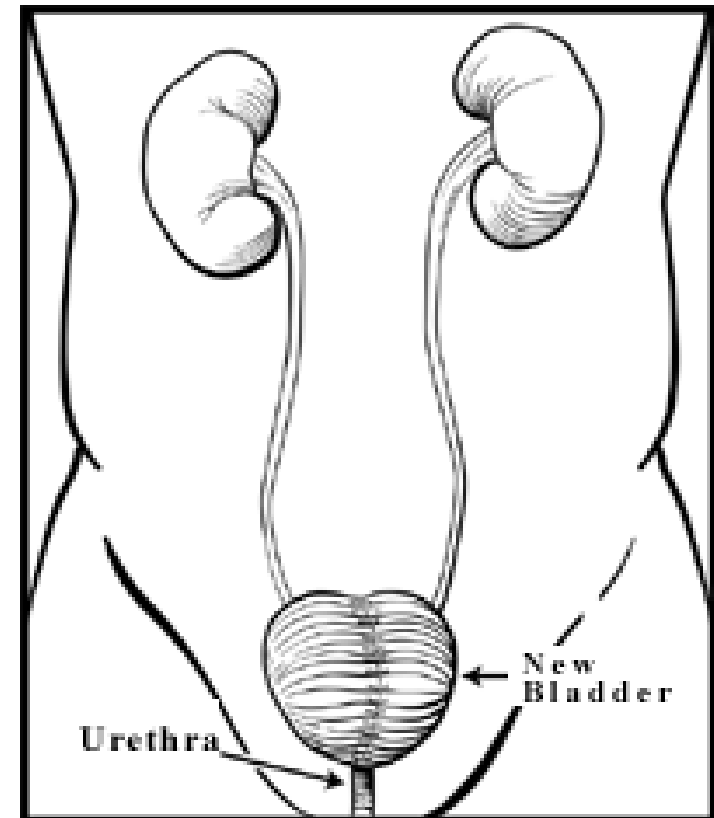
- 5-10 % day time incontinence
- 20-28% night time incontinence
- Urinary retention requiring regular catheterization, particularly in women (20-25%)



# Orthotopic Urinary Diversion (Neobladder)

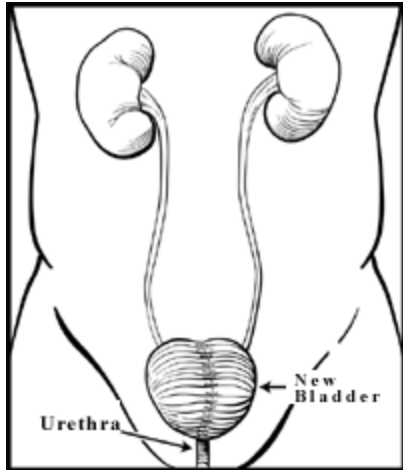
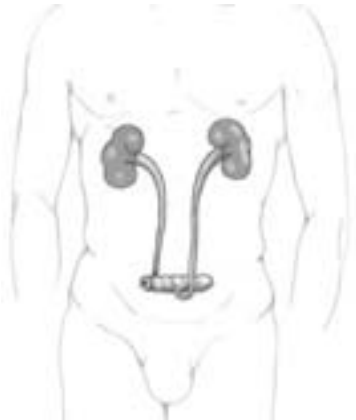
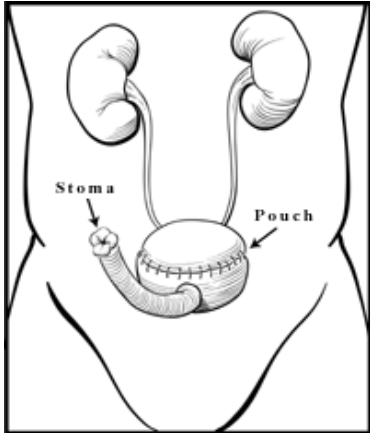
## Contraindications:

- Positive distal surgical margin
- Compromised renal function
- Age
- Advanced disease
- Short life expectancy.
- Lack of dexterity



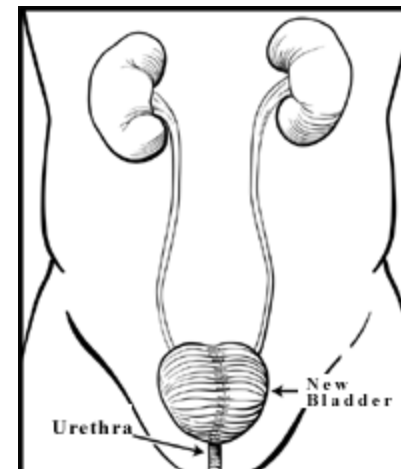
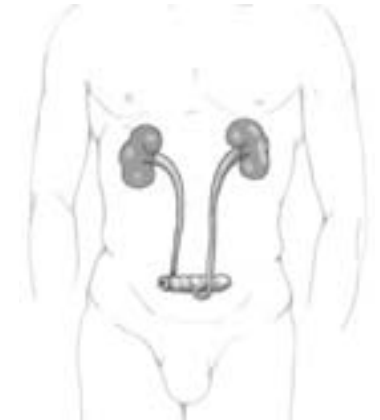
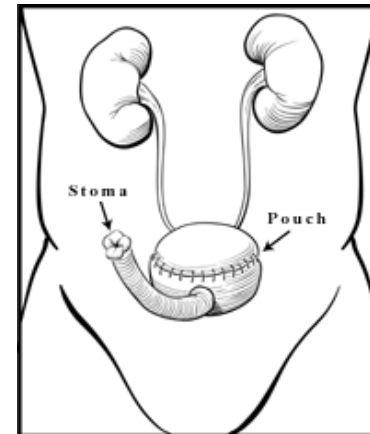
# Complications of Urinary Diversion

- Fistulas
- Infection
- Bowel obstruction
- Ureter-intestinal obstruction
- Urine Leak
- Stoma stenosis
- Parastomal hernia
- Recurrent urinary tract infection
- Kidney and/or reservoir stone formation.
- Metabolic abnormalities



# Metabolic Complications of Urinary Diversion

- Electrolyte imbalance
- Acid-base imbalance
- Altered Sensorium
- Abnormal drug absorption
  - Chemotherapy medications
  - Phenytoin and overall drugs that absorb by intestine and excretes intact by kidneys.
  - Osteomalacia



# Conclusion

- The Perfect Urinary substitute remains to be found.
- Most patients after urinary diversion adopt well to loss of bladder and carry an active productive life.
- Quality of life could be improved with thorough consultation and with the help of thoughtful and motivated surgeon.

*Thank You*



*Thank You*

