Urology birmingham CENTERS OF ALABAMA

Houston, We Have a Problem…Hematuria and What You Should Do to Evaluate

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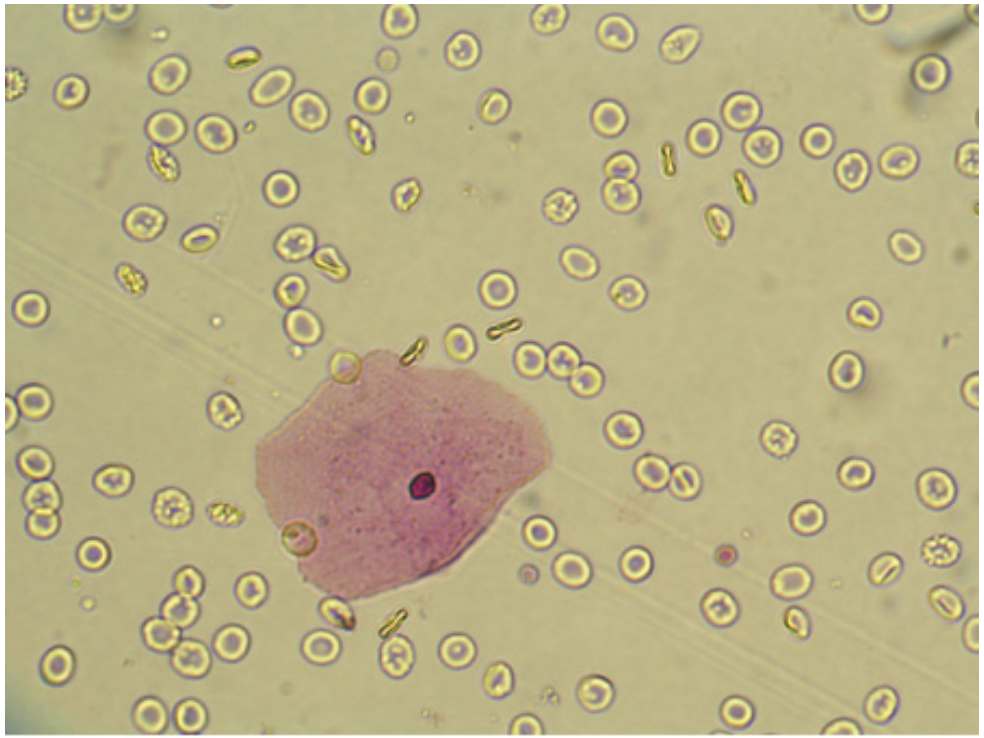
Asymptomatic Microscopic Hematuria

Definition

- 3 or more red blood cells per high power field
- Exclude benign causes
- Dipstick alone not sufficient

Costs

- $8 vs $10



Source: Usatine RP, Smith MA, Mayeaux EJ Jr, Chumley H, Tysinger J: *The Color Atlas of Family Medicine*: www.accessmedicine.com

Why are We Screening?

Malignancy

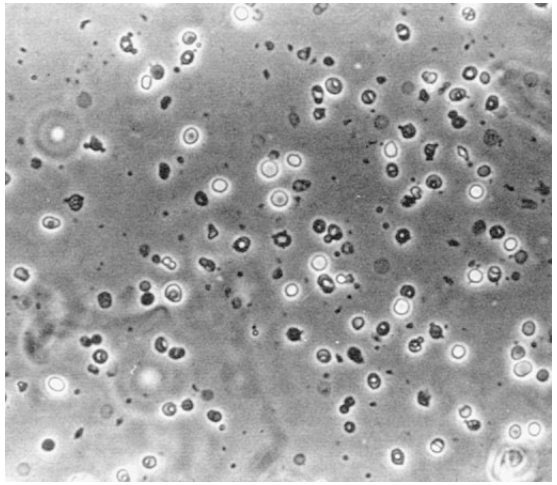
- 1-25% of patients evaluated had malignancy
- Meta analysis of all studies showed overall percentage of 3.6%

Nonmalignant causes in 1/3-2/3

- Most common
  - BPH
  - Infection
  - Urinary calculi
- Nephrologic causes

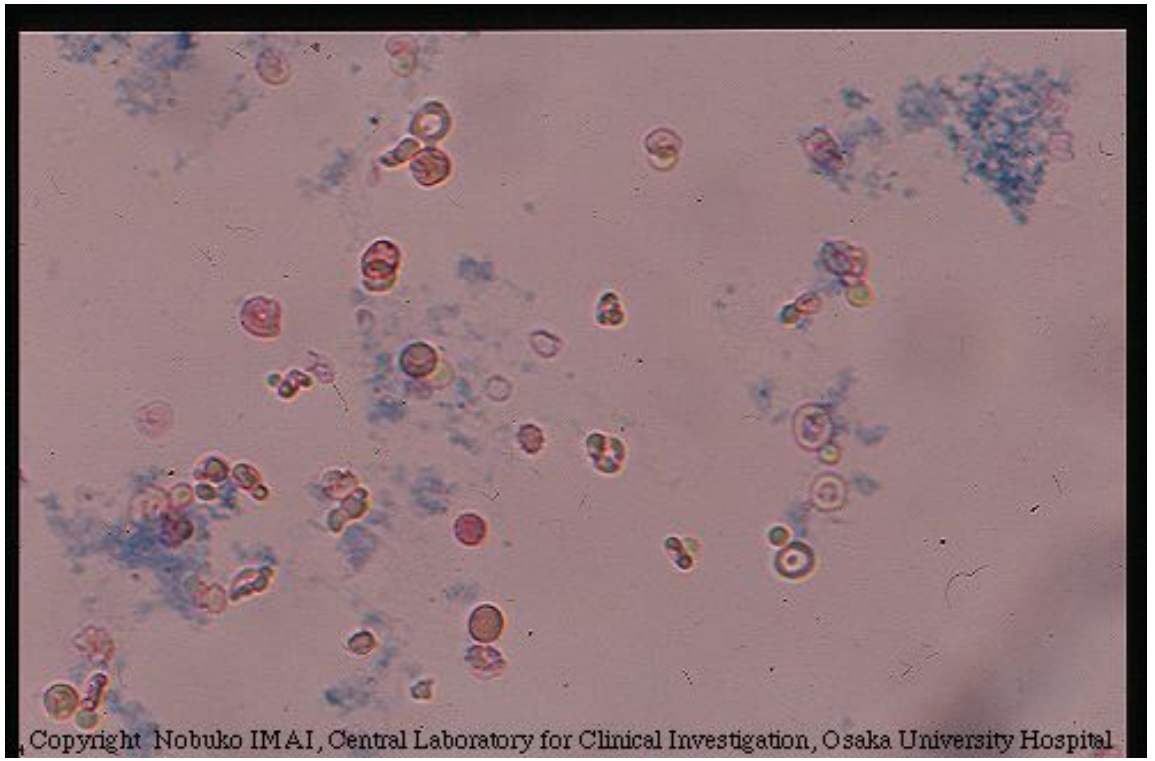
Rule Out Benign Causes of AMH

- Careful history and physical exam to rule out benign causes of AMH
  - Infection
  - Menstruation
  - Vigorous exercise
  - Medical renal disease
  - Viral illness
  - Trauma
  - Recent GU instrumentation
- If all benign causes ruled out → urologic evaluation



Potential Nephrologic Evaluation

- Concurrent nephrologic work up indicated if presence of:
  - Dysmorphic RBCs
  - Proteinuria
  - Cellular casts
  - Renal insufficiency
  - Other clinical indicator suspicious for renal parenchymal disease
- Does not preclude the need for urologic evaluation!



Common Risk Factors for GU Malignancy in Patients with AMH

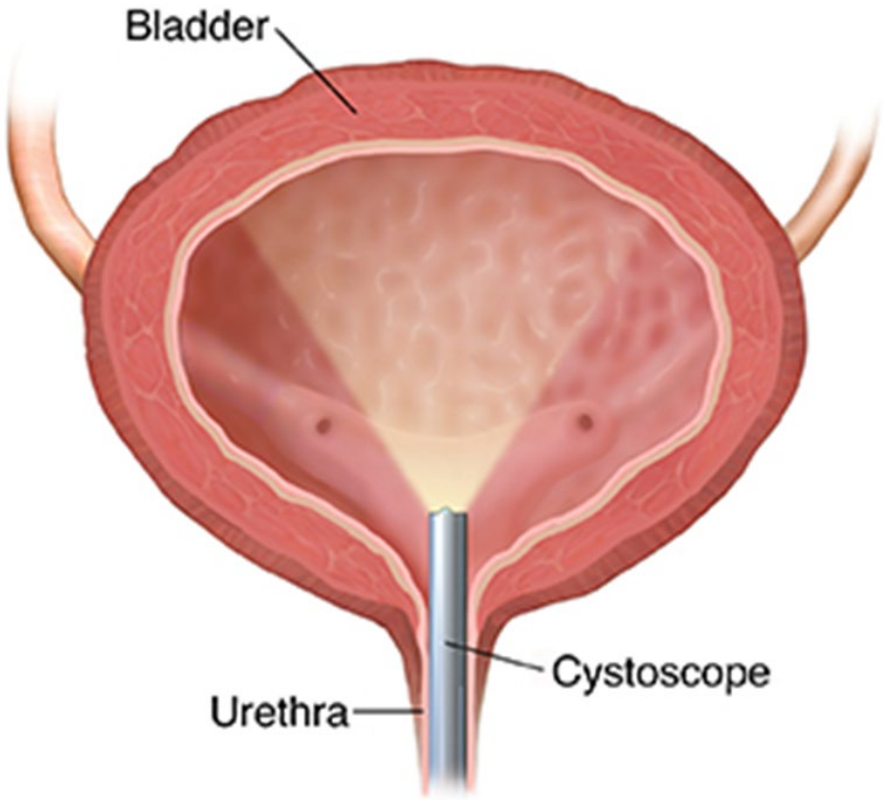
- Male gender
- Age > 35
- Past or current smoking
- Occupational or other exposure to chemicals or dyes (benzenes or aromatic amines)
- Analgesic abuse
- History of gross hematuria
- History of GU disorder or disease
- History of irritative voiding symptoms
- History of pelvic irradiation
- History of chronic UTI
- History of indwelling foreign body
- History of exposure to carcinogenic agents or chemotherapy such as alkylating agents

Urologic Workup

- Assess renal function
  - Intrinsic renal disease may have implications for renal-related risk during the evaluation and management of patients w/ AMH
- Cystoscopy
- Imaging
  - CT Urography
  - MR Urography
  - Alternative imaging modalities

Cystoscopy

- All patients > 35 years old
- In patients < 35 years old, cystoscopy can be performed at the physician's discretion
- Cystoscopy should be performed in all patients who present with risk factors for GU malignancy regardless of age

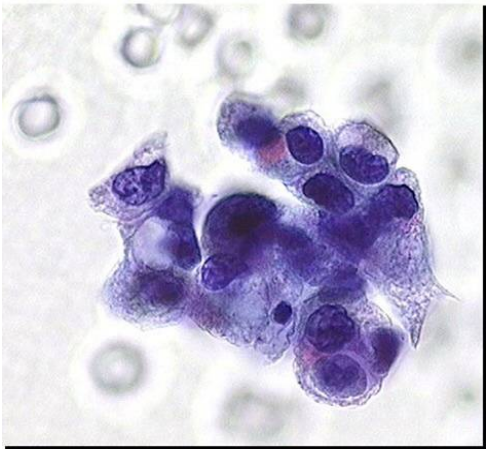


Imaging

- Gold standard: Multi-phasic CT without and with contrast with sufficient phases to evaluate renal parenchyma (rule out renal mass) and excretory phase to evaluate urothelium of upper tracts and ureters
- MR urography acceptable alternative if contraindications to CT urography (renal insufficiency, contrast allergy, or pregnancy)
- If contraindication to contrast (renal insufficiency/contrast allergy) can also consider non-con CT, non-con MRI, or renal US combined with retrograde pyelography

Urine Culture and Cytology

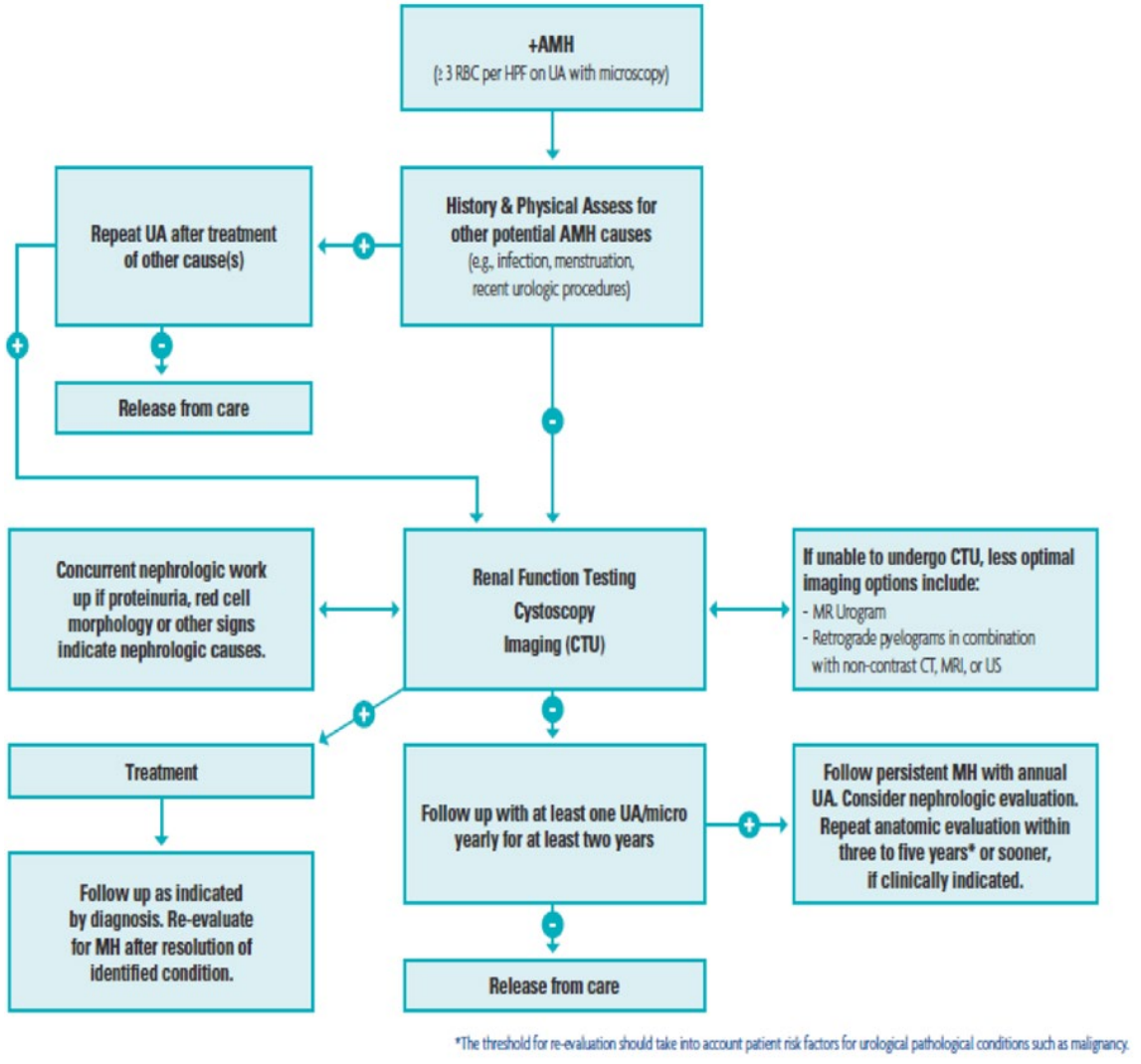
- Urine culture helpful to rule out infection
- Cytology is not recommended for routine evaluation
- Cytology can be helpful in patients with persistent AMH despite previous negative workup or in patients with other risk factors for carcinoma in situ (irritative voiding symptoms, current or past tobacco use, chemical exposures)



Asymptomatic Microscopic Hematuria

- What should I do with the positive dipstick but negative microscopic analysis?
  - Recommendation to repeat analysis with microscopic evaluation for total 3 x and then deem negative.
- What should I do with patients on anticoagulation?
  - If positive microscopic hematuria, they need a full workup regardless of type of anticoagulation.
- What should I do with a patient with AMH and renal dysfunction?
  - Both nephrologic and urologic consultation
- Should I send a cytology?
  - No

Hematuria Algorithm Panel Review

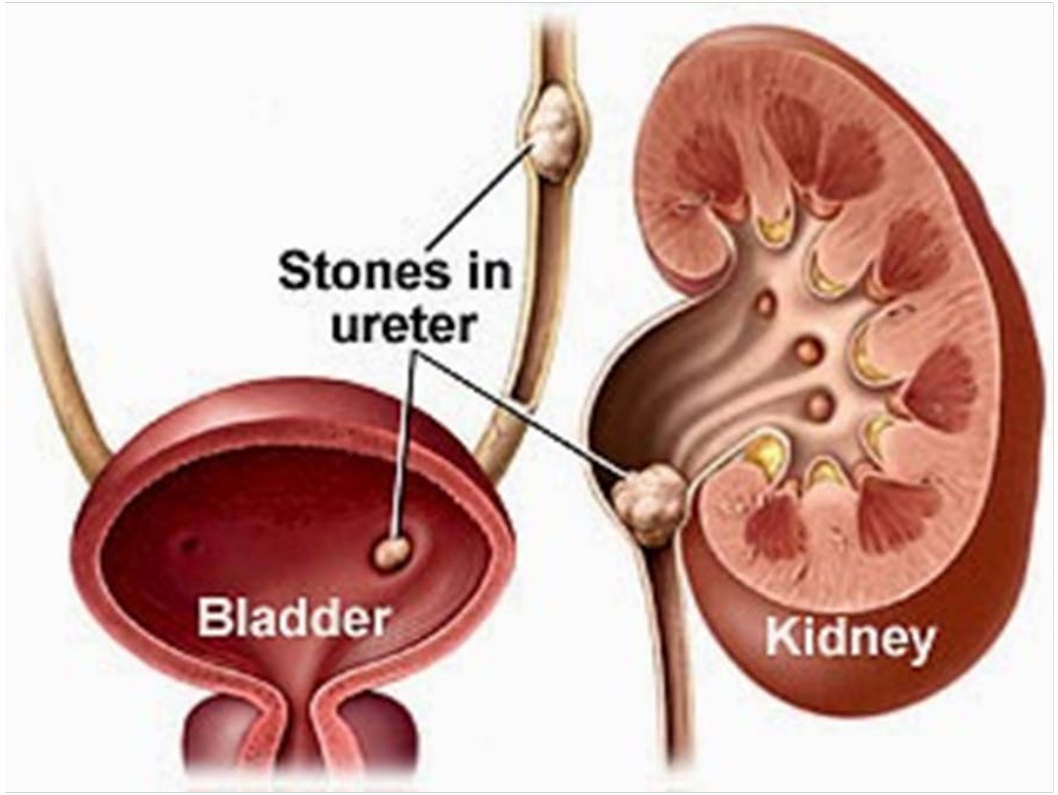


Why is the workup important?

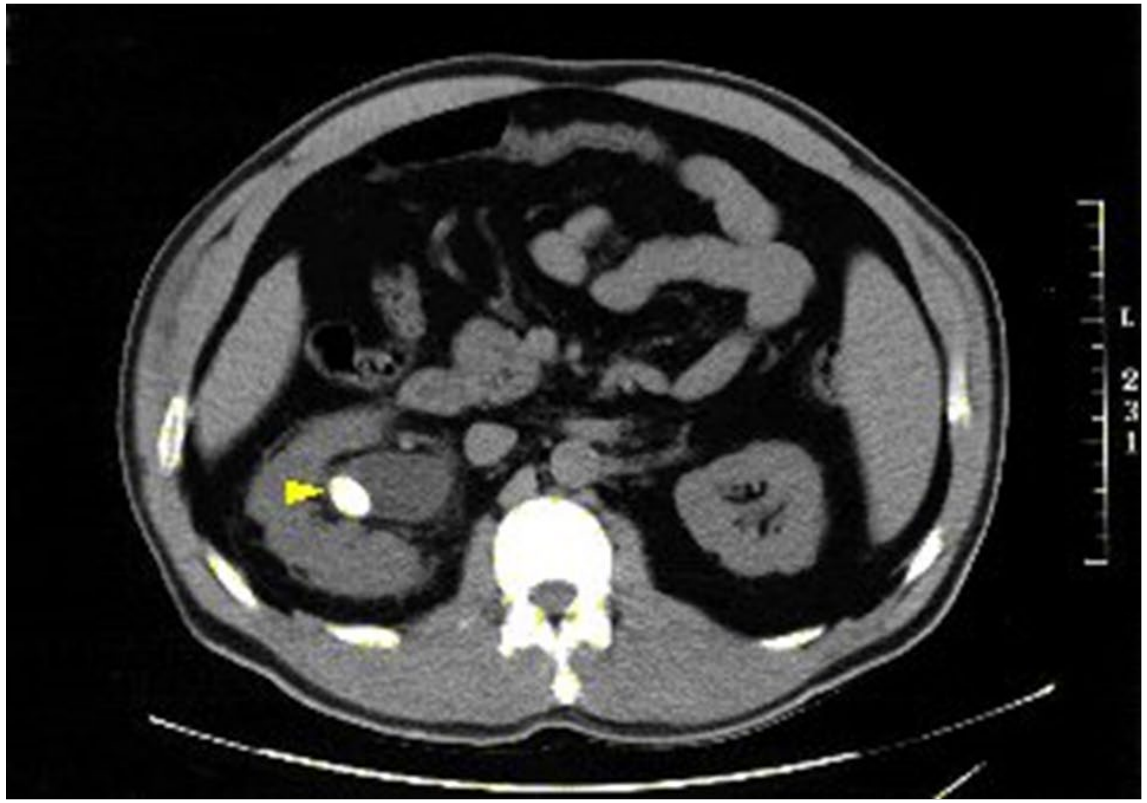
What are we looking for?

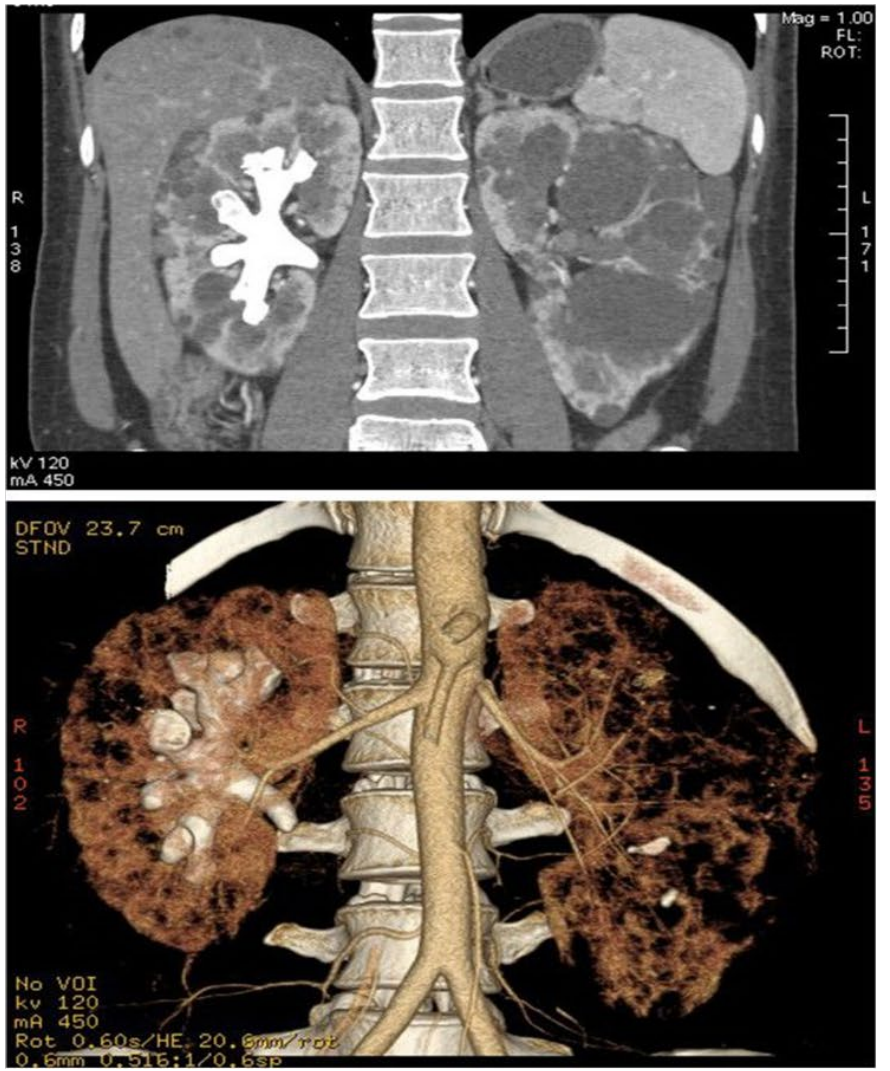
Stones

Stones

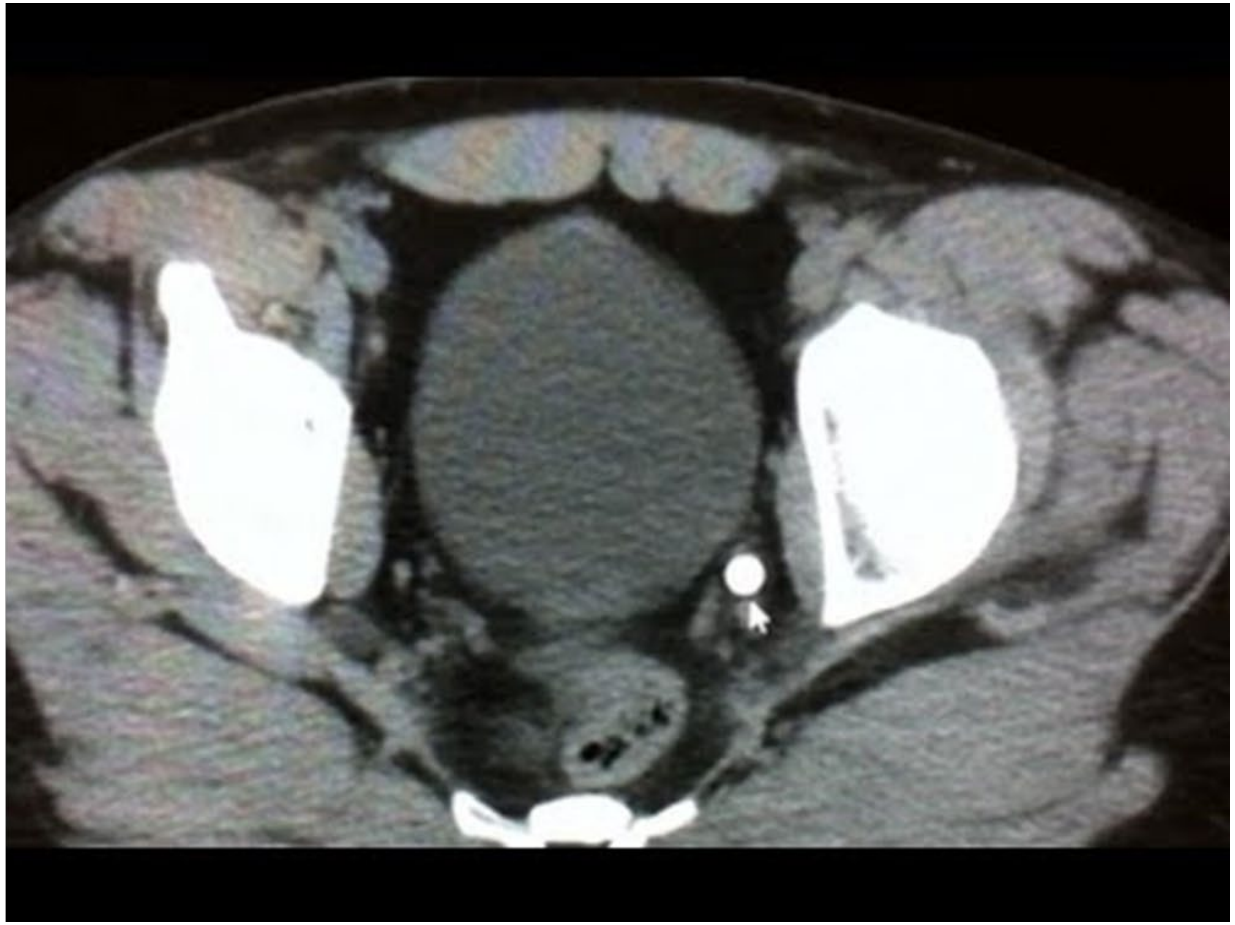


Renal Stones





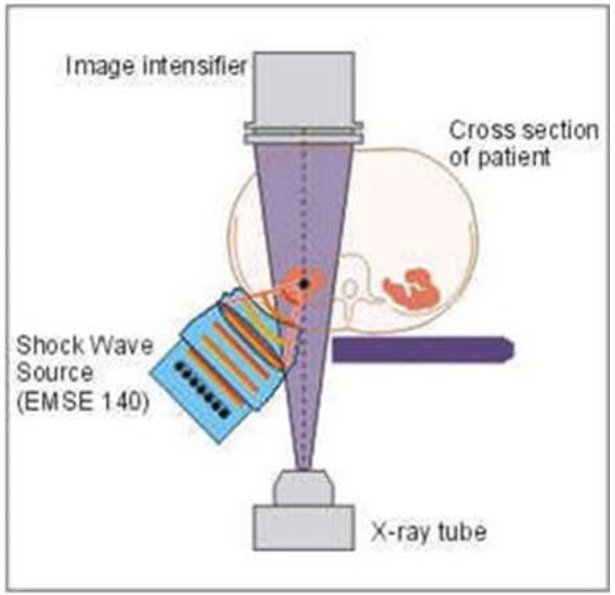
Ureteral Stones



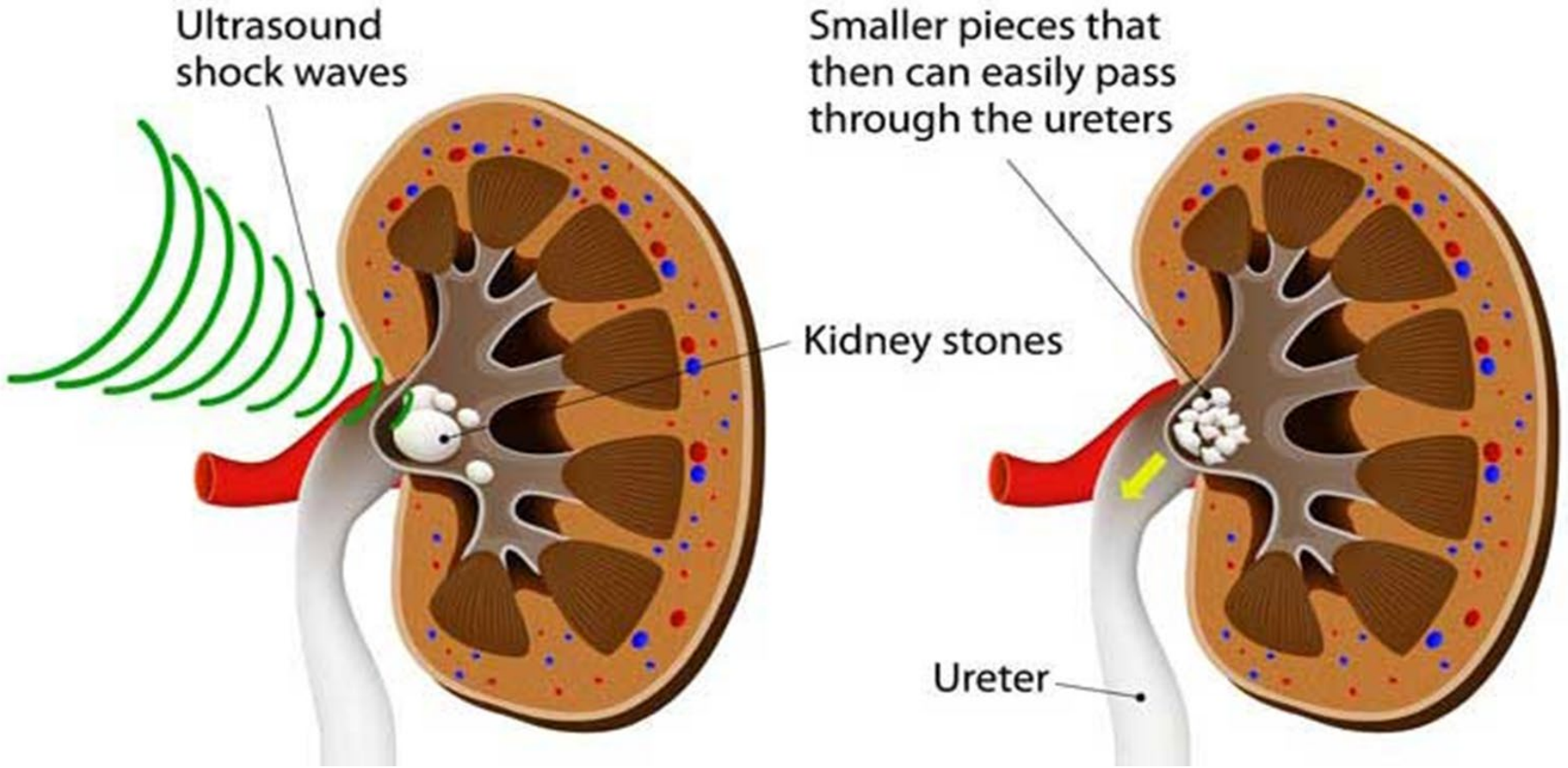
Stone Treatment Options

- Medical expulsive therapy/trial of passage
  - Hydration, analgesics, anti-emetics, +/- alpha blockers
- ESWL
- Ureteroscopy
- Percutaneous nephrolithomy (PCNL)

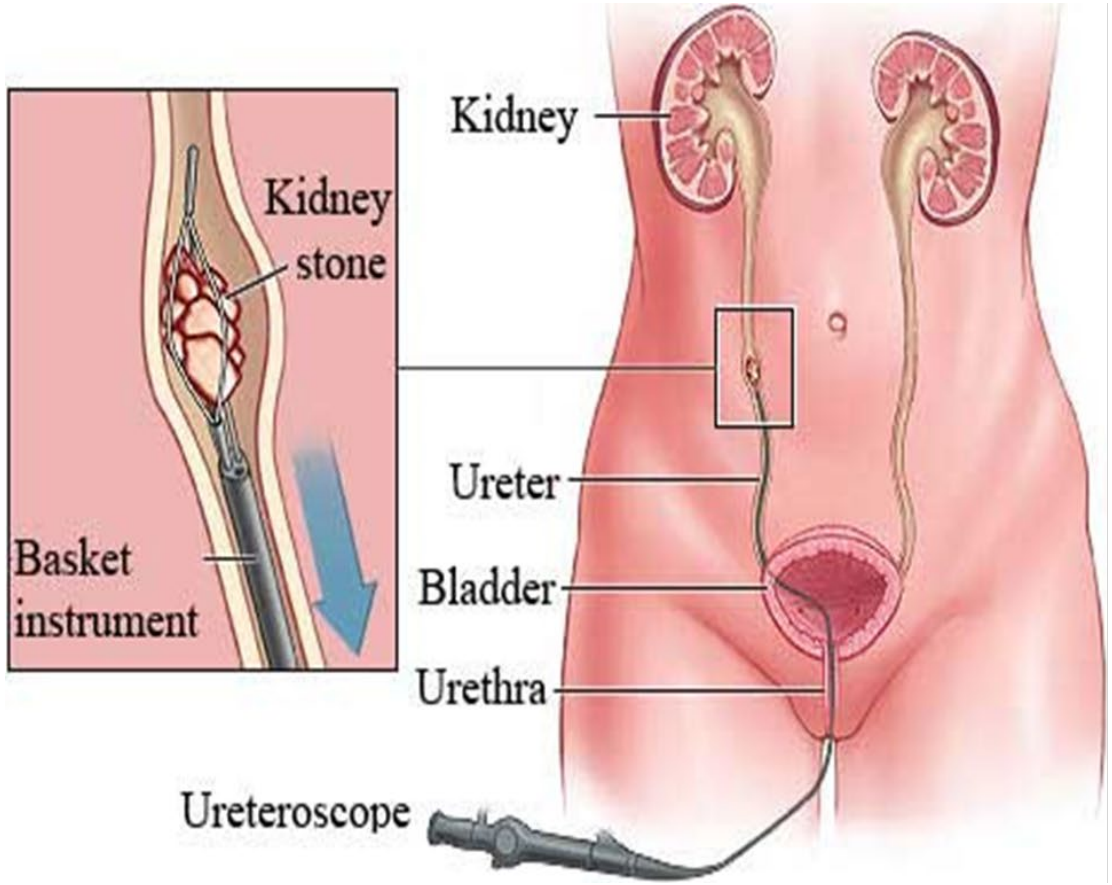
Extracorporeal Shockwave Lithotripsy (ESWL)

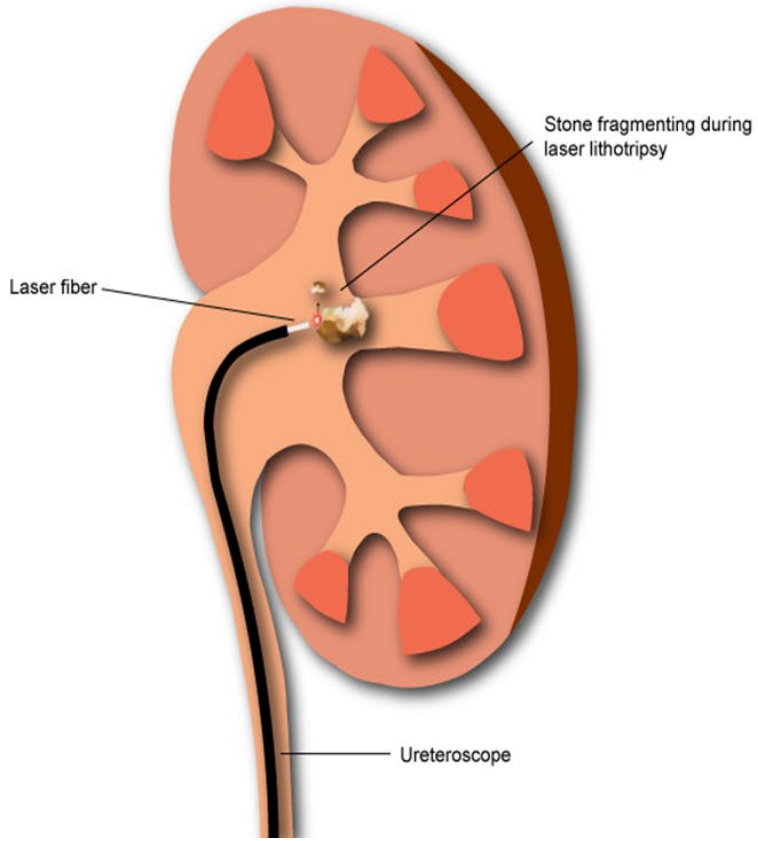


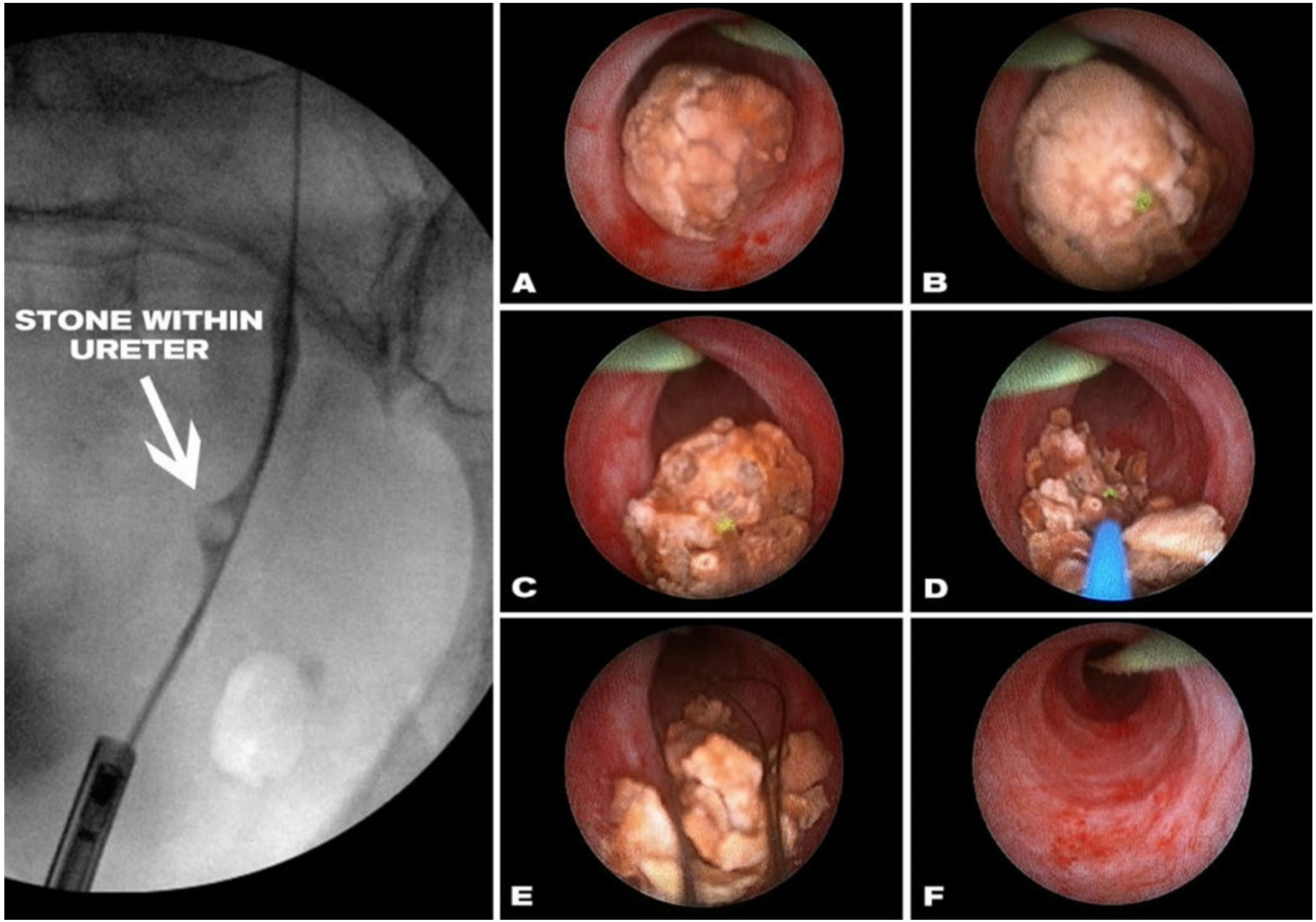
ESWL


Ultrasound shock waves
Kidney stones
Smaller pieces that then can easily pass through the ureters
Ureter

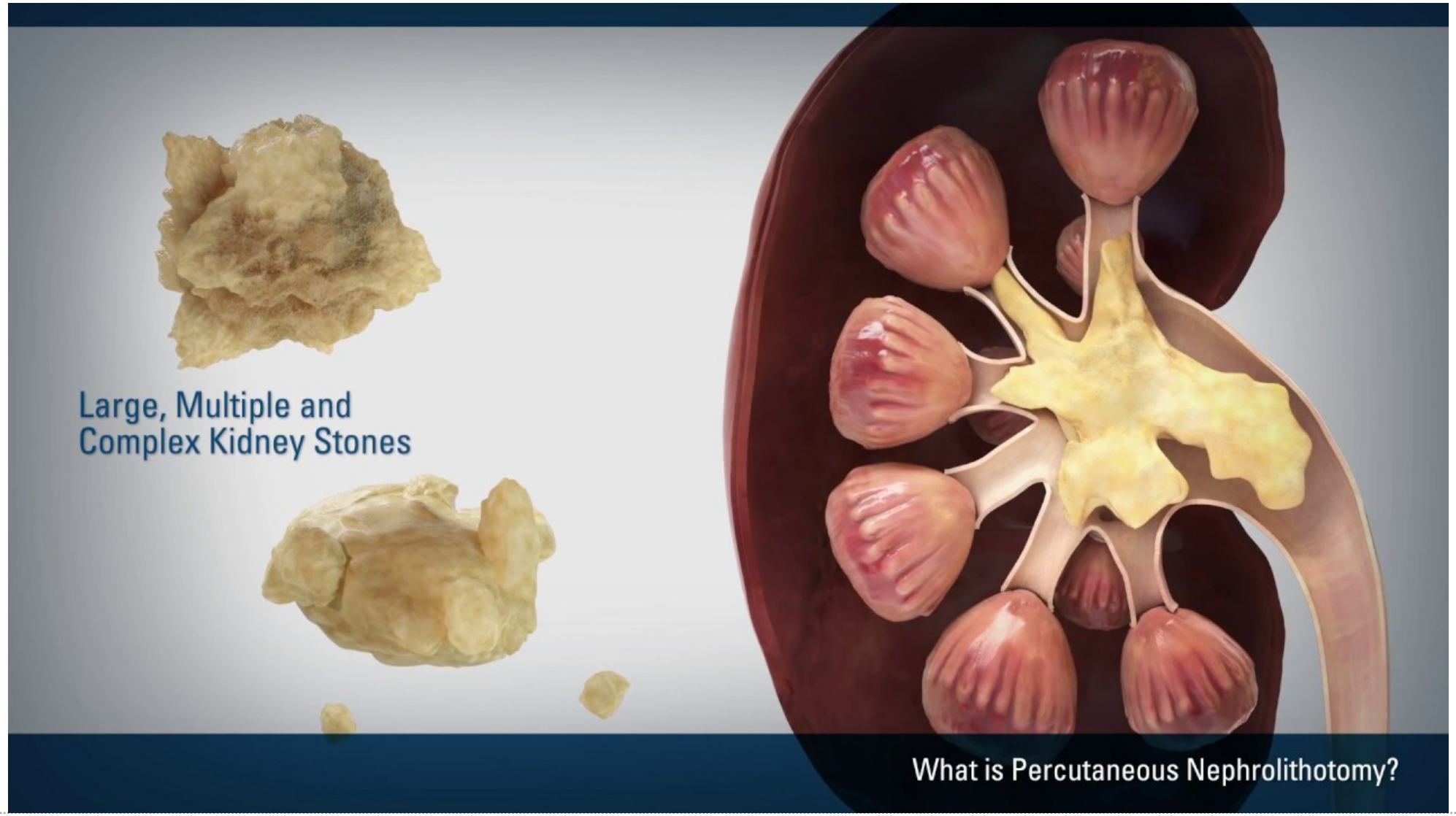
Ureteroscopy






STONE WITHIN
URETER
A
B
C
D
E
F

Percutaneous Nephrolithomy (PCNL)



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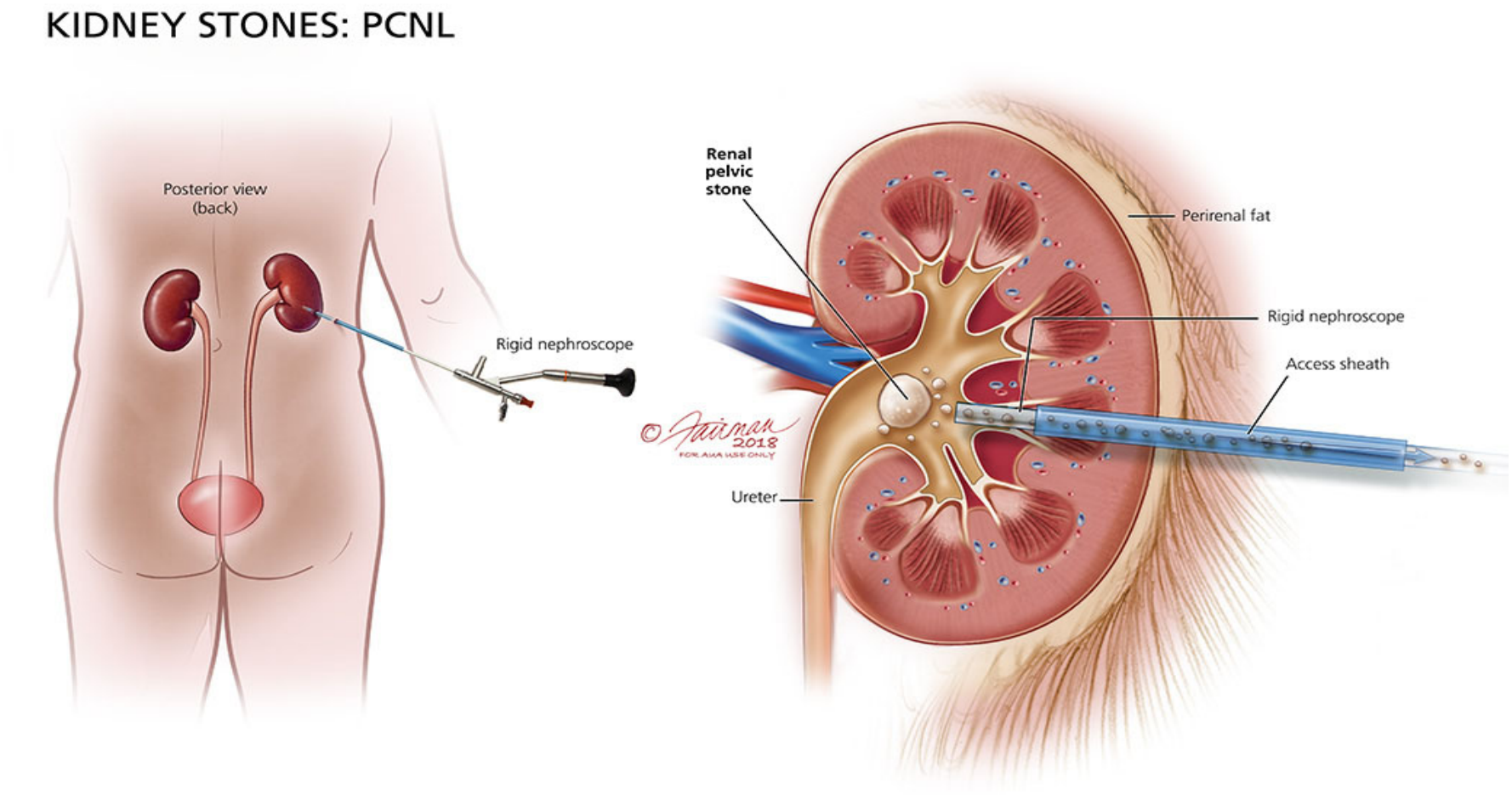

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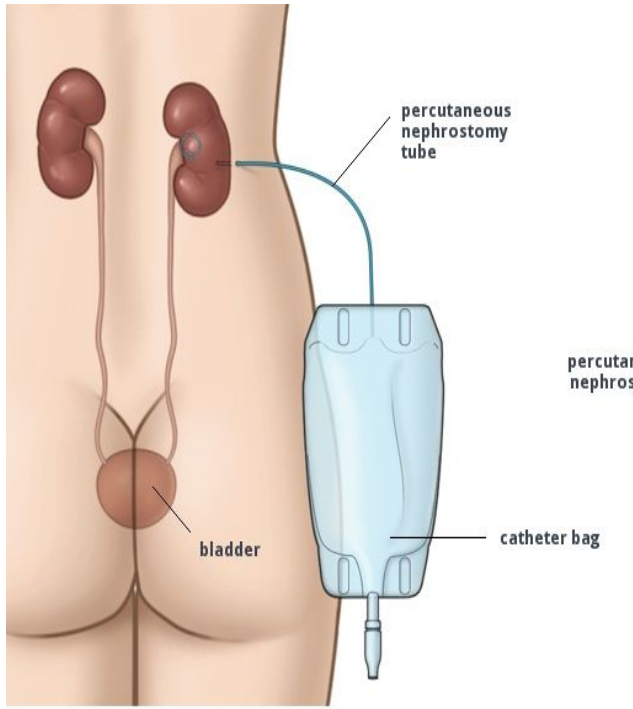
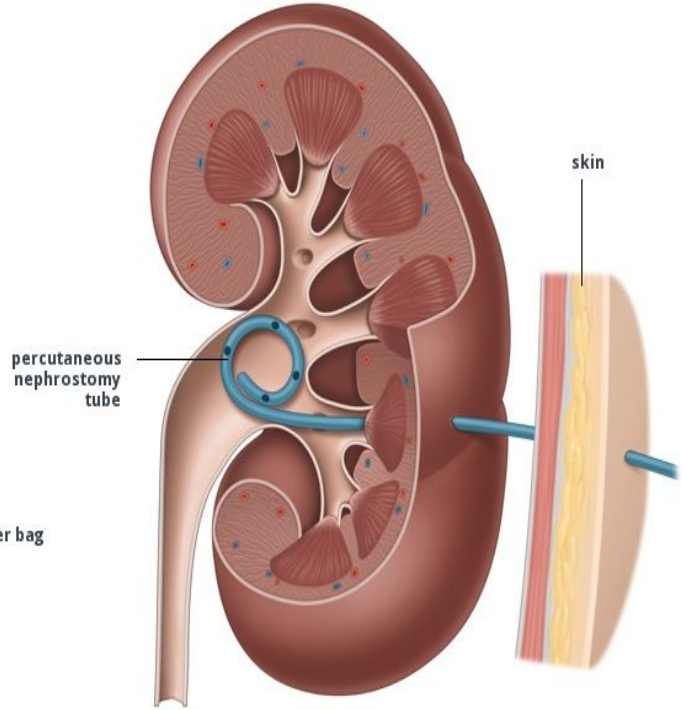
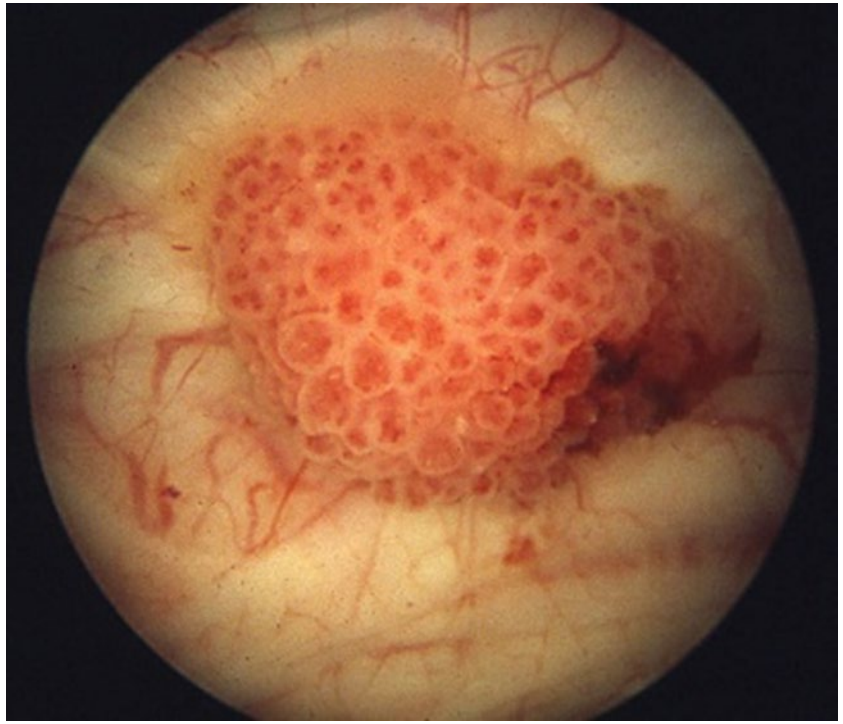
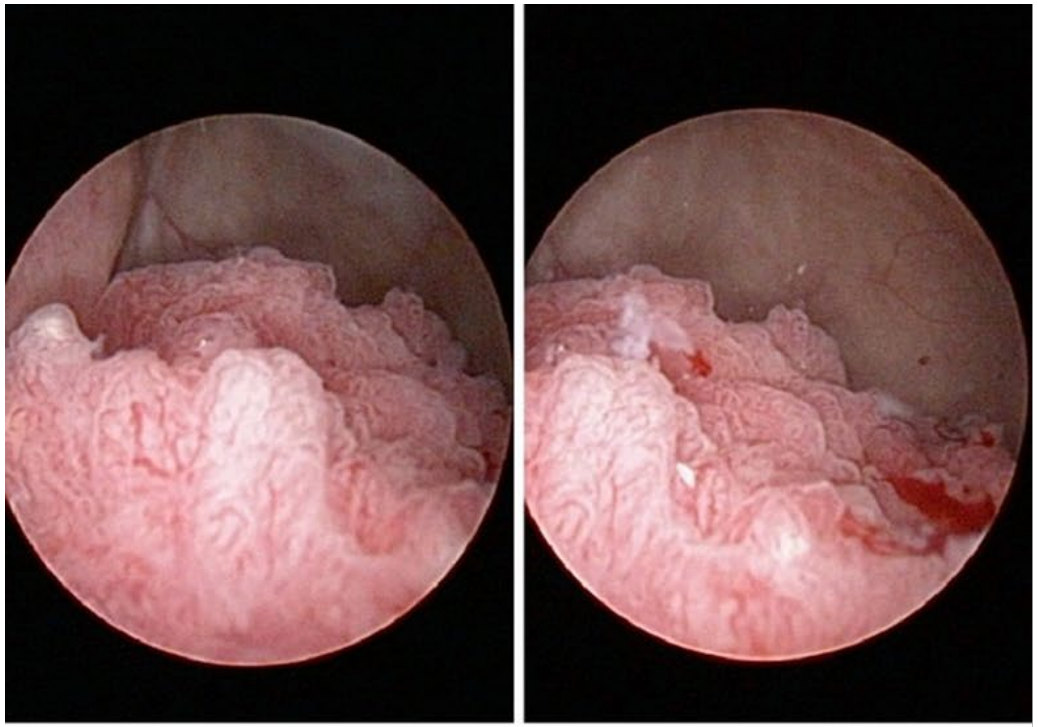
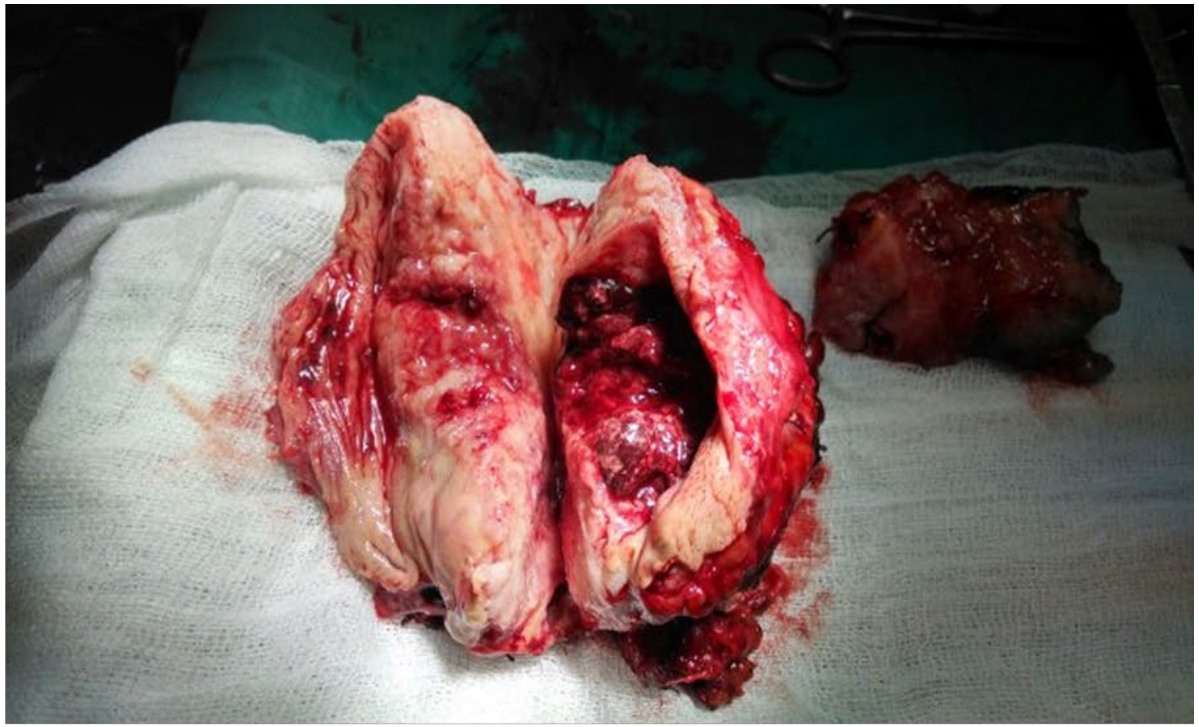




Bladder Cancer







Epidemiology: Bladder Cancer Statistics

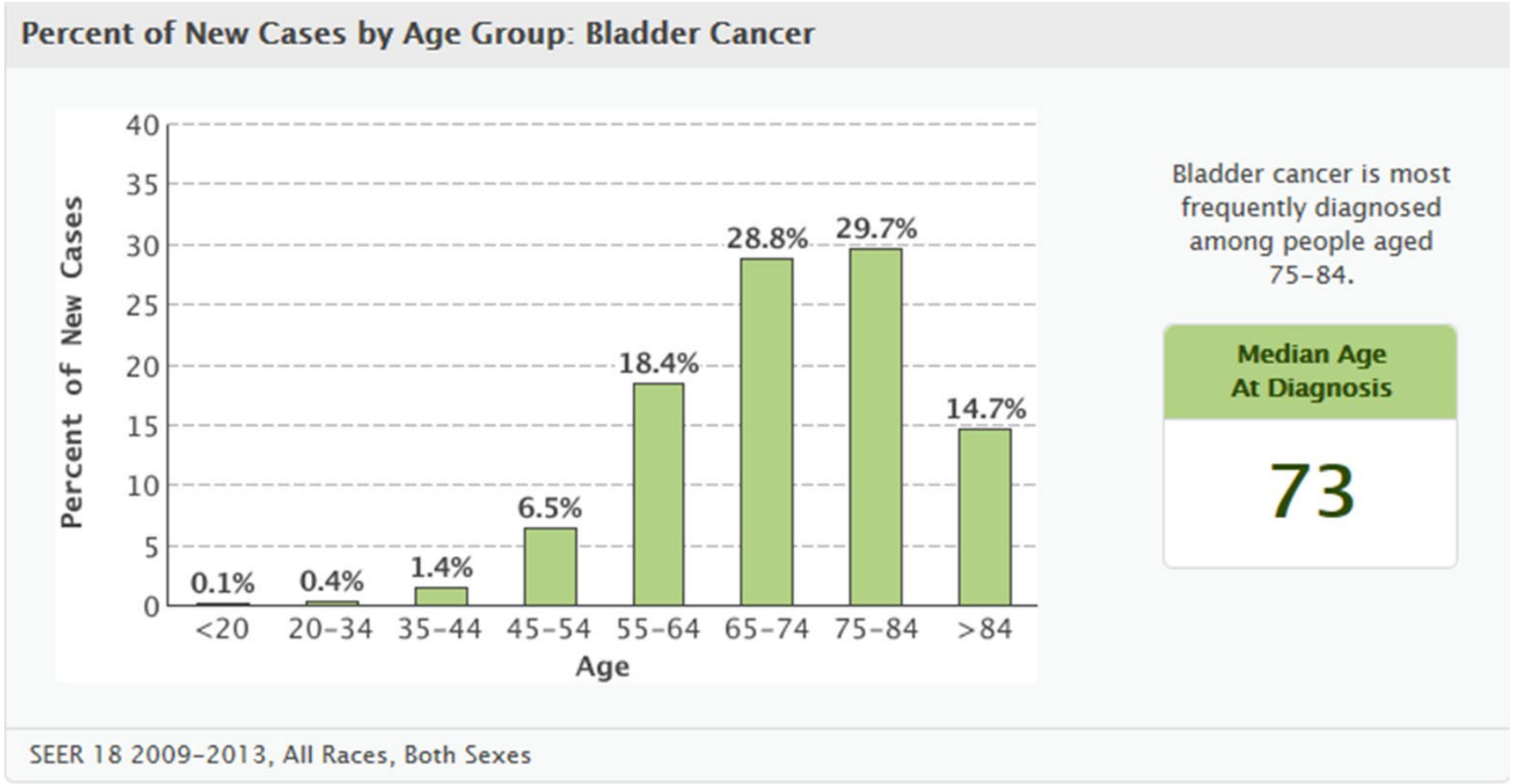
	Common Types of Cancer	Estimated New Cases 2016	Estimated Deaths 2016
1.	Breast Cancer (Female)	246,660	40,450
2.	Lung and Bronchus Cancer	224,390	158,080
3.	Prostate Cancer	180,890	26,120
4.	Colon and Rectum Cancer	134,490	49,190
5.	**Bladder Cancer**	**76,960**	**16,390**
6.	Melanoma of the Skin	76,380	10,130
7.	Non-Hodgkin Lymphoma	72,580	20,150
8.	Thyroid Cancer	64,300	1,980
9.	Kidney and Renal Pelvis Cancer	62,700	14,240
10.	Leukemia	60,140	24,400

Bladder cancer represents 4.6% of all new cancer cases in the U.S.

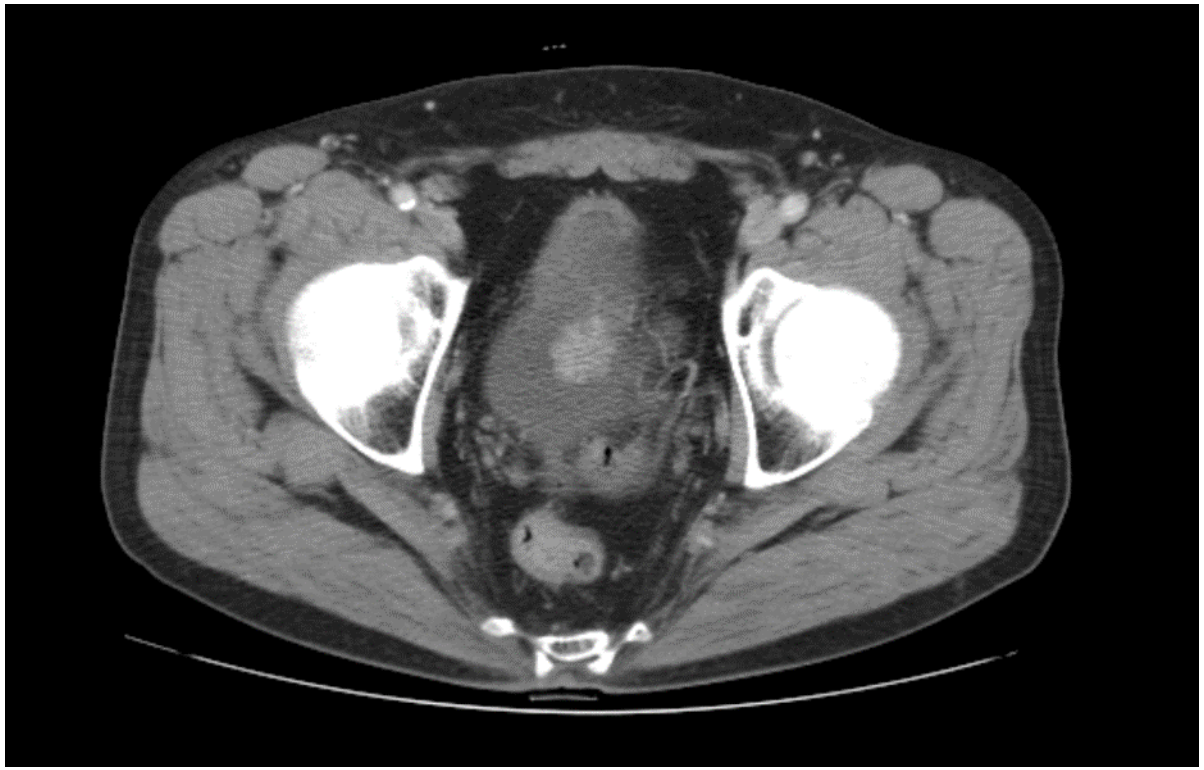
4.6%

In 2016, it is estimated that there will be 76,960 new cases of bladder cancer and an estimated 16,390 people will die of this disease.

Epidemiology: Bladder Cancer Statistics



Work Up: Imaging



Work Up: Cystoscopy and Biopsy (TURBT)

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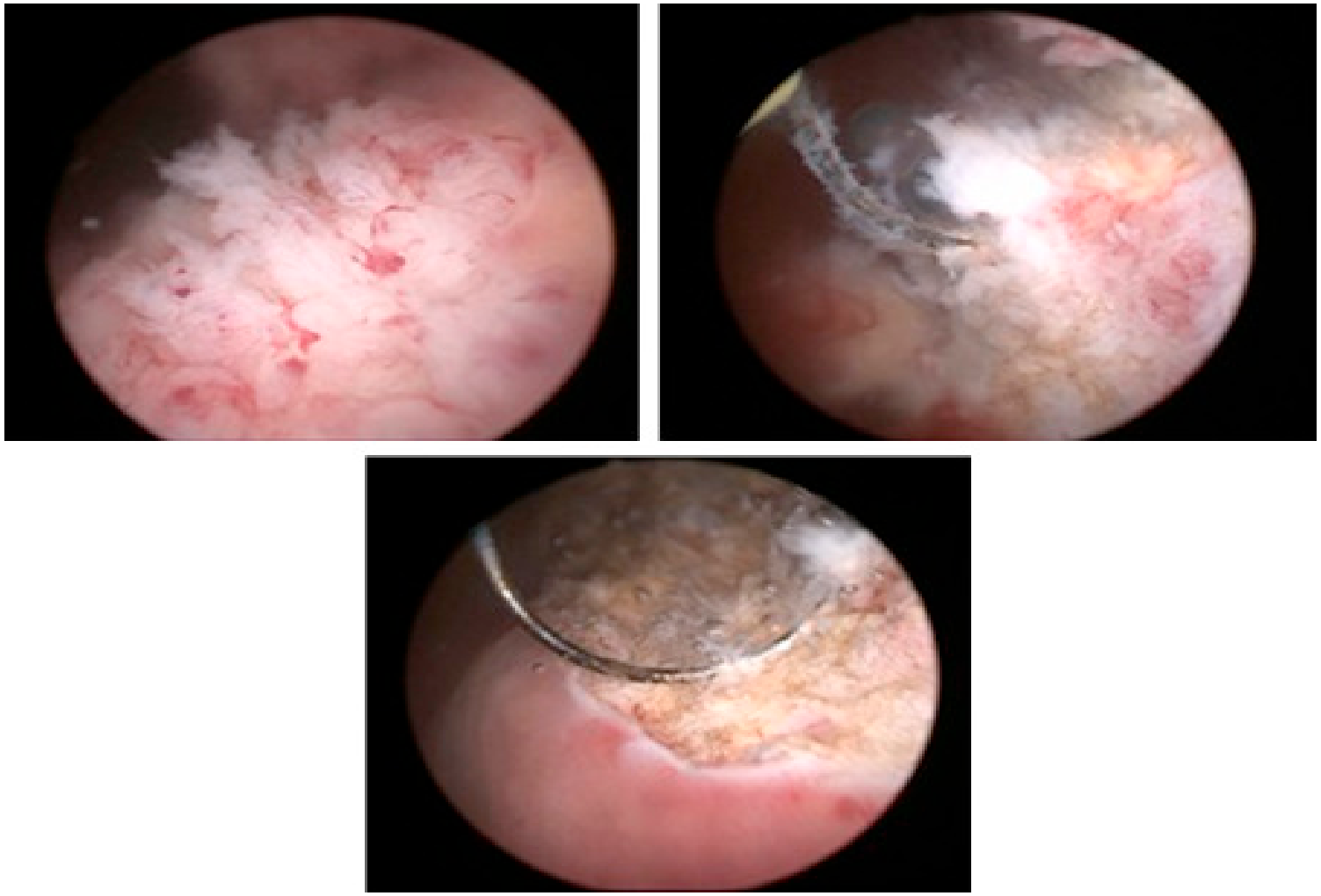
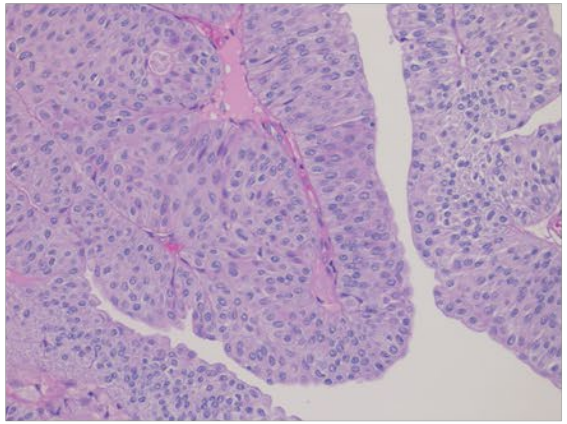
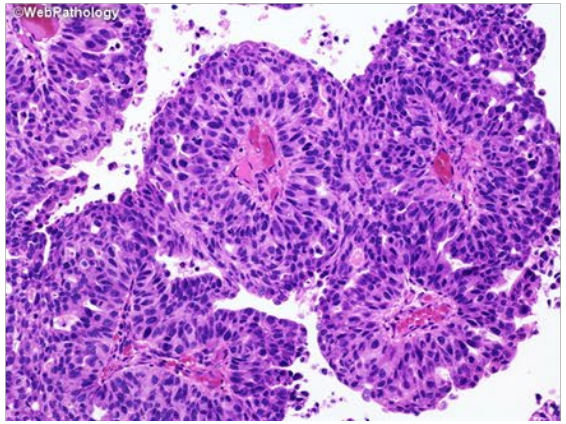


Pathology - Staging

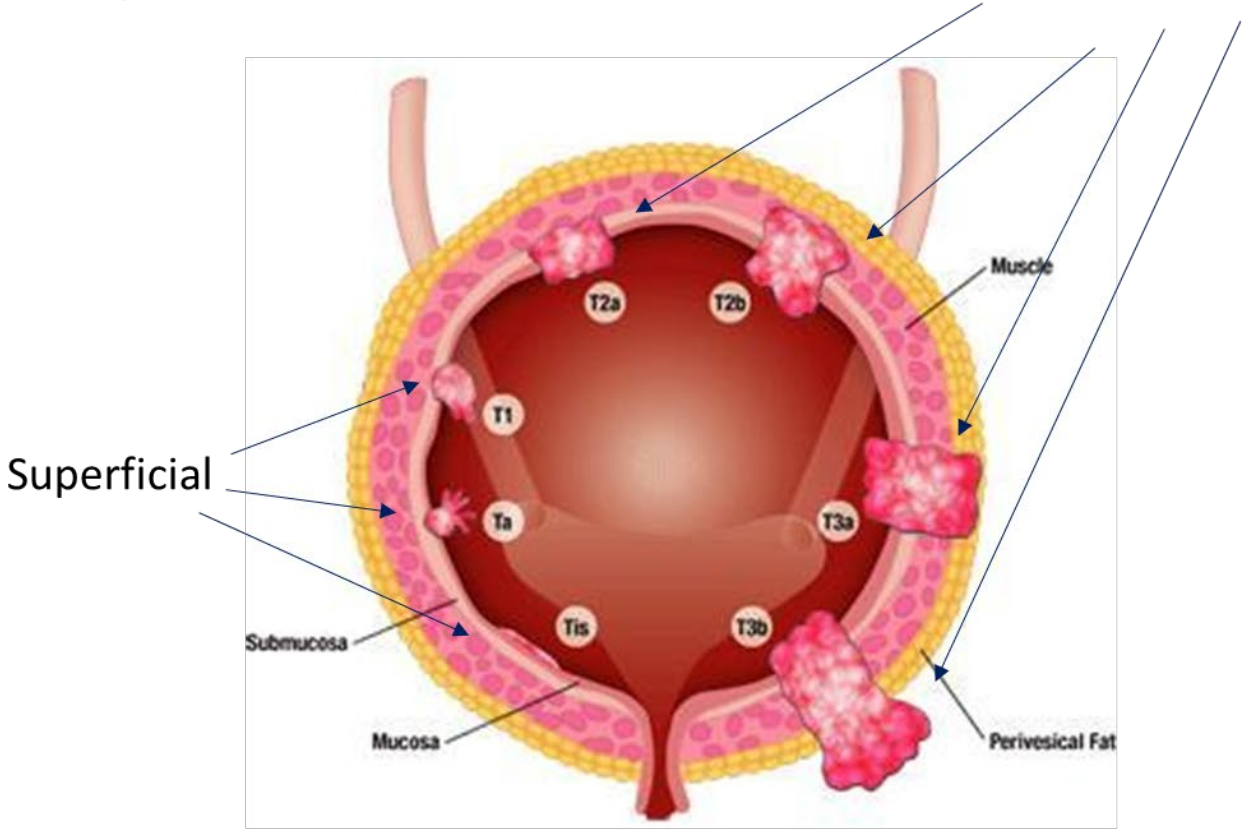
- Grade
  - Low



  - High



- Depth of Invasion



Treatment- Superficial

- TURBT or biopsy alone
- Intravesical Bladder treatment
  - Mitomycin C
  - BCG
  - Interferon
  - Others
- Requires surveillance!!!!

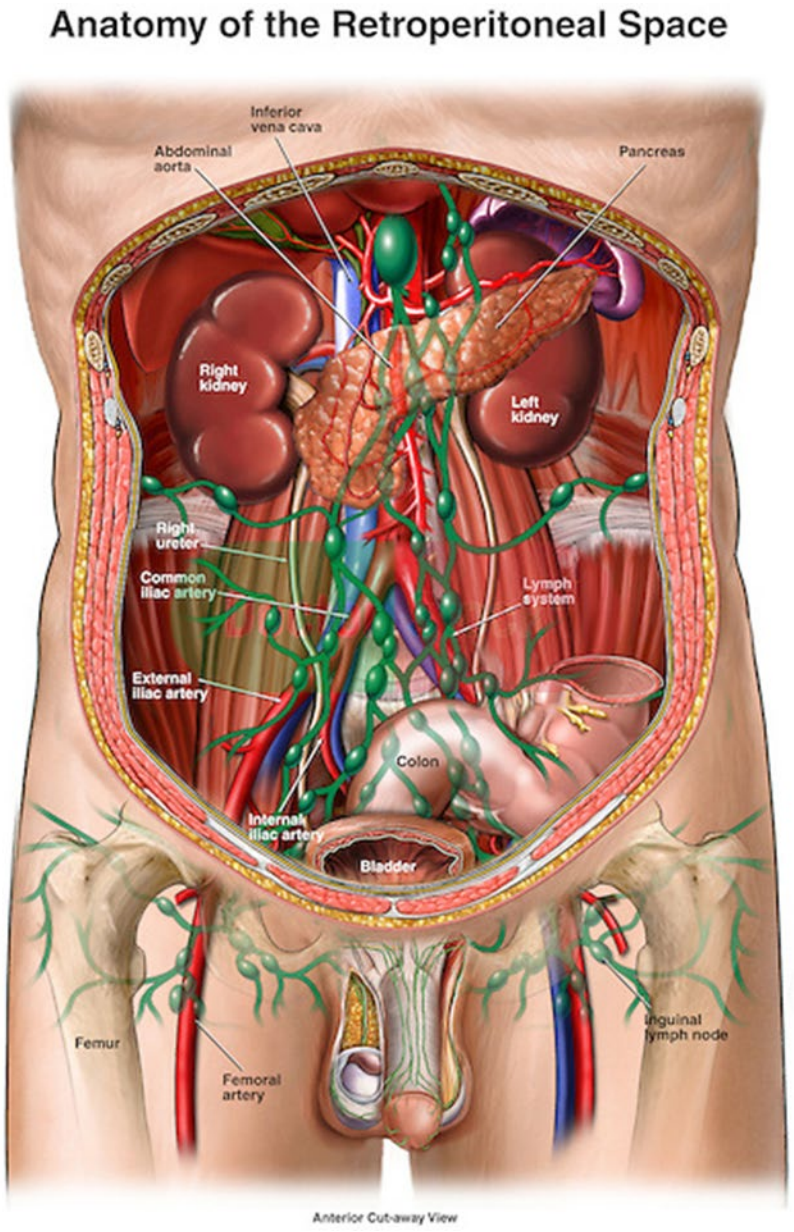
Treatment: Muscle Invasive and High Risk Recurrent Superficial

- Surgery
  - Cystectomy
  - Cystoprostatectomy
  - Anterior exenteration
  - Palliative
  - Pre or Postoperative chemotherapy

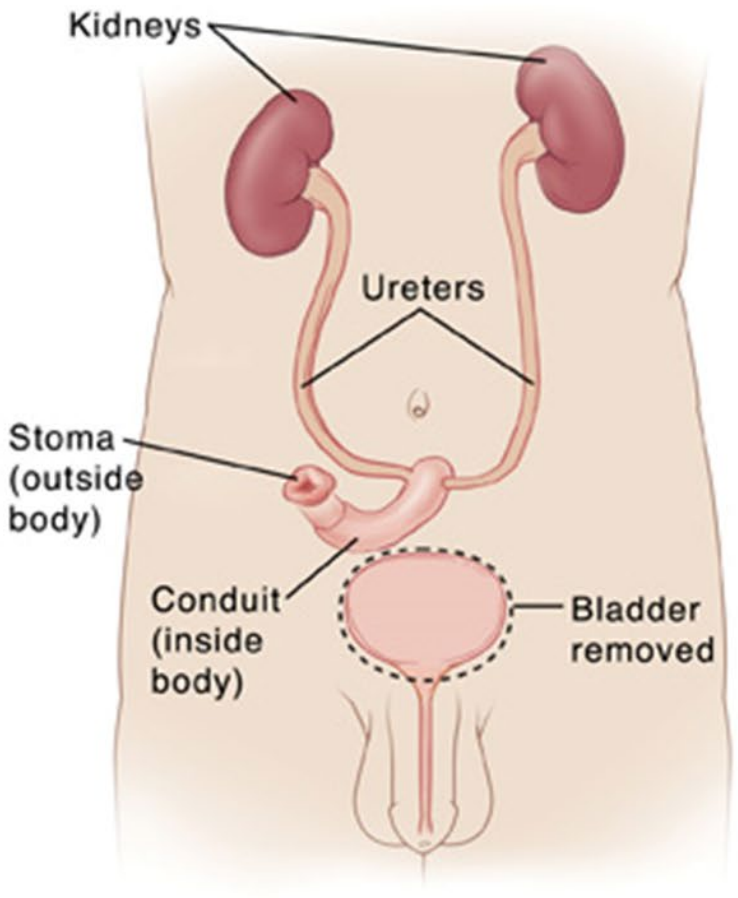
- Bladder sparing
  - Chemotherapy +
  - EBRT +
  - Maximal TURBT

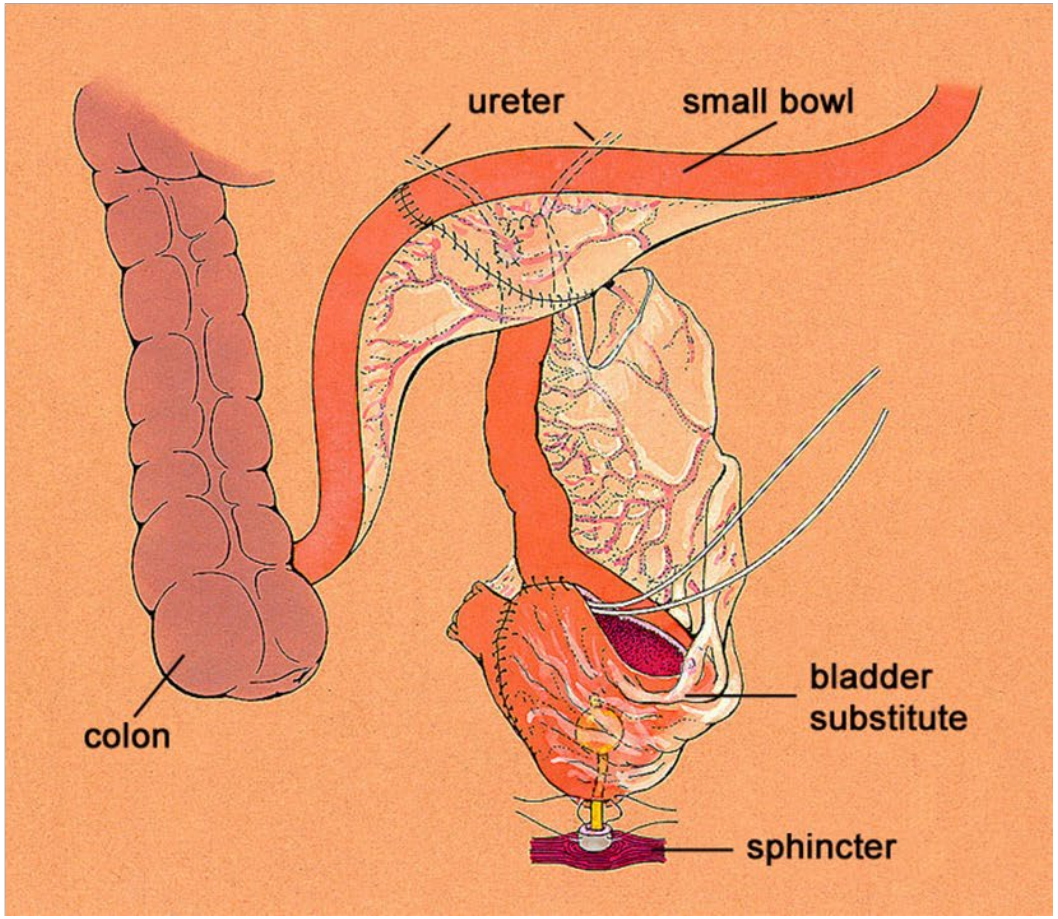
Surgery

- Open or Robotic
- Remove bladder and surrounding organs
- Lymph node dissection
- Diversion



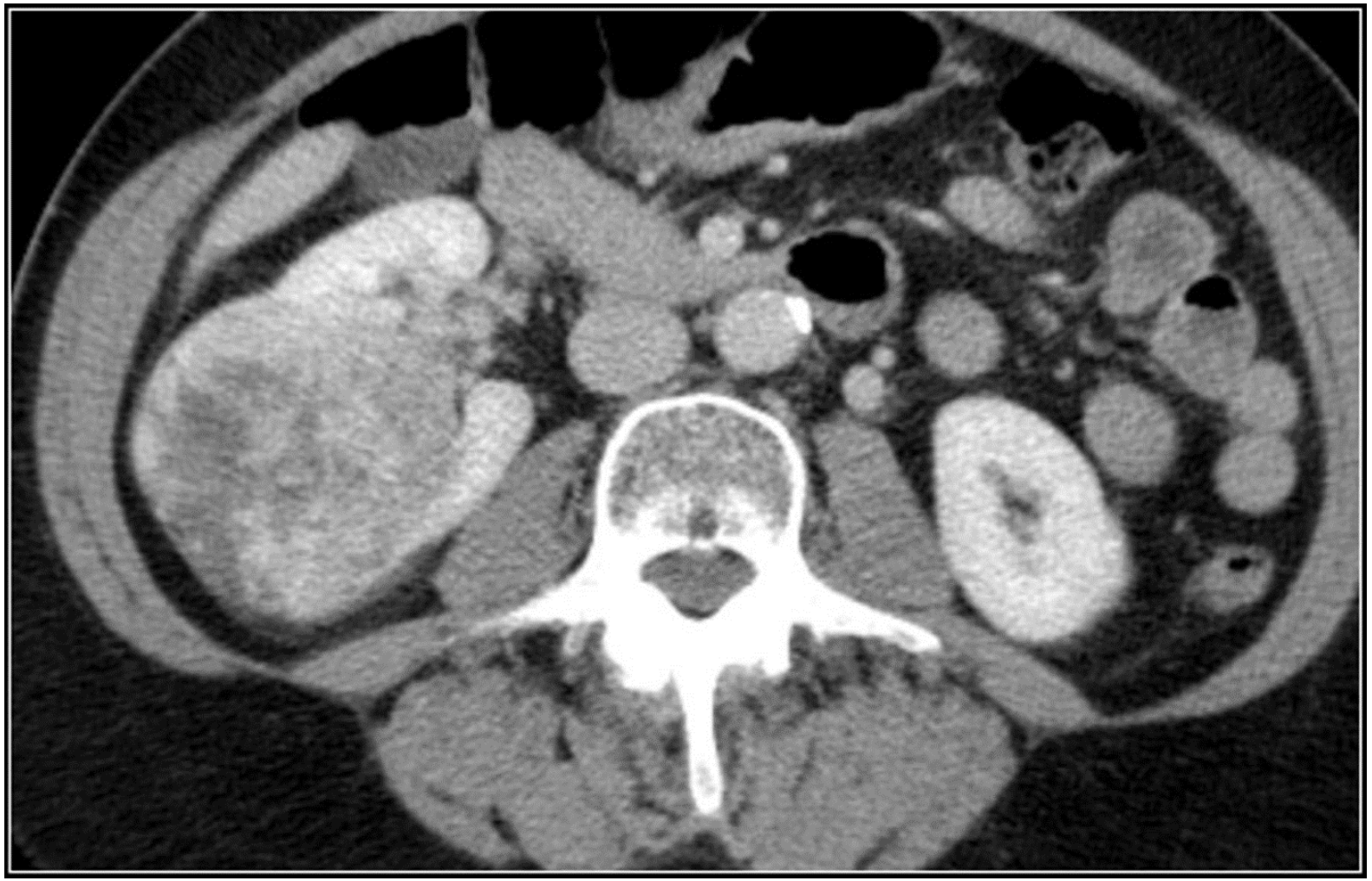
Surgery- Diversion





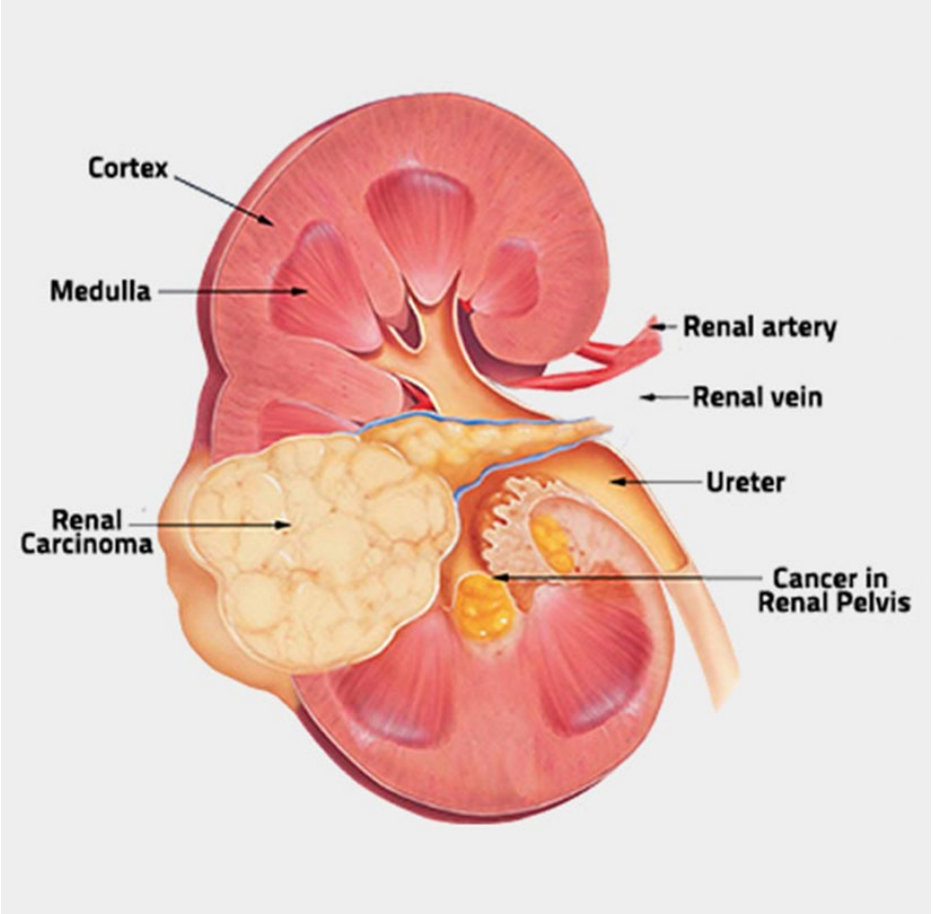
Ileal Conduit

Renal Cell Carcinoma



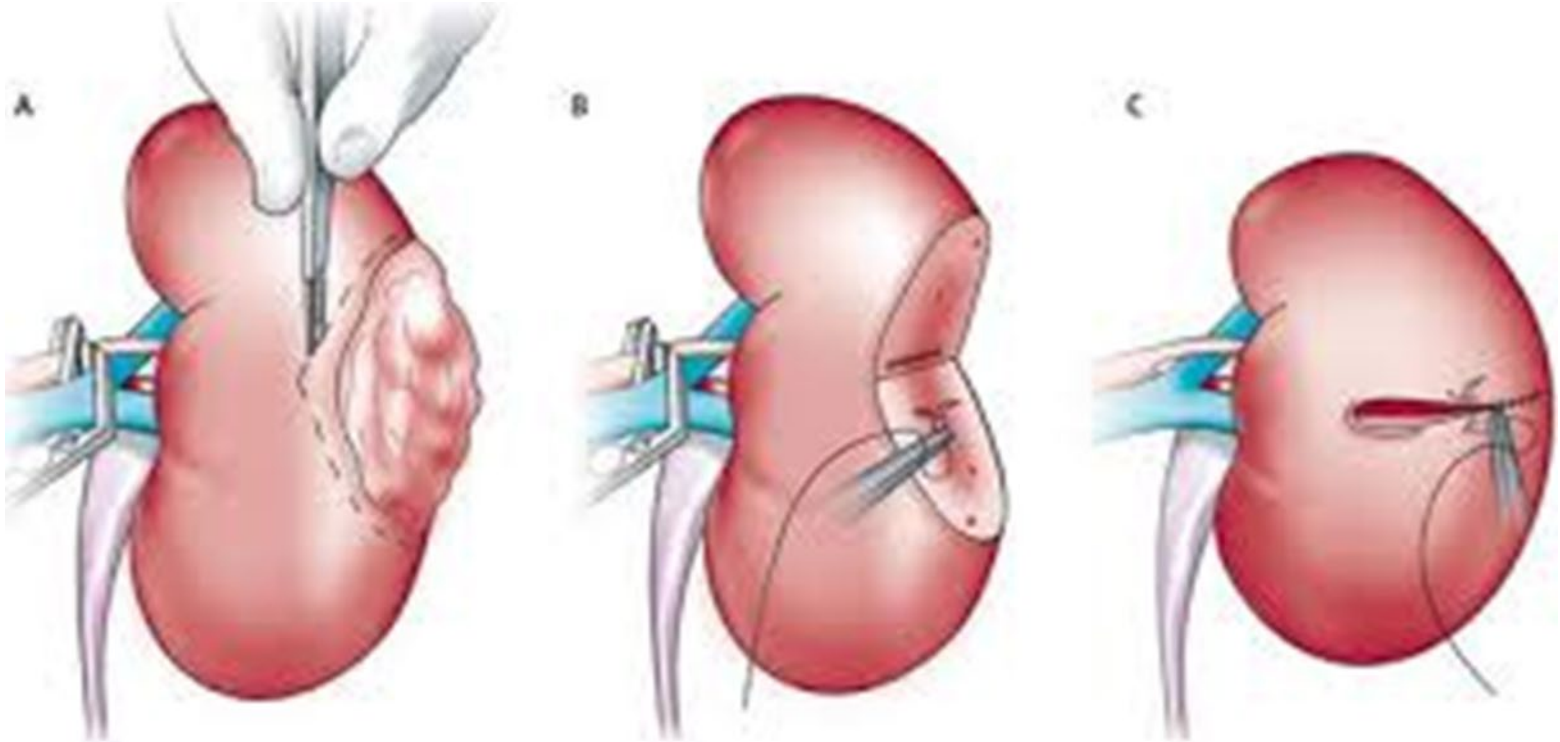
Renal Cell Carcinoma

- Usually discovered incidentally
- 14th most common cancer in the world (273,518 annual cases globally)
- Multiple different subtypes
- Multiple genetic syndromes associated w/ RCC (VHL, HPRCC, BHD, etc)



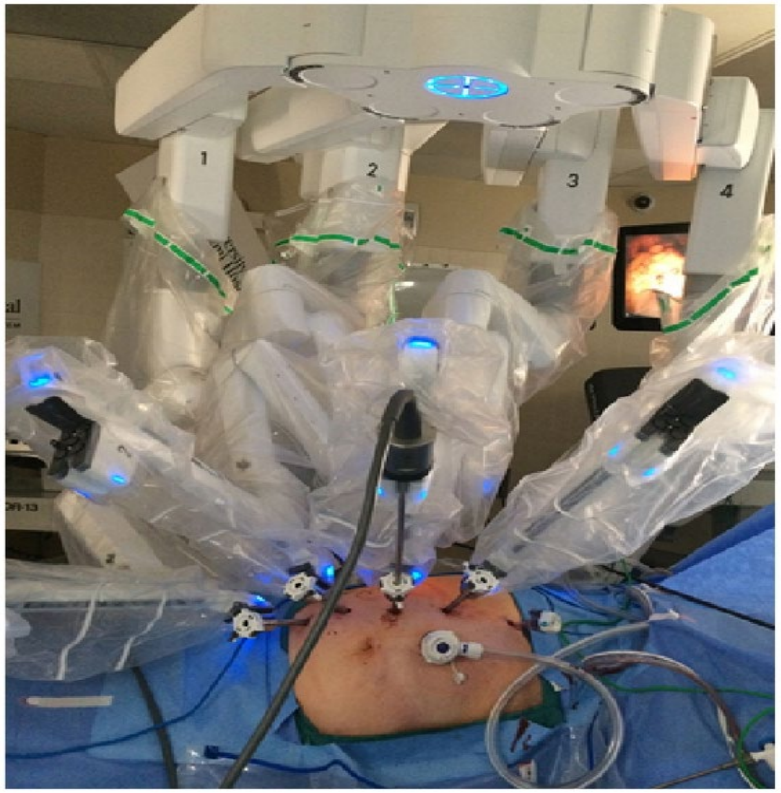
Renal Cell Carcinoma

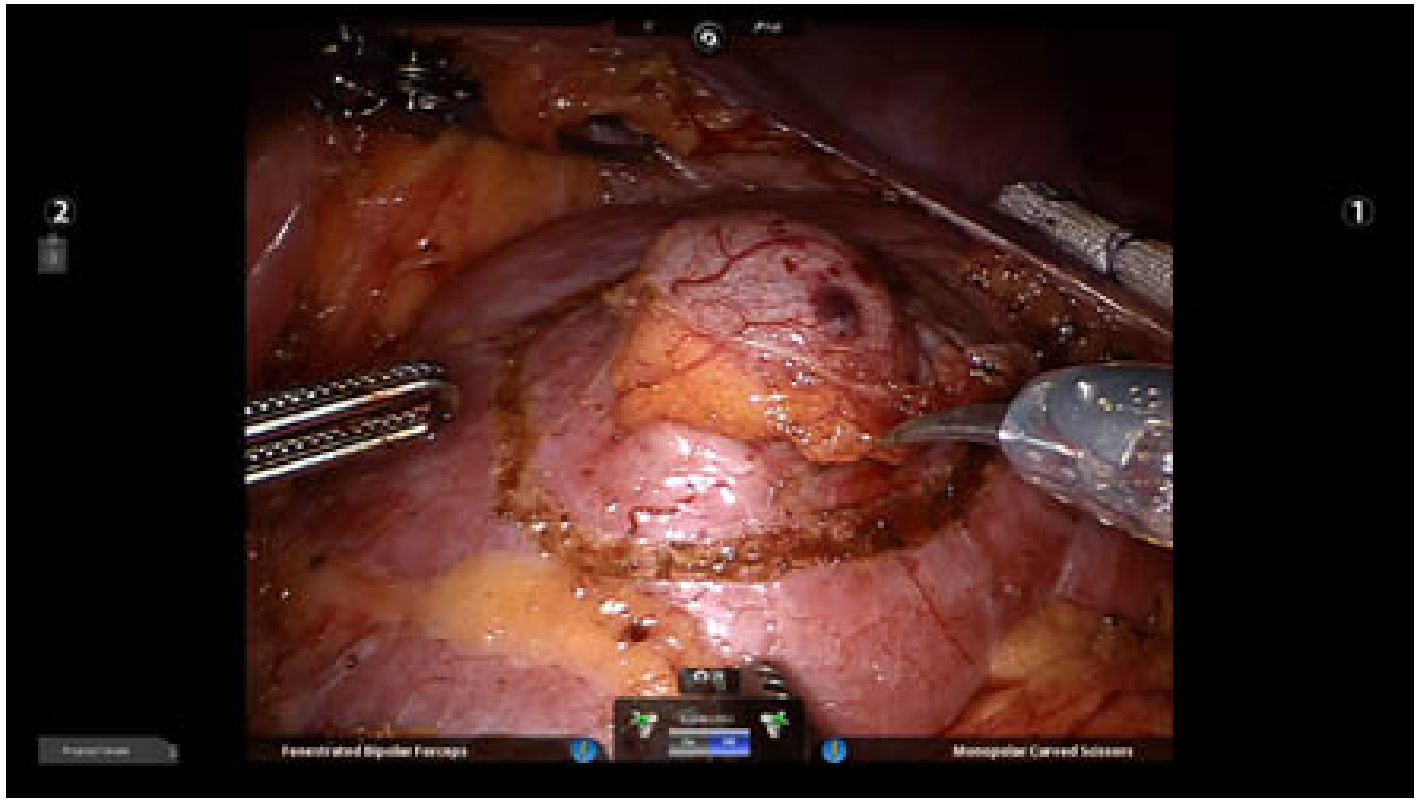
- Managed with partial or radical nephrectomy for localized disease



Renal Cell Carcinoma

- Robotic Partial Nephrectomy

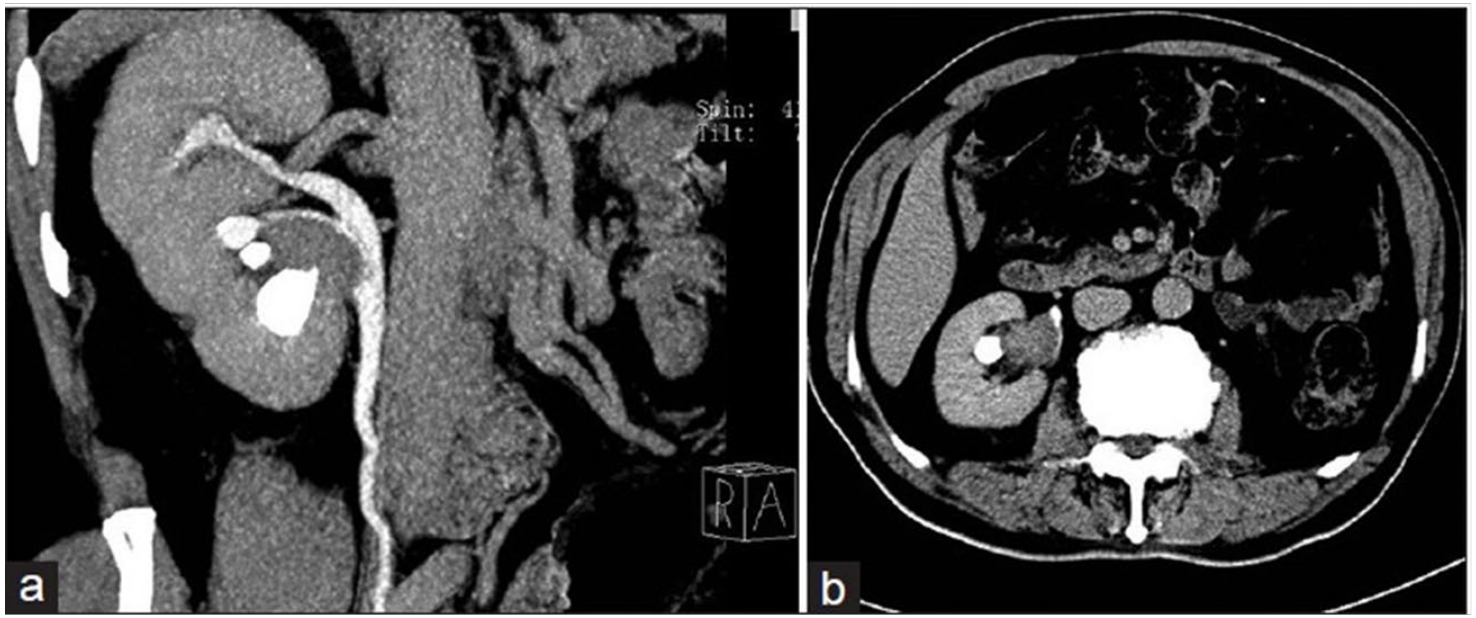




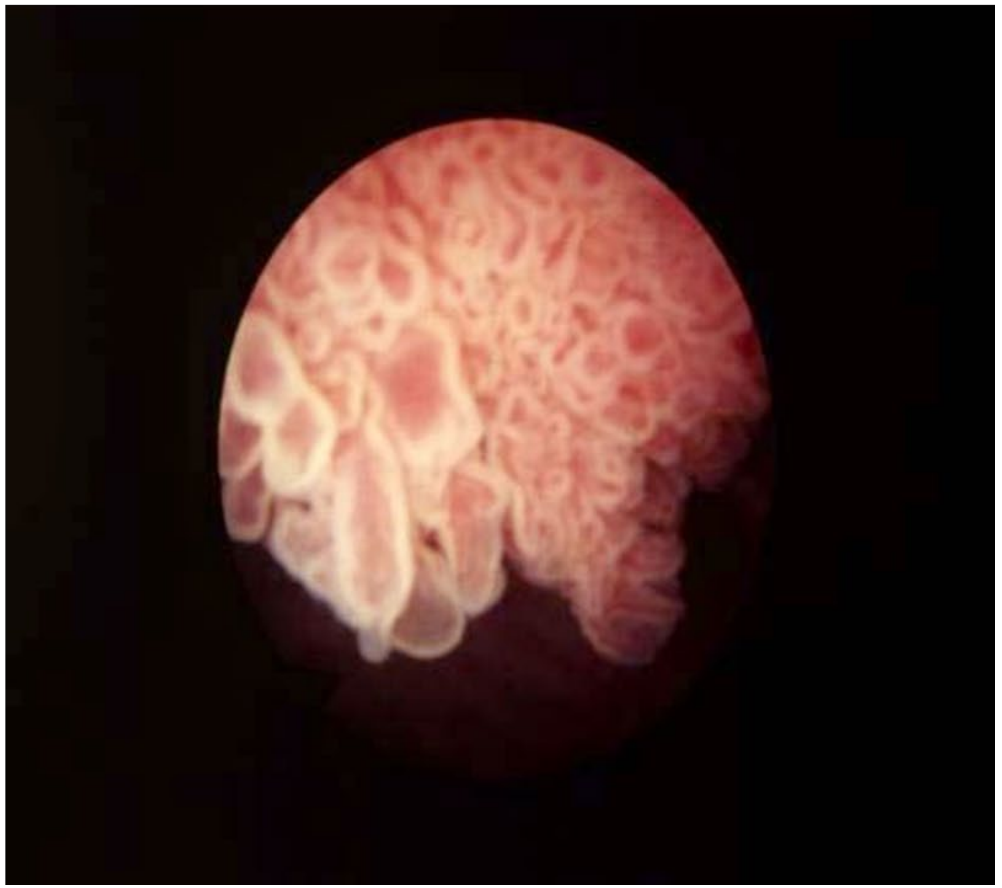
Upper Tract Urothelial Carcinoma

- 5-10% of urothelial cancers, though with increasing incidence
- Similar risk factors as urothelial carcinoma of the bladder, though can also be associated w/ Hereditary Non-polyposis Colorectal cancer

Upper Tract Urothelial Carcinoma: Imaging



Upper Tract Urothelial Carcinoma: Endoscopy



Upper Tract Urothelial Carcinoma - Treatment

AMH Take Home Points

- If dipstick positive you must send a microscopic analysis. If positive, then send for GU consultation
- If dipstick positive but microscopic evaluation negative, recommendation for 2 more dipstick and microscopic analyses. Any 1 positive analysis should prompt GU consultation
- Even those on anticoagulation with AMH need GU consultation
- Proteinuria, renal insufficiency, red cell casts with AMH should prompt a GU and nephrology consult
- If imaging is done, CT urogram (ct of abdomen/pelvis with and without contrast) must be done for appropriate evaluation

QUESTIONS?

THANK YOU

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