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NHS Foundation Trust

Haematuria and Bladder Cancer

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The Royal Marsden

NHS

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Haematuria

NHS

Haematuria

Macroscopic vs Microscopic

Painful vs Painless

Concurrent abdo pain/urinary symptoms

Previous testing?

Dipstick testing

- Equivalent to microscopy if ++
- If dipstick trace or + then consider microscopy

Haematuria

CAUSES OF HAEMATURIA
Urological malignancy (BLADDER, prostate and kidney)
Urinary Tract Infection
Renal stone disease
Benign prostatic disease (including prostatitis, BPH)
Non-infected inflammatory cystitis
Glomerulonephritis & other renal conditions
A cyst bleed in ADPKD
Trauma (causing haematuria or myglobinuria)
Exercise-induced haematuria (more common in patients with IgA nephropathy)
Renal infarction (rare)
Tuberculosis of renal tract
Uncontrolled systemic anticoagulation

Haematuria

Benign conditions that may discolour the urine
Mensturation
Jaundice
Ingestion of foodstuffs (beetroot, red cabbage)
Dyes (paprika, other food colourings)
Drugs (rifampicin, metronidazole, nitrofurantoin, warfarin, phenytoin)
Some gram negative bacteria (possessing indoxyl sulphatase)
Rhabdomyolysis
Rare metabolic disorders (porphyria, alkaptonuria)

Is cancer the commonest cause of haematuria?

Analysis of 1,930 patients attending a haematuria clinic

1,194 Men, 736 Women
Age 17 – 96 years (mean 58 years)

61% No cause for haematuria found

12% Bladder cancer
13% UTI
2% stones

Investigate haematuria

Khadra *et al*. J Urol 2000

Is there a difference in cancer pick up between Macro and Micro haematuria?

Analysis of 4,020 patients attending a haematuria clinic

2,627 Men, 1,393 Women

Even split of Macro and Micro Haematuria

- Macroscopic - 19% malignancy
- Microscopic - 5% malignancy

Intensify macroscopic haematuria workup

Edwards *et al*. BJU Int. 2006

Does UTI at the time of haematuria reduce the chance of a cancer diagnosis?

Analysis of 1740 patients attending a haematuria clinic

1,067 men, 673 women

161 had positive MSU

20% malignancy pick up with UTI

1249 with no UTI history and a negative MSU

24% malignancy pick up with no UTI

Investigate haematuria even in those with a UTI

Vasdev *et al*. Urol Oncol. 2013

Haematuria and women

2009-2010

920 patients bladder cancer

252 (27%) female

398 patients renal cancer

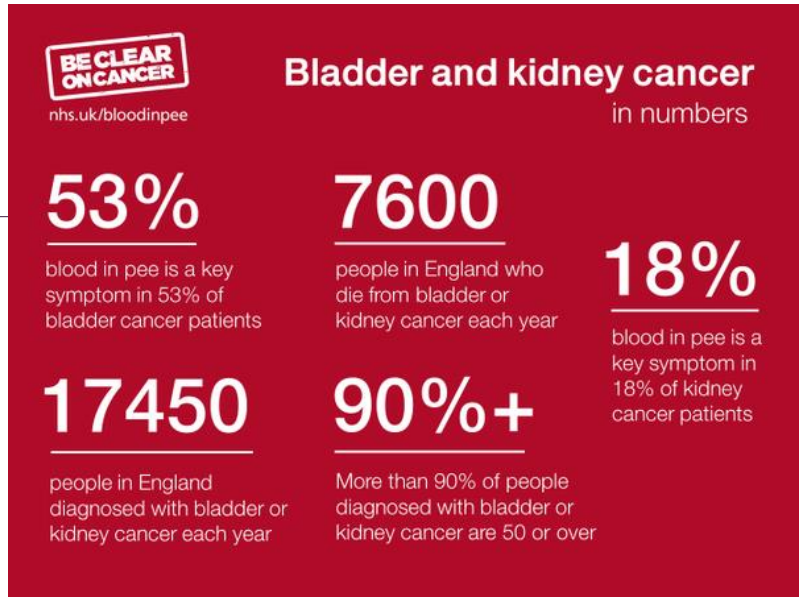
164 (42%) female

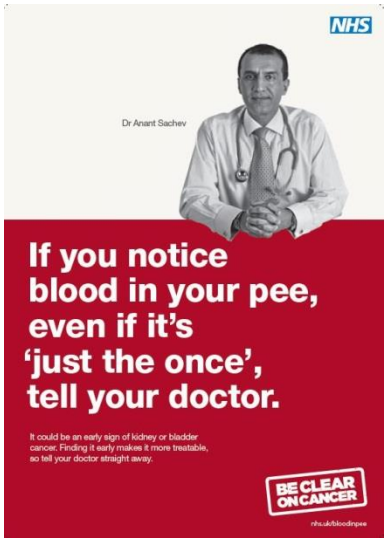
Women 3+ consultations more often than men before referral

3.29 higher odds (2.06-5.25, p<0.001) for bladder cancer
1.90 higher odds (1.06-3.42, p=0.031) for renal cancer

Each year approx. 700 women in UK with either bladder or renal cancer experience delayed diagnosis

Lyratzopoulos G *et al*. BMJ 2013


BE CLEAR ON CANCER
nhs.uk/bloodinpee
Bladder and kidney cancer
in numbers
53%
blood in pee is a key symptom in 53% of bladder cancer patients
7600
people in England who die from bladder or kidney cancer each year
18%
blood in pee is a key symptom in 18% of kidney cancer patients
17450
people in England diagnosed with bladder or kidney cancer each year
90%+
More than 90% of people diagnosed with bladder or kidney cancer are 50 or over


NHS
Dr Anant Sachev
If you notice blood in your pee, even if it's 'just the once', tell your doctor.
It could be an early sign of kidney or bladder cancer. Finding it early makes it more treatable, so tell your doctor straight away.
BE CLEAR ON CANCER
nhs.uk/bloodinpee


BE CLEAR ON CANCER
National 'blood in pee' campaign
13 October–23 November 2014


BE CLEAR ON CANCER
NHS
Dr Jane Scott
'Blood in pee' campaign
15 February – 31 March 2016
Last updated: 8 January 2016


BE CLEAR ON CANCER
nhs.uk/bloodinpee
Noticed blood in your pee?
Tell your doctor straight away.
Blood in your pee could be an early sign of bladder or kidney cancer, even if it only happens once. Finding it early makes it more treatable.

Blood in pee campaign

Increase in TWR referrals

26% - 2013 34% - 2014

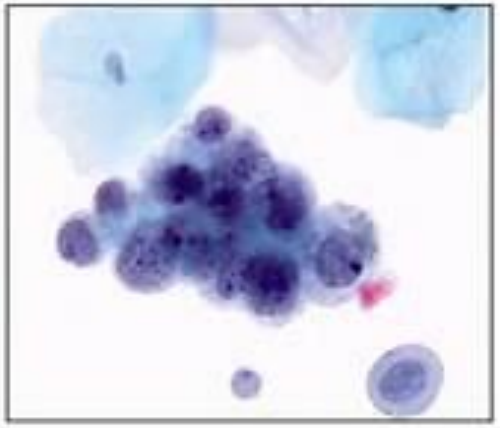
Increase in renal cancer diagnosis 2013 & 2014

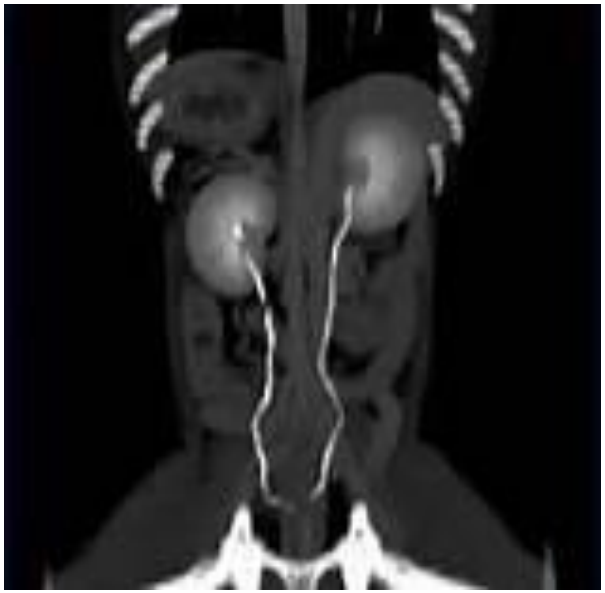
Increase in bladder cancer diagnosis 2013 only

In early 2014:

- Increase in lower stage bladder cancer
- Decrease in advanced bladder cancer
- Increase in lower stage renal cancer
- Limited reduction advanced renal cancer

What happens in a haematuria clinic?





Haematuria

What if investigations are normal?

Management of co-existing symptoms

Nephrology referral considered:

- Proteinuria
- eGFR < 60
- imaging suggestive of renal disease

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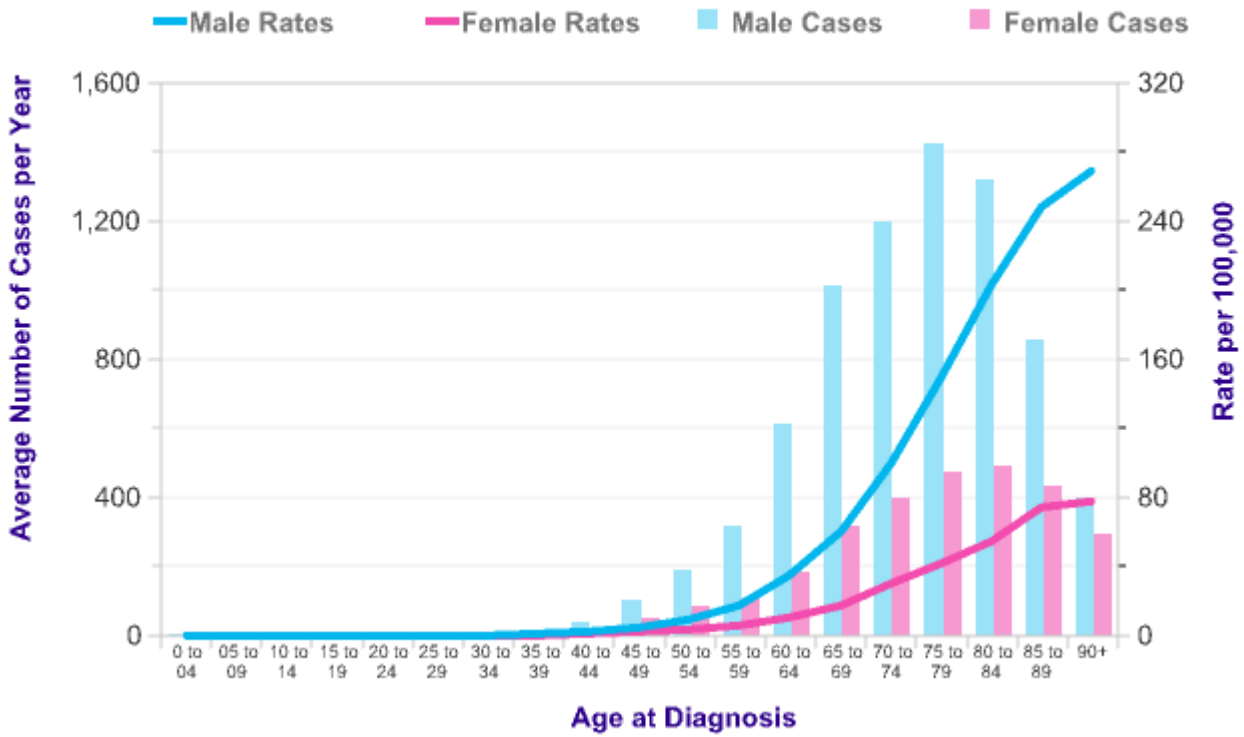
Bladder Cancer

Bladder Cancer

- 2014
  - 10,063 new diagnoses
  - 25 % invasive disease
  - 5,369 deaths
  - 10th most common cancer
  - Most expensive cancer to treat overall
  - This may change with immunotherapy

Bladder Cancer (C67): 2012-2014

Average Number of New Cases Per Year and Age-Specific Incidence Rates per 100,000 Population, UK



Prepared by Cancer Research UK - original data sources are available from http://www.cancerresearchuk.org/cancer-info/cancerstats/

Bladder anatomy

Good

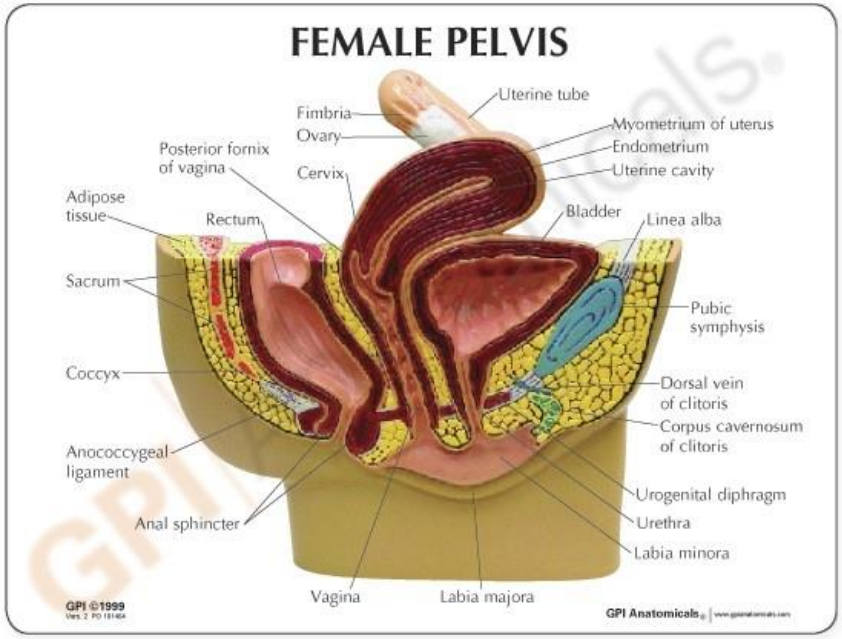
Globular shape
Maximum capacity
Watertight
'Independent'

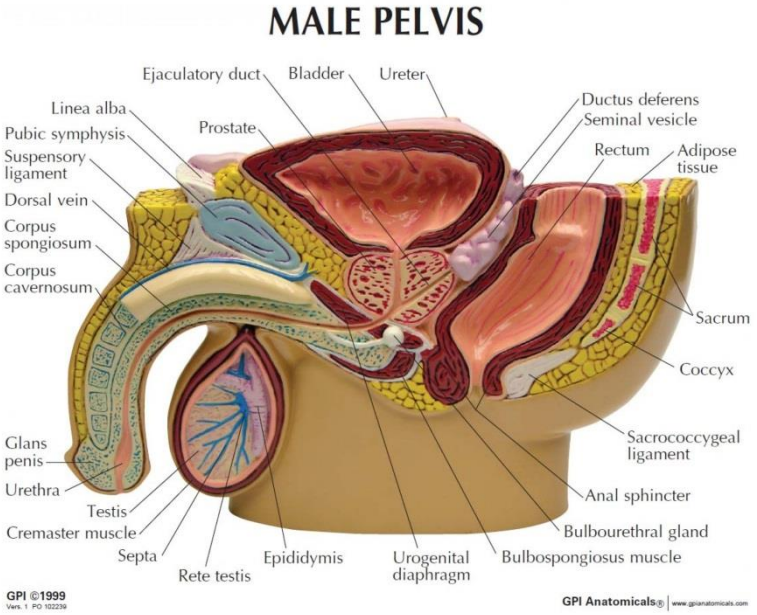
Not so Good

Central position
Vulnerability to DXT

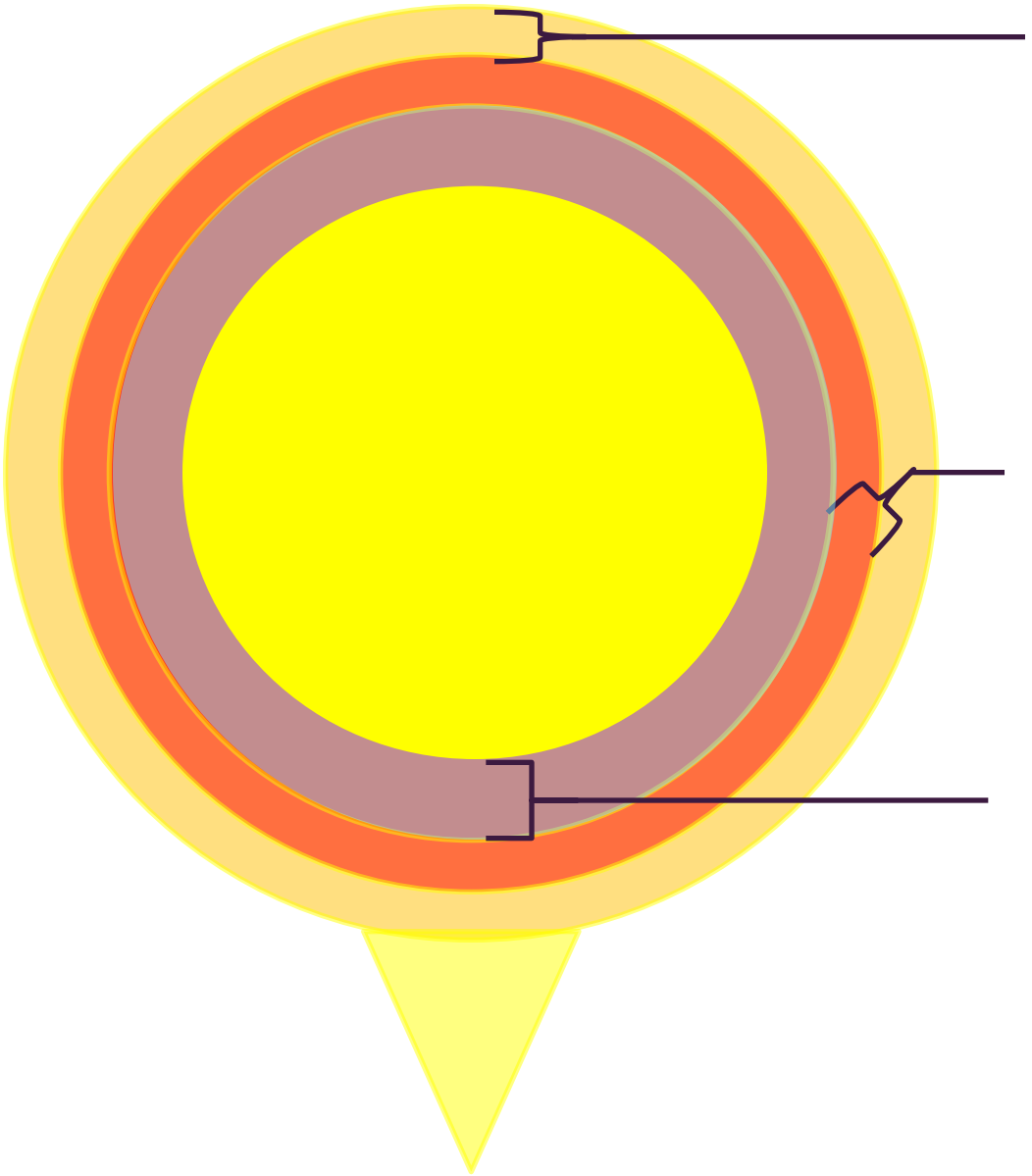
Dysfunction difficult to manage
LUTS
UTI
Obstruction

Bladder position in the pelvis





Bladder anatomy



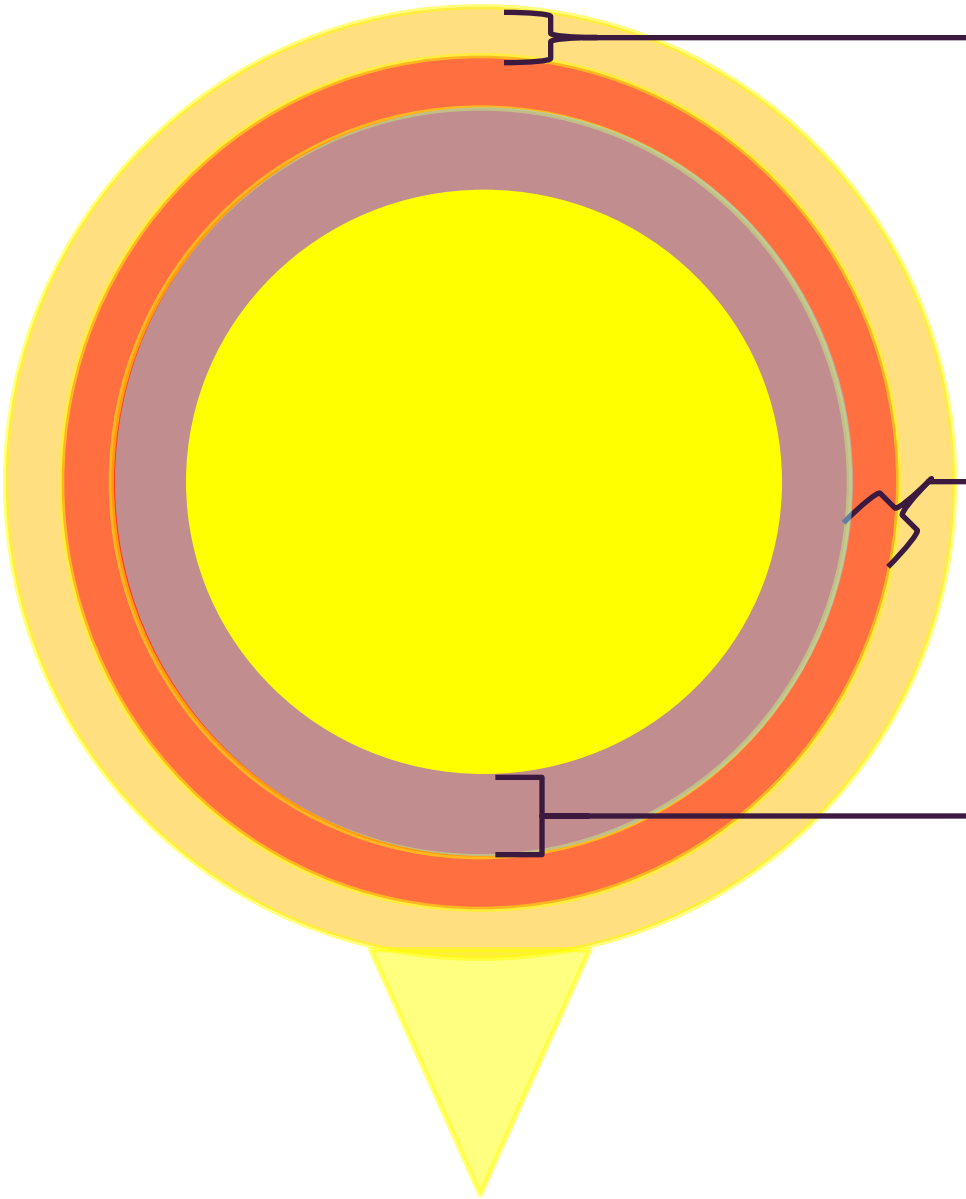
Perivesical fat
'Fat outside the bladder'
~20-30 mm thick

Detrusor muscle
'Muscular layer of bladder'
~10 mm thick

Urothelium
'Watertight layer of bladder'
~3 mm thick

NOT TO SCALE

Bladder cancer - Stage



MIBC

Perivesical fat

T3a micro invasion of fat
T3b macro invasion of fat

Detrusor muscle

T2a invasion into inner half
T2b invasion into outer half

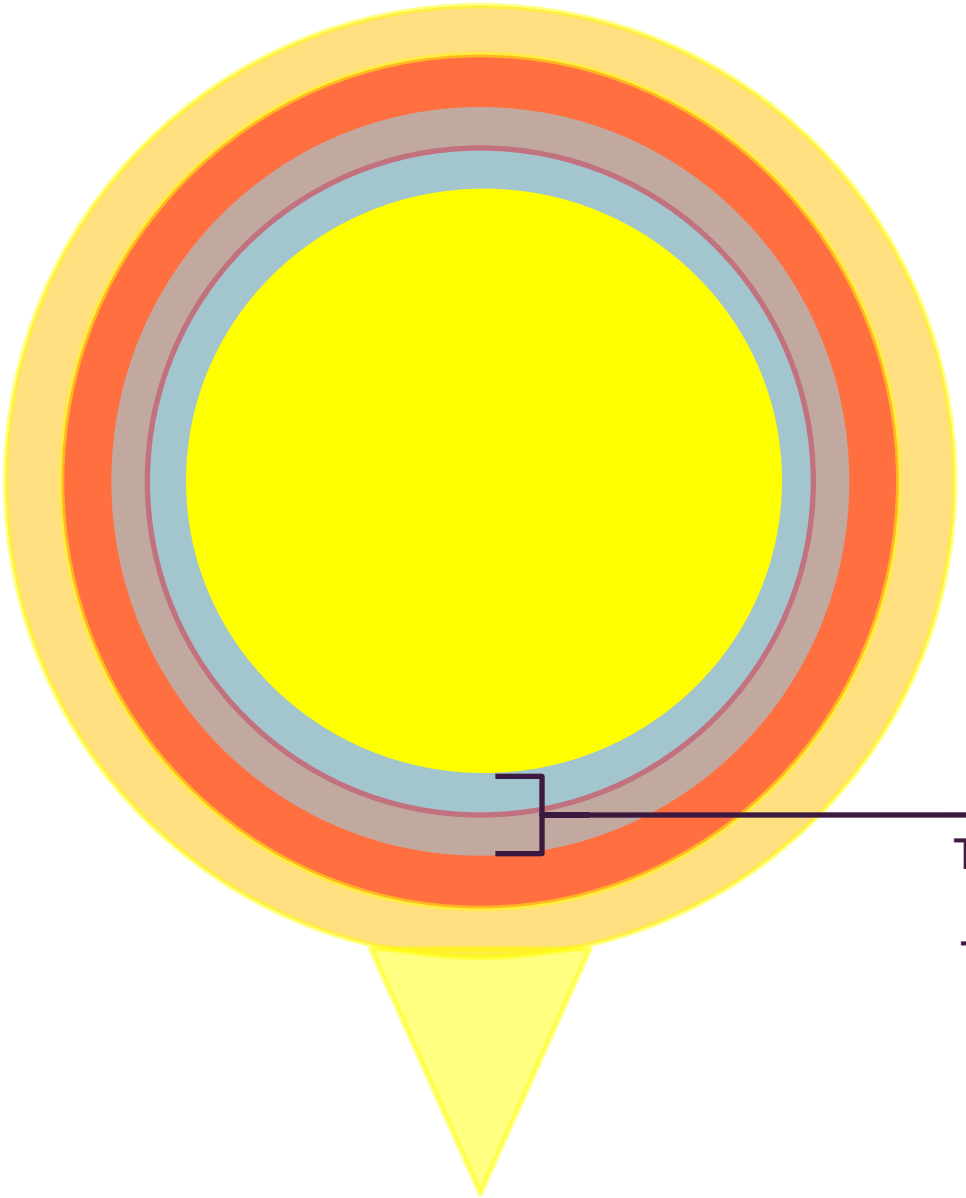
NMIBC

Urothelium

Divided by Lamina Propria

NOT TO SCALE

Bladder cancer - Stage



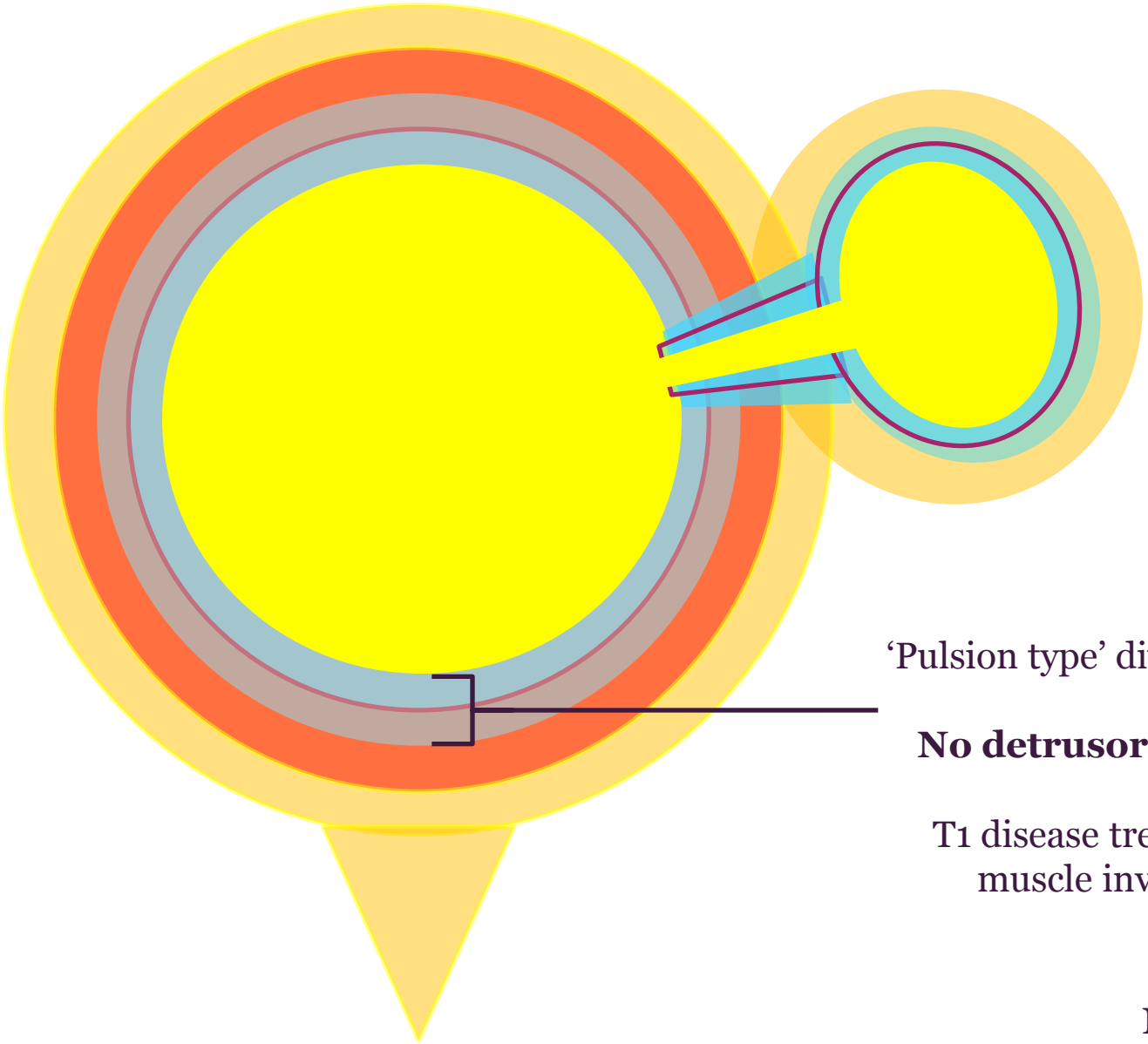
Urothelium (~ 3 mm)

Ta inner layer of urothelium only

T1a contact with lamina propria
T1b through lamina propria

NOT TO SCALE

Bladder cancer - Diverticulum

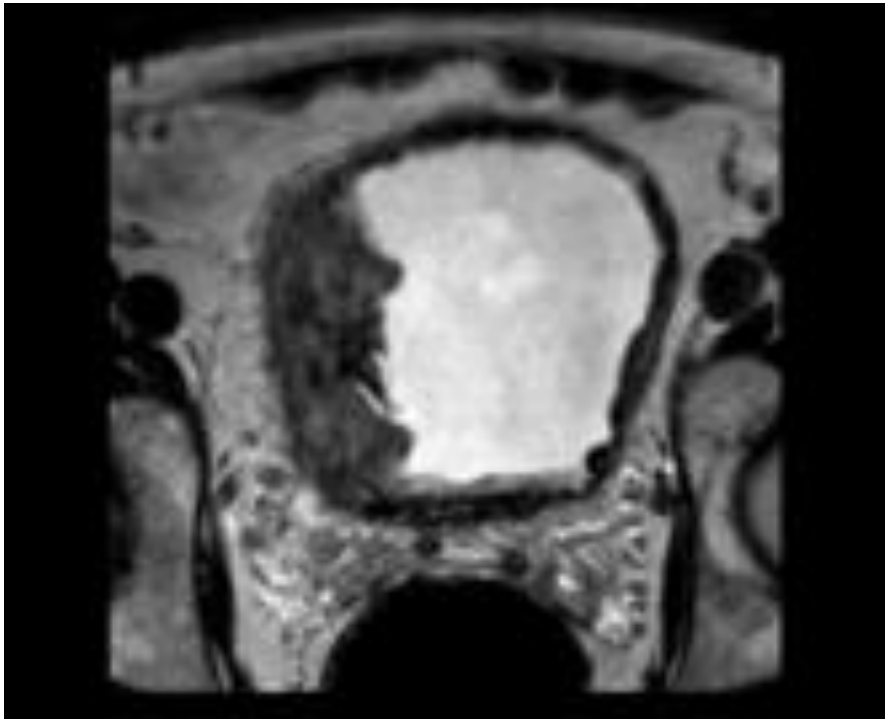


‘Pulsion type’ diverticulum

No detrusor muscle

T1 disease treated as muscle invasive

NOT TO SCALE



Augmented Cystoscopy - Narrow Band imaging

TransUrethral Resection of Bladder Tumour

Non-invasive Bladder Cancer

Diverse spectrum of disease

G1pTa *vs.* G3pT1

<1% mortality vs. 15% mortality

Carcinoma *in situ* (misnomer)

Recurrence and progression

Non-invasive Bladder Cancer

Diverse spectrum of disease

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Non-invasive Bladder Cancer

Diverse spectrum of disease

G1pTa *vs.* G3pT1

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Carcinoma *in situ* (misnomer)

Recurrence and progression

45 % G3pT1 have progressed by 5 years to muscle invasive or metastatic disease

Non-invasive Bladder Cancer

Diverse spectrum of disease

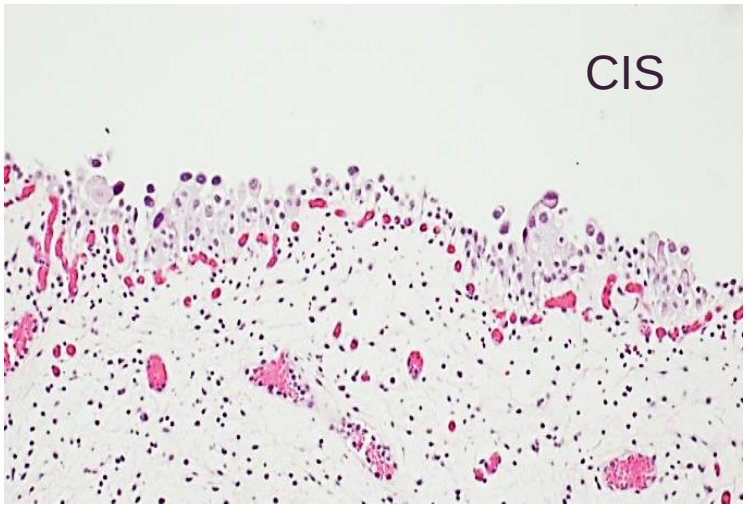
G1pTa *vs.* G3pT1

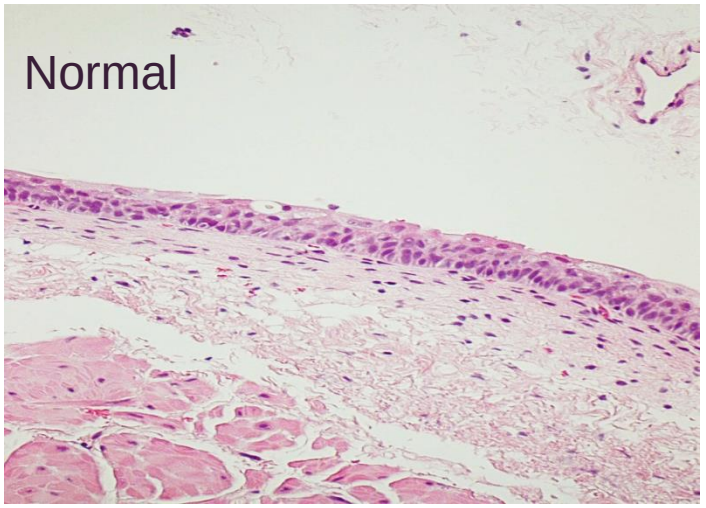
<1% mortality vs. 15% mortality

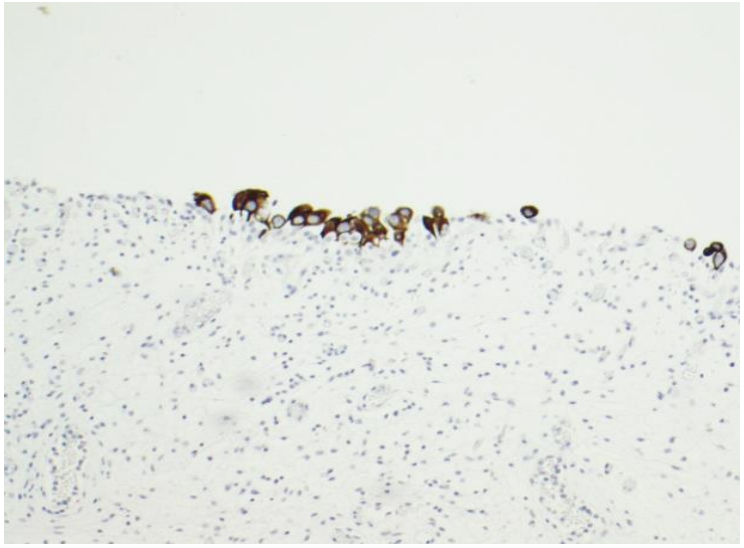
Carcinoma *in situ* (misnomer)

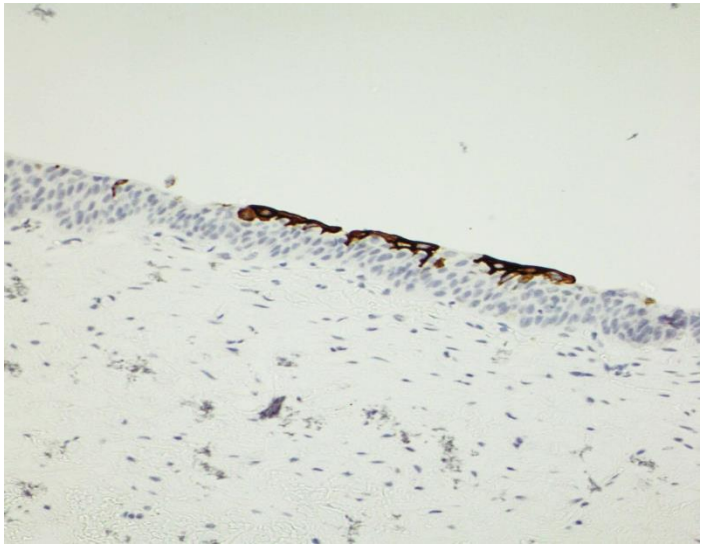
Recurrence and progression

Carcinoma *in situ*



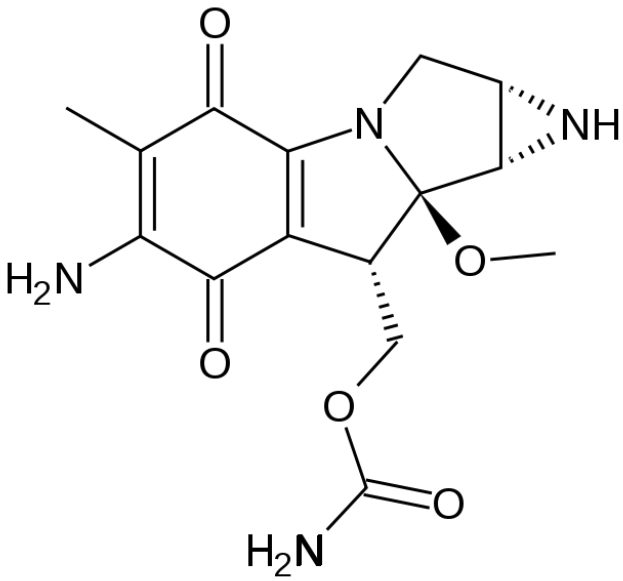


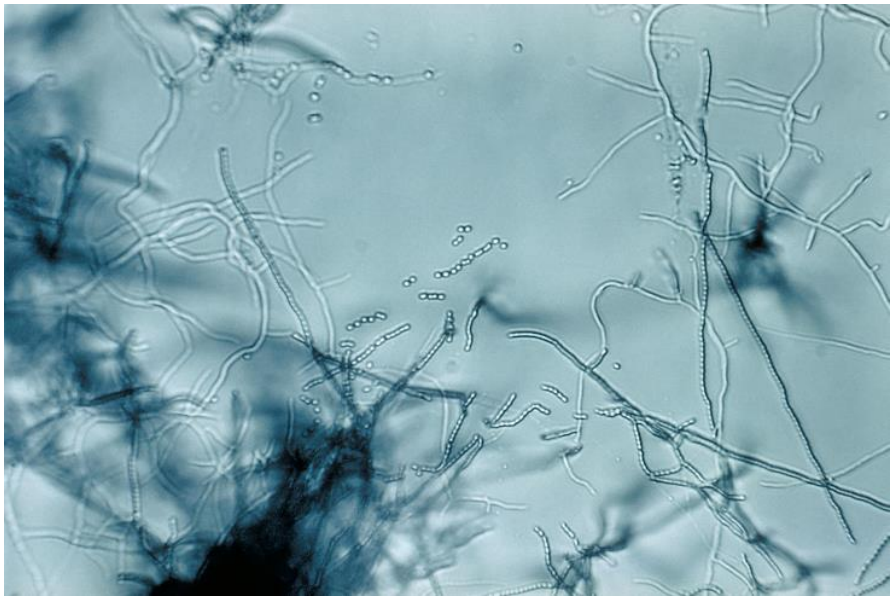




Intravesical Mitomycin C

- Streptomyces derivative
- DNA crosslinker





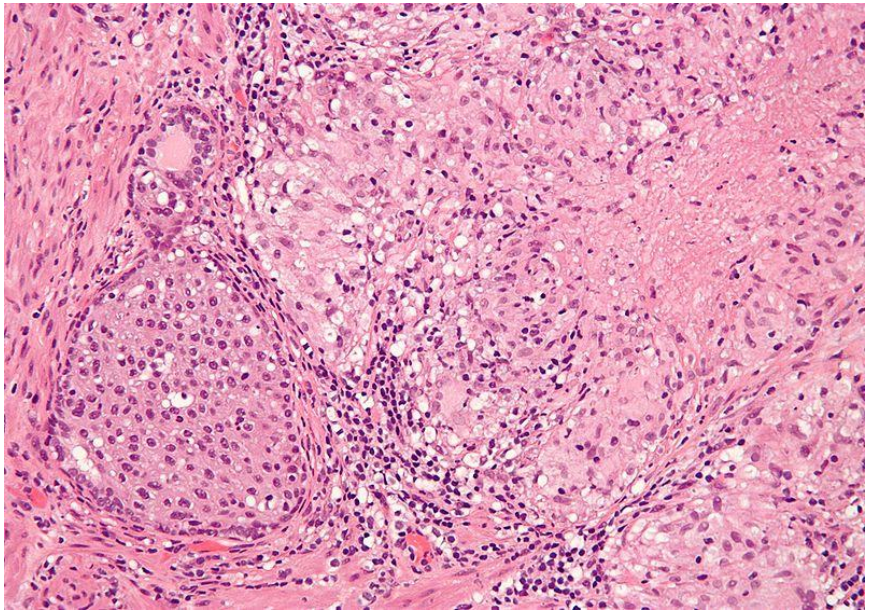
Intravesical Bacillus Calmette-Guérin

- Attenuated live bovine tuberculosis bacillus

- Pearl 1929
- Coe and Feldman 1966
- Morales 1976
- Lamm 1980

- Intact immune system, fibronectin

- Schedules vary



Non-invasive Bladder Cancer summary

- Low grade pTa disease is a nuisance
  - Endoscopic control
  - MMC
- Anything else requires evaluation and planning
  - BCG with maintenance therapy
  - Consider cystectomy early
- Continuity is the key

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Cystectomy

Indications for cystectomy

Cancer

- Muscle invasive bladder cancer
- High risk non-invasive bladder cancer

- Other pelvic cancers
  - Colorectal, Gynae, Sarcoma)

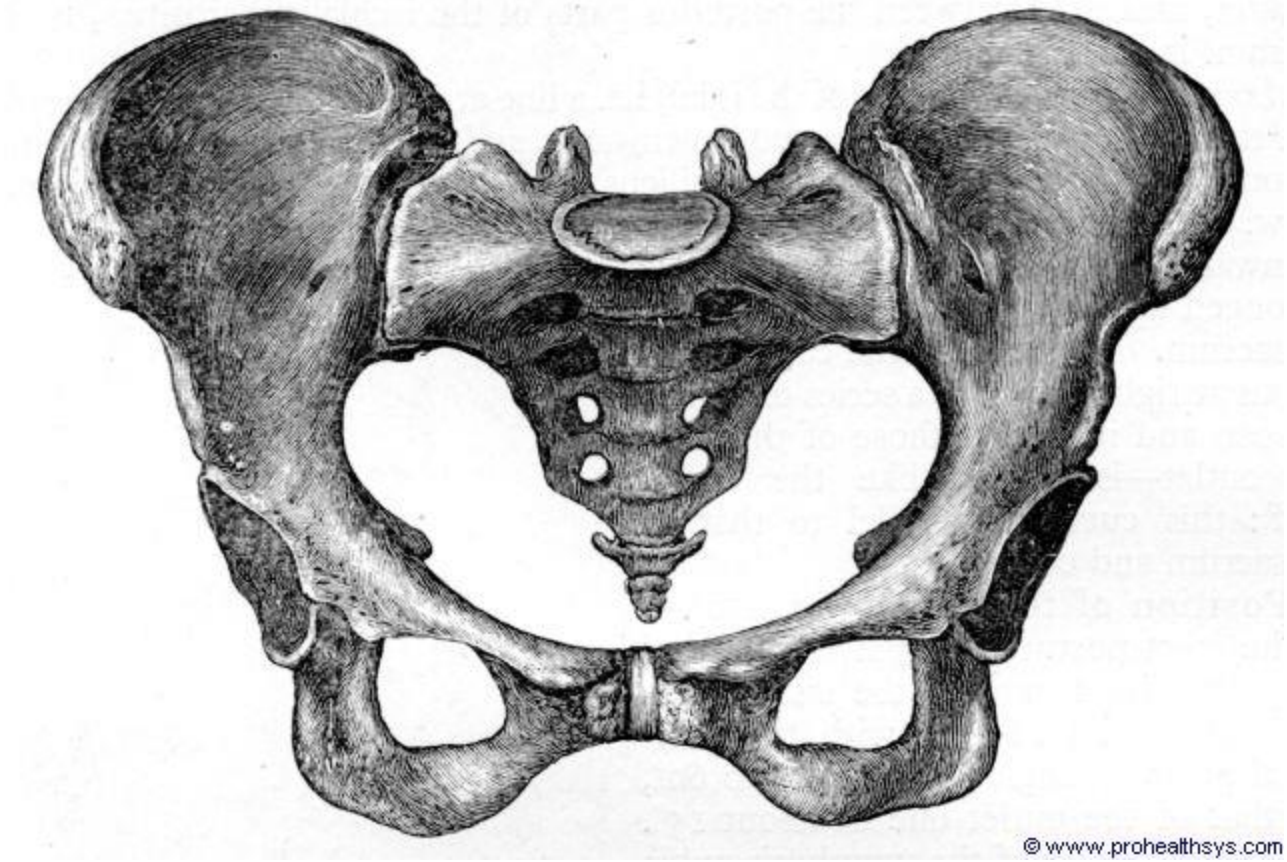
Functional

- Obstruction
- Fistula

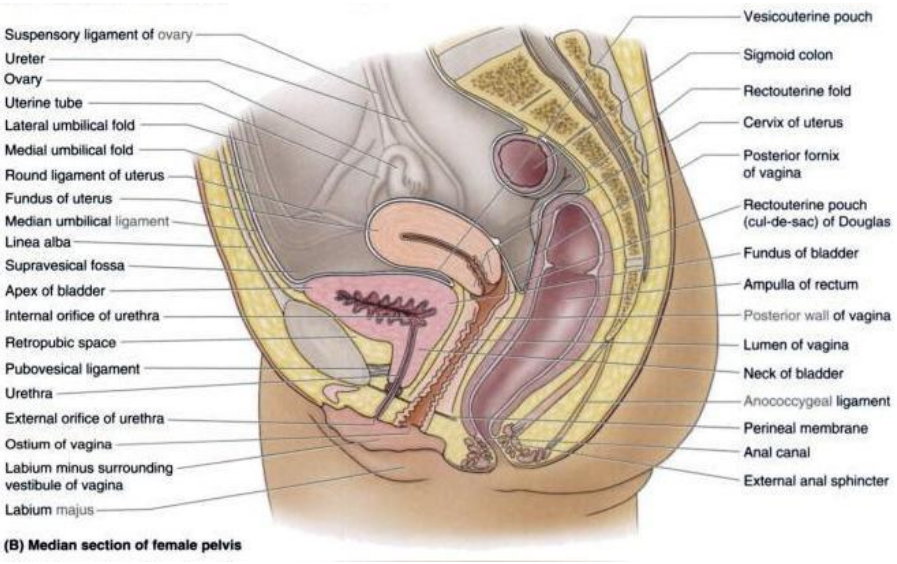
Cystectomy

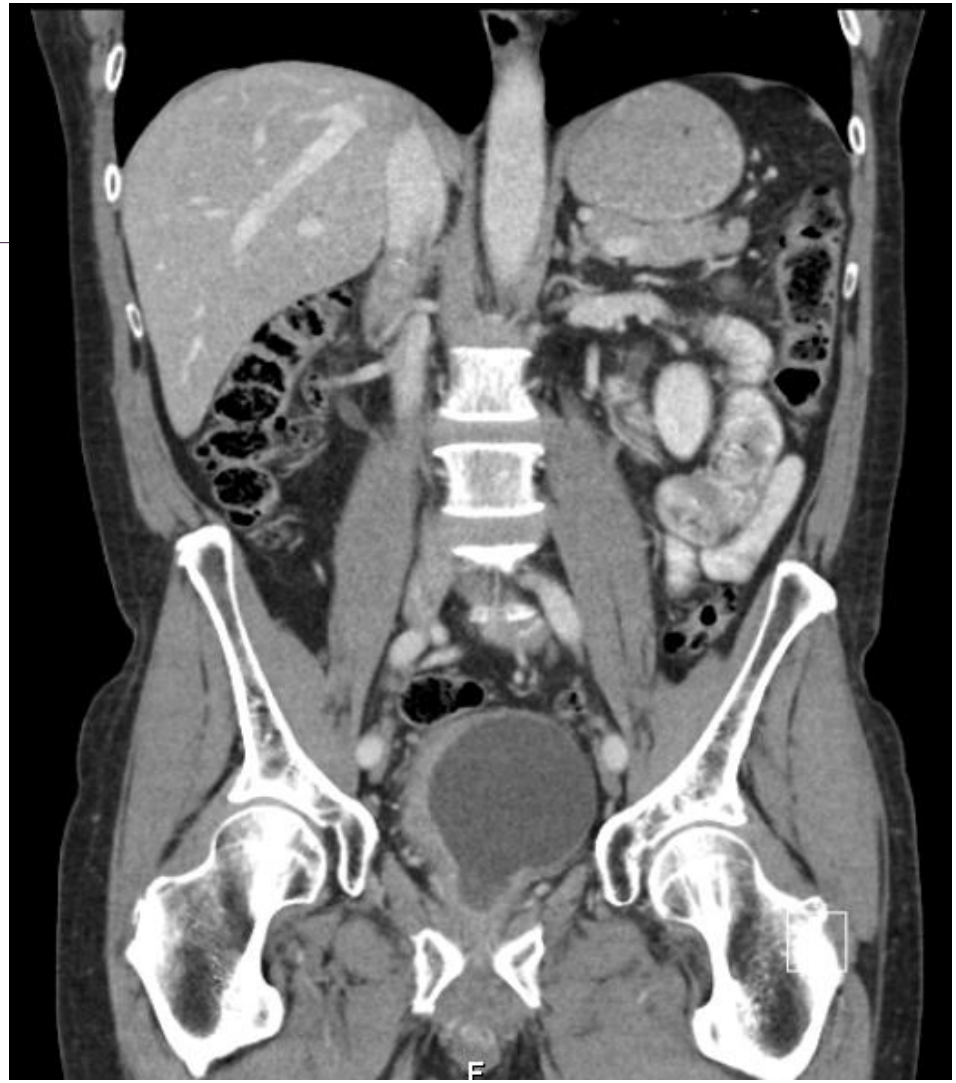
FIG. 451.—The female pelvis. Anterior aspect.

From a specimen in the museum of the Royal College of Surgeons of England.



Cystectomy


Suspensory ligament of ovary
Ureter
Ovary
Uterine tube
Lateral umbilical fold
Medial umbilical fold
Round ligament of uterus
Fundus of uterus
Median umbilical ligament
Linea alba
Supravesical fossa
Apex of bladder
Internal orifice of urethra
Retropubic space
Pubovesical ligament
Urethra
External orifice of urethra
Ostium of vagina
Labium minus surrounding vestibule of vagina
Labium majus
Vesicouterine pouch
Sigmoid colon
Rectouterine fold
Cervix of uterus
Posterior fornix of vagina
Rectouterine pouch (cul-de-sac) of Douglas
Fundus of bladder
Ampulla of rectum
Posterior wall of vagina
Lumen of vagina
Neck of bladder
Anococcygeal ligament
Perineal membrane
Anal canal
External anal sphincter
(B) Median section of female pelvis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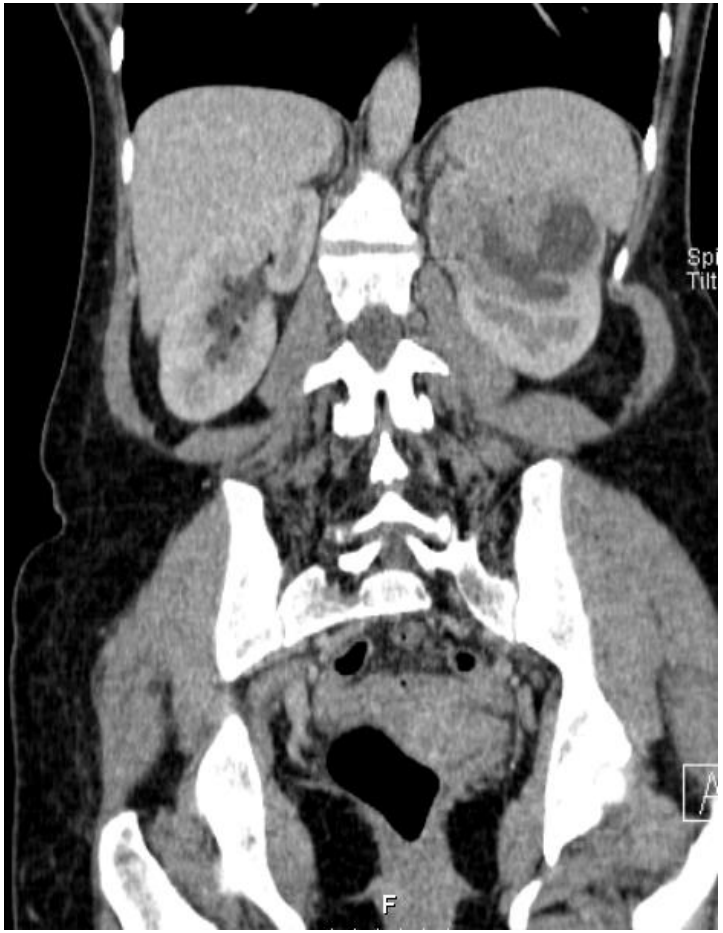
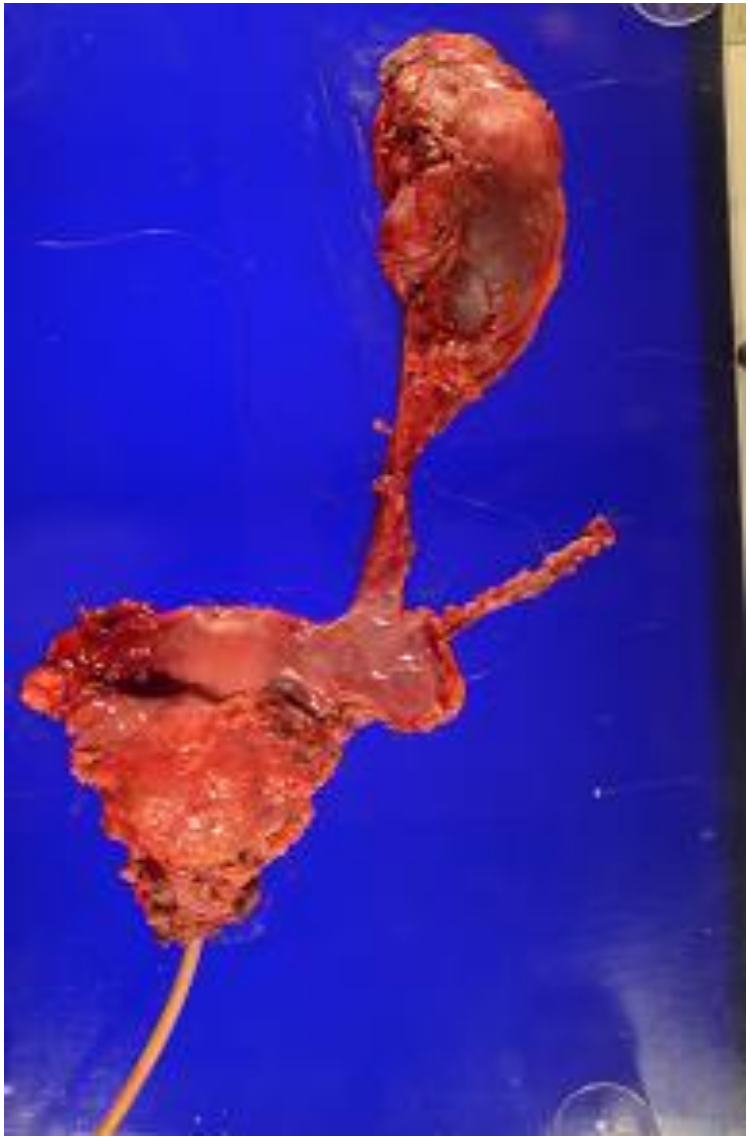
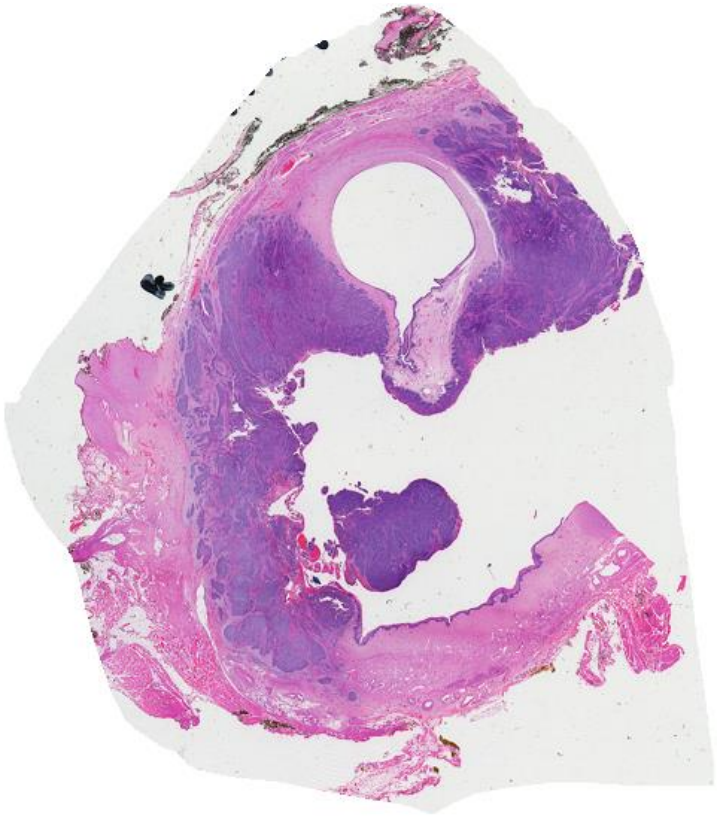


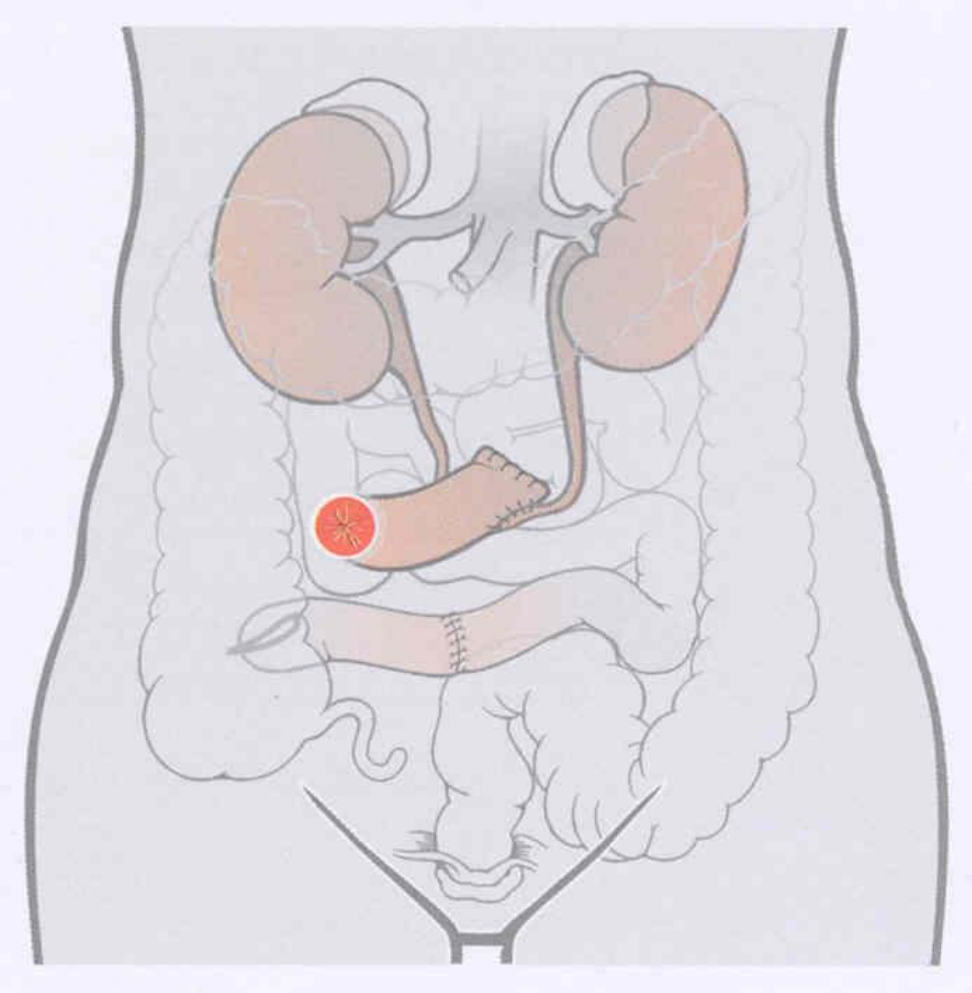




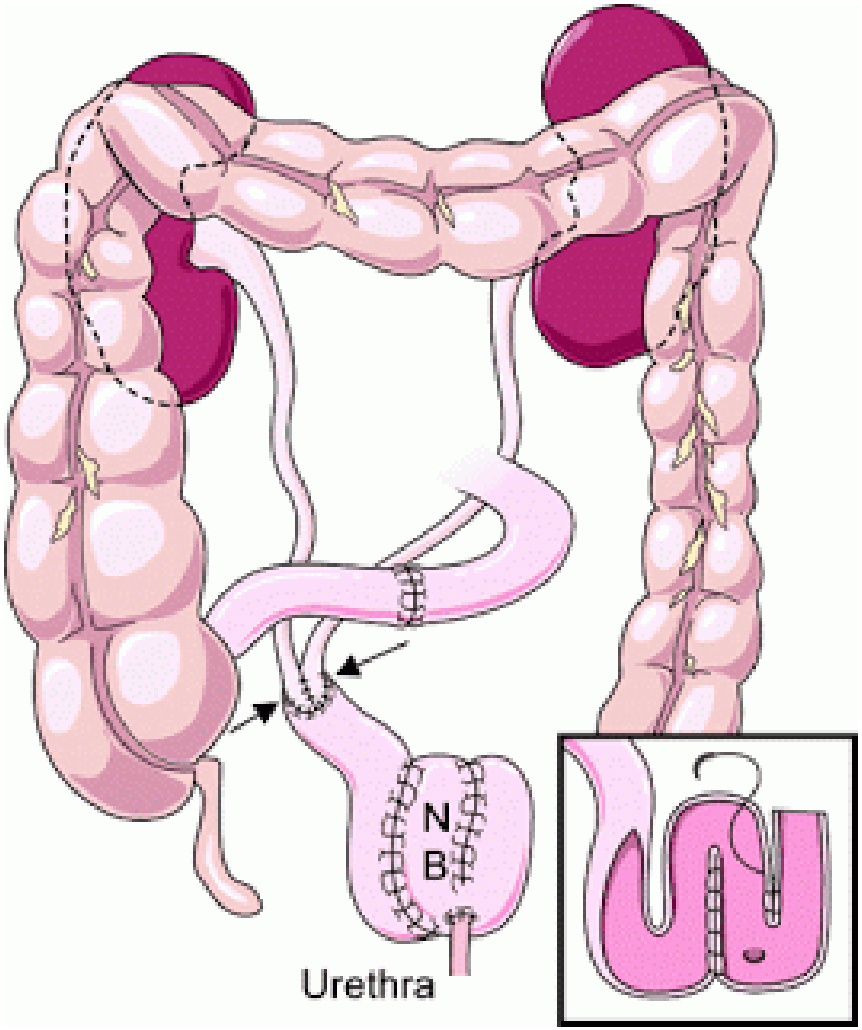
Cystectomy

- Route Open, Lap, Robotic
- Lymphadenectomy
- Diversion type

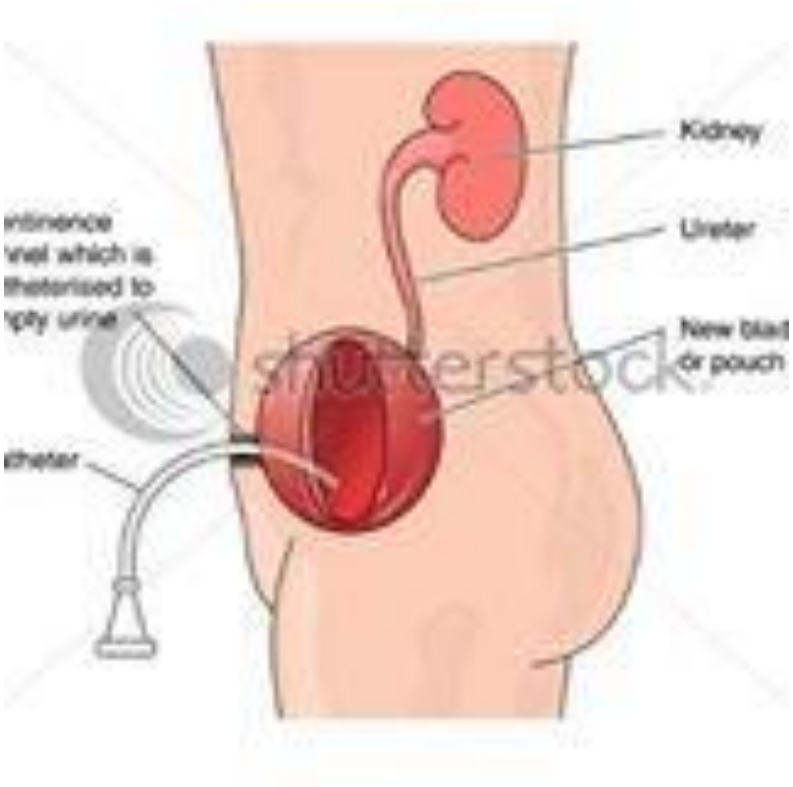
Urinary diversion



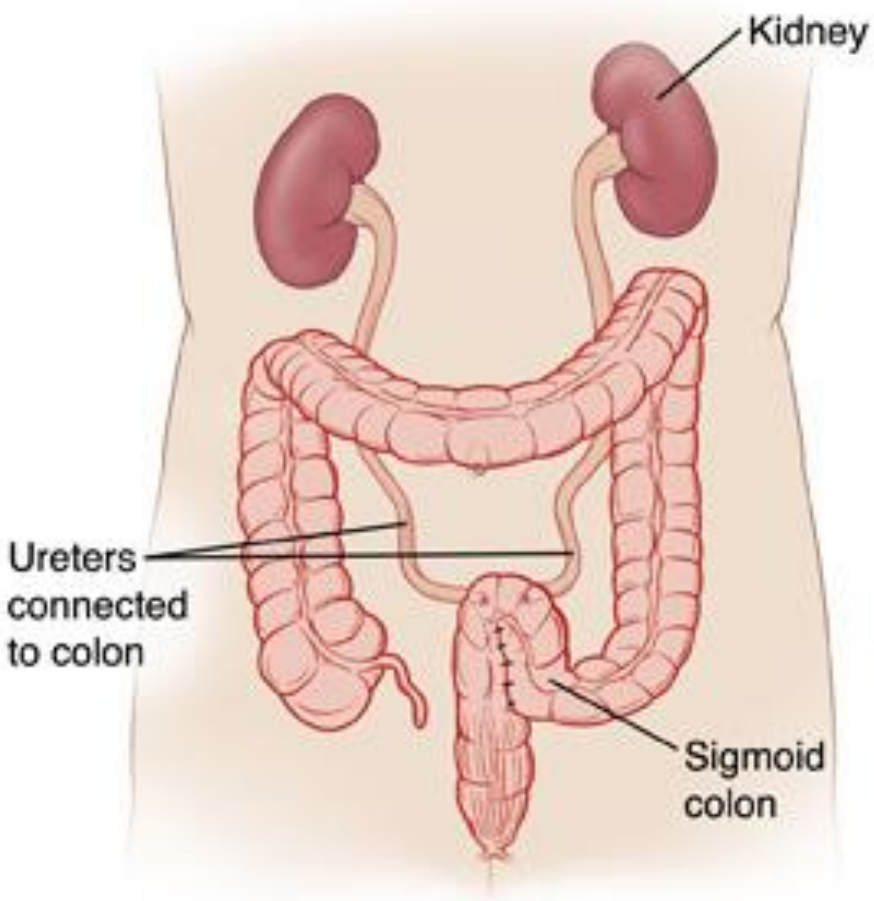
Urinary diversion



Urinary diversion



Urinary diversion



Questions?