

Hematuria Case Study

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Patient Presentation

57-year-old Caucasian male hospitalized UTI and gross hematuria



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HPI

- 57yo man with a C6 spinal cord injury with quadriplegia
 - Bladder managed with indwelling foley catheter changed monthly
 - Went to PCP after noticing blood in the urine
 - Sent to ER and admitted to the hospital
 - Urine culture showed 3 or more organisms
 - Started on IV antibiotics
 - No fevers or chills
 - Gets 3-4 infections per year
 - Has been transfused 2U since admission this morning

What additional history would be
pertinent?



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Patient: History & Physical Exam

- Denies fevers or chills
 - No fevers, abdominal or flank pain
 - PMHx: C6 SCI at age 35, HTN, HL
 - PSHx: cystolithopaxy (bladder stone removal) 5y ago, neck surgery
 - Meds: baclofen,
 - FHx: No known history of stones or malignancies
 - SHx: Has fulltime aide, non-smoker
-
- PE: Mild abdominal tenderness and distension, no costovertebral angle tenderness bilaterally, normal phallus with orthotopic meatus, foley in place draining red urine, dark urine in foley bag



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What are some drugs that can turn the urine red and mimic gross hematuria?



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Drugs That May Cause Red Urine

- Pyridium
- Sulfamethoxazole
- Nitrofuratoin
- Rifampin
- Ibuprofen
- Dilantin
- Levodopa/Methyldopa
- Quinine/Chloroquine

What is your differential diagnosis?



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Differential Diagnosis

- UTI
- Malignancy
 - Bladder cancer
 - Upper tract urothelial carcinoma
 - Renal cell carcinoma
- Urolithiasis
- BPH
- Non-infectious cystitis
- Glomerulonephritis
- Trauma



Hospital Course

- Hand irrigated the catheter and many clots obtained
- Changed to 3-way catheter and continuous bladder irrigation was started



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Next Steps?



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Lab and Radiology Evaluation

- Hematocrit 28.5 on admission
 - Hct was 36 at visit with PCP 1 month ago
- Creatinine 1.1
- PT, PTT, INR within normal limits
- CT Urogram obtained



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Non-Contrast Imaging

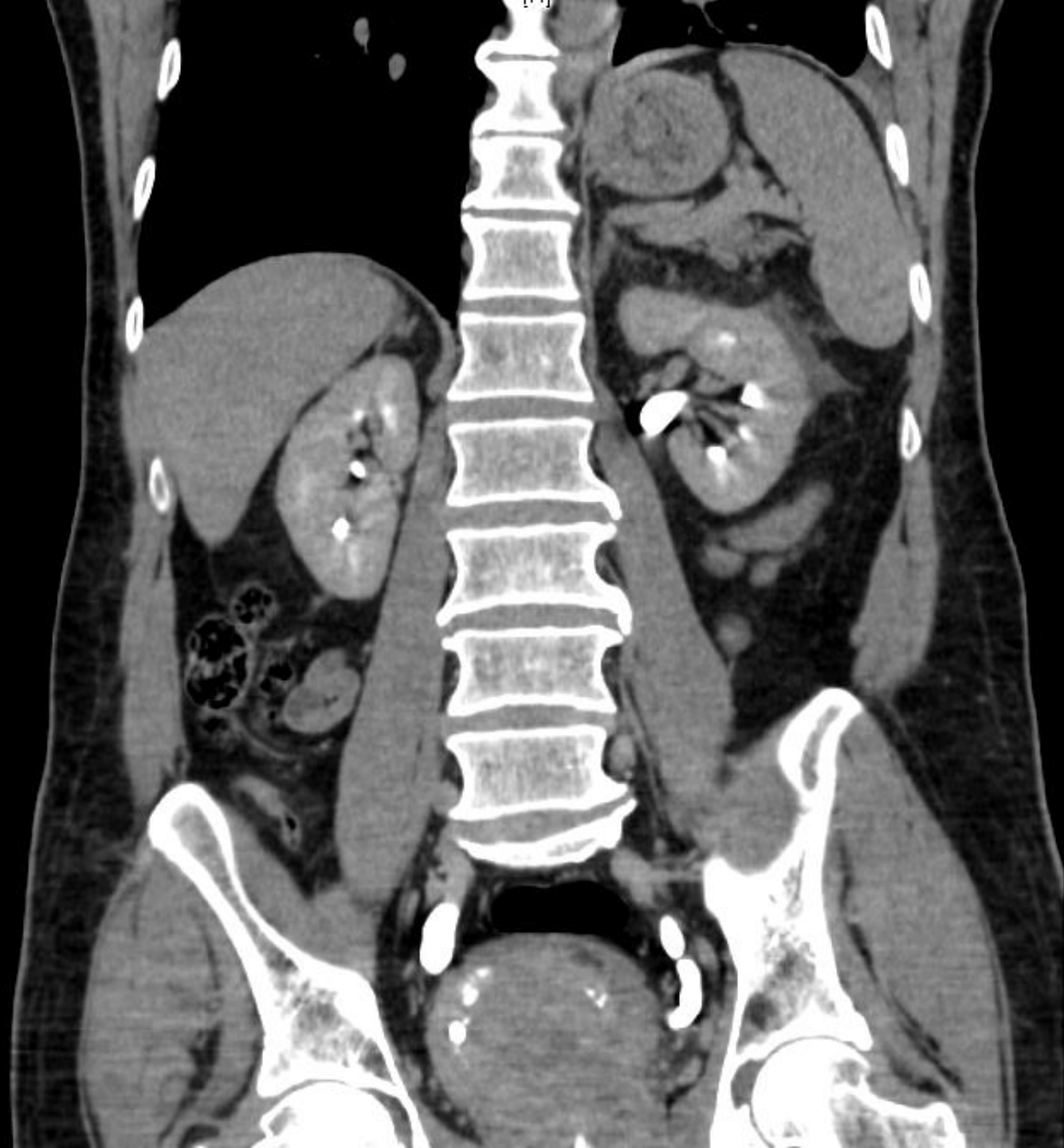






Delayed Imaging





















CT Results?



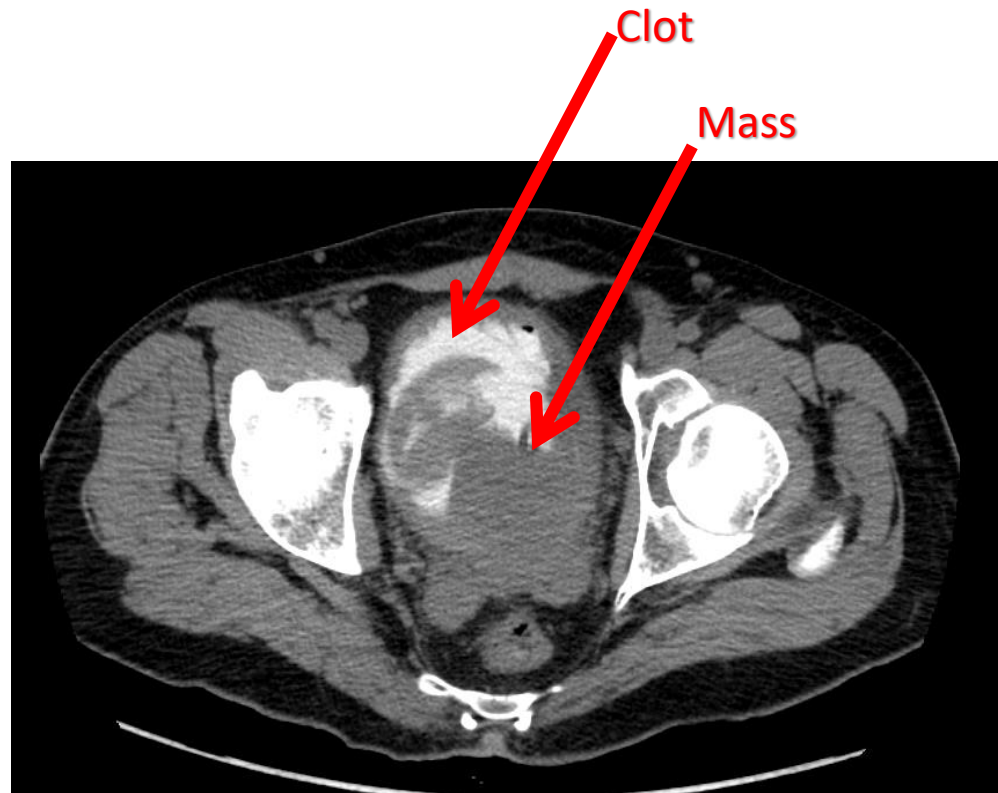
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CT Read

- No uppertract defects
- Thickened bladder wall
- Copious clot debris in bladder thought to be clot
- Large enhancing mass on posterior aspect of bladder



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What would be your next step in evaluating and treating this patient's hematuria?

What surgical procedure(s) would you consent this patient for?



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Surgical Options

- Cystoscopy
- Clot evacuation
- Possible transurethral resection of bladder tumor
- Possible instillation of intravesical mitomycin or gemcitabine
- (No need for retrograde pyelogram as ureters were visualized on delayed CT urogram imaging)

What risk factors does the patient have that would predispose him to urologic malignancy?



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Patient: Risk Factors/Clues for Malignancy

- Male gender
- Long-term indwelling foley catheter*
- Recurrent UTIs*
- History of bladder stones*

*All sources of chronic bladder irritation/inflammation



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What are different types of bladder cancer?



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Bladder Cancer

Urothelial Origin

- Urothelial cell carcinoma
 - About 90% of US cases

Secondary Malignancies (mets)

- Melanoma, colon, prostate, lung, breast

Non-Urothelial Origin

- Squamous cell carcinoma
 - About 5% of US cases
 - Chronic irritation (US) and schistosomiasis (world) are primary risk factors
- Adenocarcinoma
 - About 1% of US cases
 - Bladder exstrophy is risk factor
 - Urachal cancers
- Small cell carcinoma, rhabdomyosarcoma, pheochromocytoma, lymphoma



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OR Procedure

- Cystoscopy
- 400cc of clot evacuated
- No bladder tumor was seen
- Trilobar prostatic hypertrophy with very large intravesical median lobe



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Could BPH cause this much hematuria?!



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YES!

- Incidence of hematuria with BPH reported to be as high as 12%
- BPH causing gross hematuria requiring transfusions occurs < 2%
- Usually due to neovascularity in prostate adenoma
- Can be treated with finasteride
- Other treatment options: amicar, androgen deprivation, surgery (TURP)



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How does the body help treat the large bladder clot?



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Urokinase

- Urine contains urokinase
- Urokinase is an enzyme that promotes clot lysis by converting plasminogen to plasmin

Management

- Patient elected to undergo TURP for management of hematuria and BPH
- Primary resection of the median lobe



Prostate Chips