**Scenario:**
Bianca Y. is G0P0 27 y/o F presents to emergency department this evening complaining of urinary frequency and hematuria

**History Elements (these also indicate questions that should be asked)**

- Has been experiencing symptoms since this morning
- Urge to urinate every other hour
- Urine is slightly pink in appearance
- Patient is sexually active with two partners; uses oral contraceptive pills and condoms sometimes
- Engages in oral, vaginal, and anal sex
- Tested positive for chlamydia when she was 22
- Crampy, intermittent low back pain radiating to groin
- Pain has worsened since onset
- Denies alleviating or aggravating factors
- Rates pain 9/10 in severity
- Endorses nausea in office
- No dysuria or difficulty initiating stream
- No abnormal vaginal discharge or vaginal lesions
- No fever or chills
- No polydipsia
- No history of similar symptoms in the past
- LMP two weeks ago
- Last STI panel was performed a month ago which tested for chlamydia, gonorrhea, syphilis, HIV, Hep B, and Hep C
- Patient's STI panel came back negative for everything
- No significant past medical history, takes daily OCP, no drug allergies, no history of tobacco use or illicit drugs, drinks EtOH on occasion

**Physical Exam (also indicates what procedures should be done)**

- *Vital Signs* –
    - Height: 5'3
    - Weight: 140 lbs
    - Temperature: 100.0 degrees Fahrenheit
    - Blood Pressure: 130/84 (LT arm, seated)
    - Heart Rate: 74 beats per minute
    - Respiratory Rate: 16 breaths per minute
    - Oxygen Saturation: 99%
- *General* – patient is noted to be pacing back and forth from nursing station to ED bed, AOx3, appears to be a reliable source of information
- *Skin* – the skin is warm and moist with good texture. It is non-icteric with no swelling or signs of dehydration, rashes, or ecchymosis.
- *Abdominal* – bowel sounds normoactive in all four quadrants, abdomen is flat, non-distended, no masses, no suprapubic or rebound tenderness, LT CVA tenderness on palpation
- *Genital* – External genitalia without erythema or lesions. Vaginal mucosa pink without inflammation, erythema, or discharge. Cervix pink, and without lesions or discharge. No cervical motion tenderness. No adnexal tenderness. No inguinal adenopathy.

**Differential Diagnosis**

- *Kidney Stones* – Kidney stones can cause hematuria, urinary frequency, and low back pain radiating to the groin. Presence of RBCs on urinalysis in a female patient who is not currently menstruating should raise suspicion for nephrolithiasis when the hematuria is accompanied by other symptoms such as frequency and low back pain. Bianca is also noted to be pacing which is a common manifestation in patients with kidney stones.
- *Urinary Tract Infection* – Bianca presented to the emergency room with urinary frequency and hematuria, two symptoms common in UTIs. She also had CVA tenderness on palpation of the LT flank, but she denied dysuria, urgency, and suprapubic tenderness.
- *Chlamydia/Gonorrhea* – Based on the patient's current sex practices it is possible that she may have an STI. Hematuria is a symptom associated with chlamydia and gonorrhea which can make urine appear a pale pink or orange color.

**Tests (Students will be given results for any that are ordered)**

- POC pregnancy test – negative
- Urinalysis –
  - Blood – 10 ery/uL
  - Urobilinogen – 2 mg/dL
  - Bilirubin – negative
  - Protein – negative
  - Nitrites – negative
  - Ketones – negative
  - Glucose – negative
  - pH – 5.5
  - Specific Gravity – 1.020
  - Leukocytes – 25
- Non-Contrast CT scan of the abdomen and pelvis – 2.5 mm stone located in the LT distal ureter
- Vaginal swab(s) for gonorrhea and chlamydia – negative

**Treatment**

- NSAIDs for pain management (Ibuprofen 400-600 mg every 6-8 hours as needed, or Naproxen 250-500 every 12 hours as needed)
- Antiemetics if needed (Metoclopramide)
- Encourage increased fluid intake to help flush stone
- Alpha Blockers (Tamsulosin 0.4 mg once daily until stone passage or up to 4 weeks)
- Strain urine to catch stone when it passes
- Follow-up in 2 weeks to ensure passage of stone

**Patient Counseling**

- Explain to Bianca that a 2.5 mm kidney stone is small and is likely to pass on its own with conservative treatment
- Advise Bianca to strain her urine to catch the stone when it passes for analysis

- Encourage Bianca to drink 2-3 liters of waters steadily throughout the day
- Schedule follow-up appointment with urology to ensure passage of stone
- Counsel Bianca on the signs of complications such as fever, chills, difficulty urinating, or pain refractory to prescribed medications