Hematuria Case Study

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Patient Presentation

57-year-old Caucasian male hospitalized UTI and gross hematuria
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?
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
What are some drugs that can turn the urine red and mimic gross hematuria?
Drugs That May Cause Red Urine

- Pyridium
- Sulfamethoxazole
- Nitrofuratoin
- Rifampin
- Ibuprofen
- Dilantin
- Levodopa/Methyldopa
- Quinine/Chloroquine
What is your differential diagnosis?
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
Next Steps?
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
Non-Contrast Imaging
Delayed Imaging
CT Results?
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
What would be your next step in evaluating and treating this patient’s hematuria?

What surgical procedure(s) would you consent this patient for?
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?
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
What are different types of bladder cancer?
Bladder Cancer

Urothelial Origin

• Urothelial cell carcinoma
  – About 90% of US cases

Non-Urothelial Origin

• Squamous cell carcinoma
  – About 5% of US cases
  – Chronic irritation (US) and schistosomiasis (world) are primary risk factors

Secondary Malignancies (mets)

• Melanoma, colon, prostate, lung, breast

• Adenocarcinoma
  – About 1% of US cases
  – Bladder extrophy is risk factor
  – Urachal cancers

• Small cell carcinoma, rhabdomyosarcoma, pheochromocytoma, lymphoma
OR Procedure

- Cystoscopy
- 400cc of clot evacuated
- No bladder tumor was seen
- Trilobar prostatic hypertrophy with very large intravesical median lobe
Could BPH cause this much hematuria?!
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)
How does the body help treat the large bladder clot?
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