A 62 Year-Old Man with Painless Hematuria

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Patient Presentation

- **CC:** Painless hematuria

- **HPI:** AS is a 62 y/o M who presents with **gross painless hematuria** for the past 2 months

- **PMH/PSH:** s/p MI (s/p CABG), NIDDM

- **Meds:** Avandia, glyburide, metoprolol

- **Allergies:** NKDA
Patient Presentation (cont’d)

- SH: smoked 4 PPD for 40 years
- FH: not significant
- PE: obese male, AVSS in NAD
- Labs:
  - Chem 7, CBC wnl
  - BUN 13 and Creatinine 0.9
  - U/A: 10 RBC/hpf, Urine cx negative
Differential Diagnosis: Painless Hematuria

- Kidney Stones
- Urinary Tract Infection
- Tumors/Neoplasms
  - Bladder, Kidney, Prostate
- Inflammation
  - Cystitis, Prostatitis, Pyelonephritis
- BPH
- Trauma
- Glomerular Disease
Menu of Radiologic Tests

- Abdominal Ultrasound
- CT scan
  - Kidney stone protocol (CT w/o contrast)
  - CT urogram
- MRI
- Radionuclide Scan
- Historical tests: IVP, Retrograde pyelography
Axial CT +/- contrast reveals benign renal cyst, nml renal cortical thickness w/o evidence of obstruction, hydronephrosis, renal mass, kidney stones
Axial CT cystogram with contrast reveals symmetric posterior bladder wall thickening.
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Transitional Cell Carcinoma of the Bladder

- 4th most common CA in men, 9th most common in women
- Incidence: 67,000/yr, Mortality: 13,750/yr
- Risk factors:
  - Tobacco
  - Schistosomiasis
  - Chemicals: Aromatic Amines, Phenacetin, Cyclophosphamide
- Clinical Presentation:
  - Gross painless hematuria
  - Pain from locally advanced or metastatic tumor
  - Voiding symptoms - dysuria, frequency, urgency, obstruction
  - Constitutional symptoms - fatigue, weight loss, anorexia

SH: smoked 4 PPD for 40 yrs
TCC of Bladder: Diagnosis

- **U/A: hematuria**
  - When bacteruria or pyuria present urine cx to r/o UTI

- Cystoscopy and biopsy

- Urine cytology

- Other
  - Immunocytochemistry
  - Proteomics
  - Biomarkers

Radiologic Features of TCC

- IVP - historical
- CT
  - Staging: TNM system
    - T1: invades subepithelial connective tissue
    - T2 - invades muscle
    - T3 - invades perivesical tissue
    - T4 - invades beyond
- Further Imaging
  - CXR - pulmonary mets
  - MRI - tumors at base and dome of bladder
- Bone Scan
Treatment Options for TCC

- TURBT +/- chemotherapy
- Primary radiation therapy
- Partial cystectomy
- Radical cystectomy indications:
  - Infiltrating muscle-invasive bladder CA w/o evidence of metastatic disease (T2M0)
  - Superficial bladder tumors (CIS, T1) refractory to chemotherapy, other surgery

Patient AS: Pathology report revealed high grade papillary TCC with invasion of lamina propria and muscularis propria
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Bladder Anatomy - Male

- Posterior and superior to the pubic bones, inferior to peritoneum, superior to the prostate, anterior to rectum

http://urologyhealth.org
Radical Cystectomy

- Male - removal of prostate and bladder
- Bilateral pelvic lymphadenectomy
- Urethrectomy
  - Tumor in prostatic urethra
- Urinary Diversion
  - Ileal loop conduit - urine directed from ureters through segment of isolated ileum to abd wall

AS underwent radical cystectomy with ileal loop diversion
CT Abd/Pelvis with IV contrast revealed dilated loops of bowel with air-fluid levels and no signs of obstruction.
CT Pelvis with contrast reveals multiple surgical clips, ureteral stents are seen in bilateral ureters, exiting abdomen through urostomy.
Ileal Conduit Complications

- Leak
  - Urine, Bowel
- Fistulas
- Infection
  - Wound infection, Abscess, UTI, Pyelonephritis, Sepsis
- GI
  - Bleeding, Ileus, Obstruction
- Urinary Tract Obstruction
  - Stones, Strictures, Hydronephrosis
- Diminished renal function, Renal failure
Pt presents with abdominal pain, nausea, lethargy, fever
CT with IV contrast reveals fluid collection at level of ileal conduit, which could represent urine collection or abscess
Pt underwent CT-guided drainage of the fluid collection

- 50cc of purulent aspirated and was positive for mixed bacteria
- Repeat CT 1wk s/p drainage shows drainage catheter within abscess, which has decreased in size, with residual fluid with air seen in the cavity
- Fluoroscopy-guided loopogram to assess leak
- Contrast injected through urostomy
- Contrast filled the ileal conduit
- No evidence of leak
- No reflux into the ureters
Patient AS: Hospital Course

- Started on antibiotics
- NPO, started on TPN
- No evidence of fistulous connection
- Reduction in size of abscess
- Good urostomy output
- Diet was advanced and tolerated well
- CBC, electrolytes remained stable
- Pt discharged with plans for close follow-up
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AS: CT 5 yrs s/p surgery

- BUN: 44, Creatinine: 1.6
- Abd/Pelv CT with contrast reveals cortical atrophy of left kidney with no excretion of contrast and hydronephrosis, air in right collecting system, possible stricture of left ureter
Conclusions: Role of Radiology

- Workup for painless hematuria
- Staging bladder TCC
- Assess for post-operative complications
- IR-guided abscess drainage
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