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GLOBAL HEALTH

Sharing knowledge, strengthening health systems, saving lives

Registrar Education Series

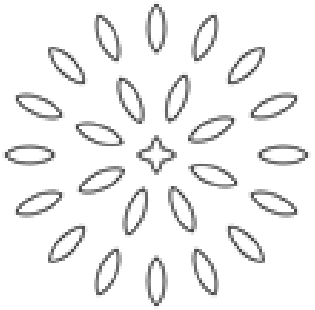
Genitourinary

DynaMed

How to…

- What is the differential based on the chief complaint?
- What additional information do you want?
- How does the history narrow down the differential?
- What labs/imaging would be most helpful?
- What is the diagnosis?
- What is the assessment?
- What is the treatment/plan?



GENTIOURINARY CASES

challenging the status quo

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Genitourinary Case 1

Chief Concern | Histories | PE | Assessment | Plan

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Chief Concern

Manyando is a 25yoF with no significant PMH who presents today for painful urination

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Histories

HPI: She developed dysuria, frequency and urgency 3 days ago. She denies vaginal discharge, fevers, flank pain, nausea and vomiting.

PMH: None

PSH: None

FH: Mom - UTI

Social: From Eastern Province. Moved to Lusaka for work. Lives with family members and works at Airtel. Enjoys playing football, dancing and going to chilanga mulilos. Denies tobacco and drugs. Drinks socially.

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Physical Exam

Temp: 98.5

GEN: 25yo female appearing stated age. Pleasant, conversive and in no acute distress.

GI: soft, non-tender, non-distended. Bowel sounds present. No CVA tenderness. Suprapubic tenderness to deep palpation.

Labs

Imaging

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Labs

*FBC	
WBC	7.5
Hgb	13
Hct	36
Plt	220

*RFTs/LFTs	
Na	138
K	4.6
Bicarb	25
Cl	101
BUN	11
Cr	88.4
Glucose	6.2
Ca	9.5
T bili	17
AST	35
ALT	32
Alk Phos	95

*Urine	
LE	Positive
Blood	Negative
Nit	Positive
Bili	Negative
Alb/Cr	<5
UPT	Negative

*Other	
A1c	5.5
Chol	4.8
LDL	3.4
HDL	1.1
Trigs	2.1
Lipase	65
FOBT	Negative

*indicates the test was likely not indicated with this clinical presentation

Imaging

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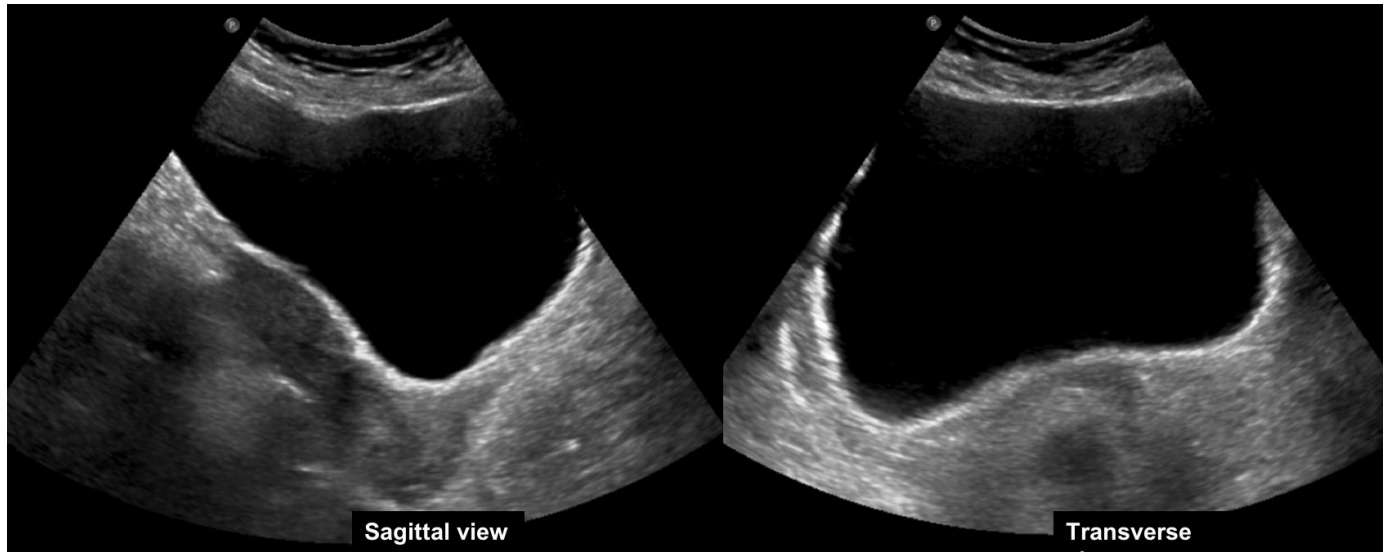
Imaging



*Ultrasound of bladder without abnormalities

Labs

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Assessment

- Manyando is a 25yoF with no significant PMH who presents with classic lower urinary tract symptoms and lack of vaginal discharge. Given she is premenopausal and nonpregnant without any significant health issues or known urinary tract abnormalities she should be treated as having uncomplicated cystitis.

- Differential includes: acute urethritis, PID, vulvovaginitis, interstitial cystitis, nephrolithiasis, appendicitis, cholecystitis, ectopic pregnancy

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Plan

- With uncomplicated cystitis and classic symptoms no work up is necessary
- Preferred antibiotic is nitrofurantoin 100mg bid x 5days
  - Other options are:
    - Trimethoprim/sulfamethoxazole ds x 3 days if resistance is <20%
    - Fosfomycin tromentamol 3mg single dose
- If needed can give phenazopyridine 200mg tid after meals x2 days
- No good evidence for cranberry juice, but ibuprofen can decrease need for antibiotics
- If there are no other options:
  - Cipro or levo x3 days. Augmentin, cefdinir, cefaclor, cefpodoxime proxetil for 3-7 days
- Since complications are uncommon there is no need to return for a visit or follow up UA or culture
- If symptoms do not resolve by the end of the treatment or recur will order a UA with culture and sensitivity and prescribe a different antibiotic for 7 days.
- If she develops these symptoms again we can manage by phone if she calls within 7-10 days of symptoms, she has no symptoms of pyelonephritis, no history of STIs or new sexual partners and it has been longer than a month since she was last treated

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Uncomplicated Cystitis Summary

Uncomplicated cystitis is defined by:

- Healthy premenopausal, nonpregnant, no history of abnormal urinary tract anatomy or function

Usually caused by E coli

Females 17-39yo: 15%, 40-60yo: 11%, 60-79yo: 10%

Risk factors:

- Female sex, sexual intercourse, spermicide use, previous UTI, new sexual partner, diabetes, postmenopausal

Lower urinary tract symptoms:

- Dysuria, frequency, urgency, suprapubic pain, lack or vaginal discharge

Workup: none needed if they have classic symptoms

- UA findings: leukocyte esterase and nitrites
- Do not routinely order cultures

Treatment: nitrofurantoin 100mg bid x 5days

- TMP/SMX DS bid x 3 days, Fosfomycin trometamol 3mg single dose

Complications: are rare

No need for routine follow up, labs or imaging

Do not screen for asymptomatic bacteriuria

Good data does not exist for cranberry juice, prophylaxis, post coital voiding, liberal fluid intake

Complicated cystitis: systemic symptoms, women with functional, metabolic or anatomical abnormalities

- Postmenopausal is considered complicated although does not have to be if they are at low risk for complications

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Genitourinary Case 2

Chief Concern | Histories | PE | Assessment | Plan

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Chief Concern

Mayando is a 25yoF with no significant PMH who presents today for flank pain

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Histories

HPI: She developed right flank pain yesterday. Denies a history of trauma. Overnight she developed fevers, chills and nausea and began vomiting. She denies any sick contacts, diarrhea, blood in stool, dysuria, hematuria frequency, urgency, vaginal discharge. No history of back pain. Not associated with food. LMP was 10 days ago.

PMH: None

PSH: None

FH: Mom - UTI

Social: From Eastern Province. Moved to Lusaka for work. Lives with family members and works at Airtel. Enjoys playing football, dancing and going to chilanga mulilos. Denies tobacco and drugs. Drinks socially.

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Physical Exam

Temp: 100.7

GEN: 25yo female appearing stated age. Appears ill but not toxic and in mild distress. No yellow color of skin or eyes.

GI: abdomen soft, non-tender, non-distended. Bowel sounds present. CVA tenderness present on the right, not the left. No suprapubic tenderness to palpation.

Labs

Imaging

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Labs

*FBC	
WBC	7.5
Hgb	13
Hct	36
Plt	220

*RFTs/LFTs	
Na	138
K	4.6
Bicarb	25
Cl	101
BUN	11
Cr	88.4
Glucose	6.2
Ca	9.5
T bili	11
AST	35
ALT	32
Alk Phos	95

Urine	
LE	Positive
Blood	Negative
Nit	Positive
Bili	Negative
Culture	E coli > 100K colonies
UPT	Negative

*indicates the test was likely not indicated with this clinical presentation

Imaging

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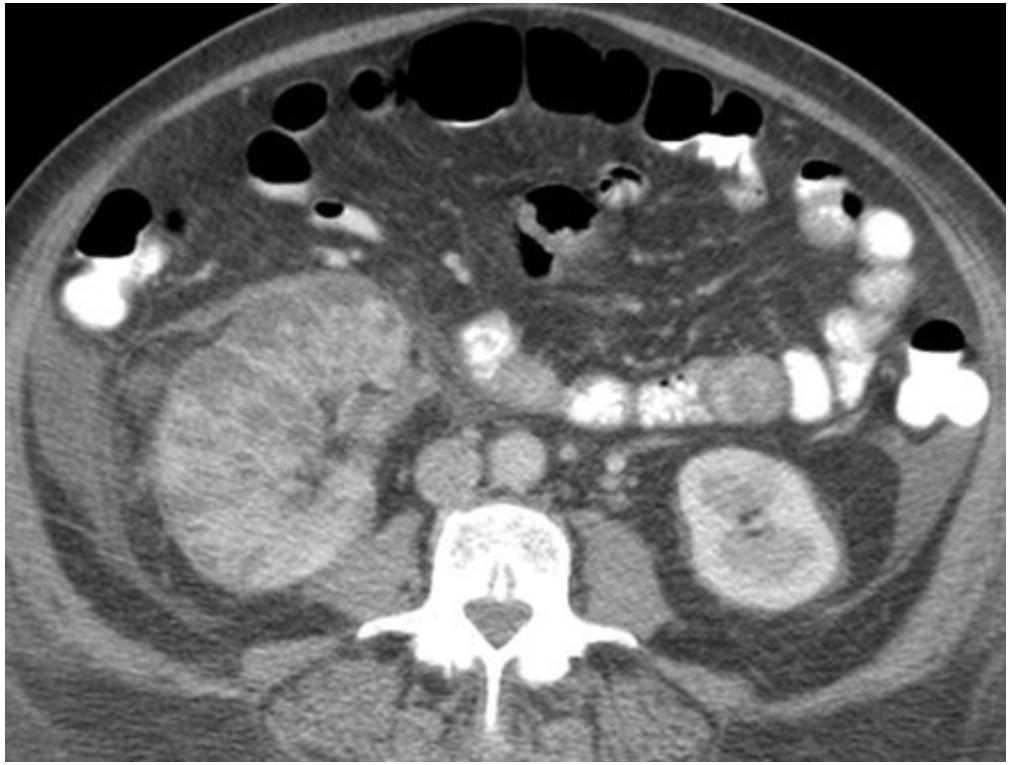
Imaging



*CT with R sided pyelonephritis

*indicates the test was likely not indicated with this clinical presentation

Labs

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Assessment

- Mayando is a 25yoF with no significant PMH who presents with R flank pain, fever and nausea with vomiting. UA demonstrates leuks and nites. Given she is premenopausal and nonpregnant without any significant health issues or known urinary tract abnormalities she should be treated as having uncomplicated pyelonephritis. Will treat outpatient as she does not have a high fever, dehydration, evidence of sepsis, serious co-morbidities or signs of complications.

- Differential includes: PID, interstitial cystitis, nephrolithiasis, appendicitis, cholecystitis, ectopic pregnancy, gastritis, hepatitis

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Plan

- Uncomplicated pyelonephritis outpatient management includes:
- Labs: UA with culture and sensitivity
- Antibiotics
  - If culture and sensitivity are known give:
    - Cipro 500mg bid x7 days or Levo 750mg daily x5 days or Cipro ER 1g daily x7 days OR
    - Trimethoprim/Sulfamethoxazole DS 160/800mg bid x14 days OR
    - Cefpodoxime 200mg bid x10 days OR
    - Ceftibuten 400mg daily x10 days
  - With empiric treatment start with parenteral dose of
    - Ceftriaxone 1gm (also if fluroquinolone resistance >10% and using oral fluroquinolone)
    - Consolidated 24 hour aminoglycoside (also if fluroquinolone resistance >10%)
    - Cipro 400mg
- Routine post treatment UA or culture is not indicated
- If symptoms do not by 72 hours will reorder a UA with culture and sensitivity and send for a CT abd/pelvis.

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Uncomplicated pyelonephritis Summary

Uncomplicated pyelonephritis is defined by:

- Healthy premenopausal, nonpregnant, no history of abnormal urinary tract anatomy or function

Symptoms:

- Fever, chills, flank pain, nausea, vomiting
- With or without dysuria, frequency, urgency

Workup: UA with culture and sensitivity

Treatment: if empiric start with single dose parenteral antibiotic followed by orals

No need for routine post treatment UA or culture

If symptoms do not improve in 72 hours or resolve then recur then get further labs and imaging

CT abd/pelvis if there is suspicion for urologic disorder or complication or not responding to therapy

Hospitalize if: high fever, dehydration, high WBC, evidence of sepsis, serious co-morbidities/complications

Complications are rare and include:

- Bacteremia or sepsis, renal and perinephric abscess, AKI, emphysematous cystitis/ pyelonephritis

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Genitourinary Case 3

Chief Concern | Histories | PE | Assessment | Plan

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Chief Concern

Chileshe is a 41yoM who presents for a 1 day history of right flank pain

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Histories

HPI: The pain started yesterday while working. Is in the R flank and radiates to lower abdomen. Is colicky in nature, intermittent. Ibuprofen dropped the pain down some, nothing makes it worse. Denies fevers, chills, has had some nausea without vomiting. No dysuria or hematuria.

PMH: None

PSH: None

FH: DM

Social: Originally from the Western Province. Moved to Lusaka 25 years ago. Lives with wife and 4 children. Works as a laborer 6 days a week. Enjoys playing football. Drinks soda while working and eats at Hungry Lion: lots of meat and carbs, no fruits or vegetables. Does not smoke or do drugs. Drinks socially.

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Physical Exam

GEN: 43yo male appearing stated age. Not in acute distress although is constantly fidgeting, cannot sit still.

GI: abdomen soft, non-distended. Bowel sounds present. No murphy's sign. Positive McBurney's point tenderness. No CVA tenderness. No hepatosplenomegaly.

Labs

Imaging

Procedures

Seed Global Health

Labs

CBC	
WBC	7.5
Hgb	13
Hct	36
Plt	220

CMP	
Na	138
K	4.6
Bicarb	25
Cl	101
BUN	11
Cr	96
Glucose	8.2
Ca	9.5
T bili	12
AST	35
ALT	32
Alk Phos	95

Urine	
LE	Positive
Blood	Positive
Nit	Negative
Bili	Negative
Culture	Negative

*Other	
A1c	5.5
Chol	4.8
LDL	3.4
HDL	1.1
Trigs	2.1
Lipase	65
FOBT	Negative

*indicates the test was likely not indicated with this clinical presentation

Imaging

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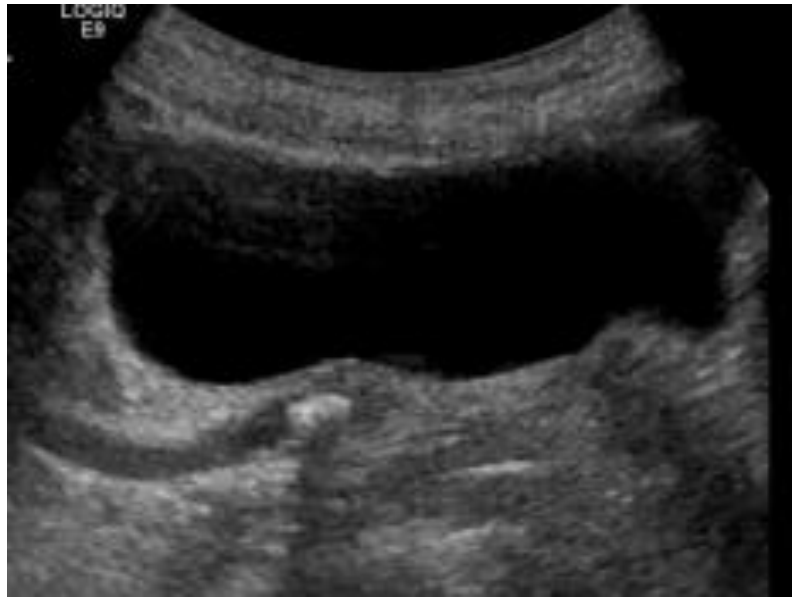
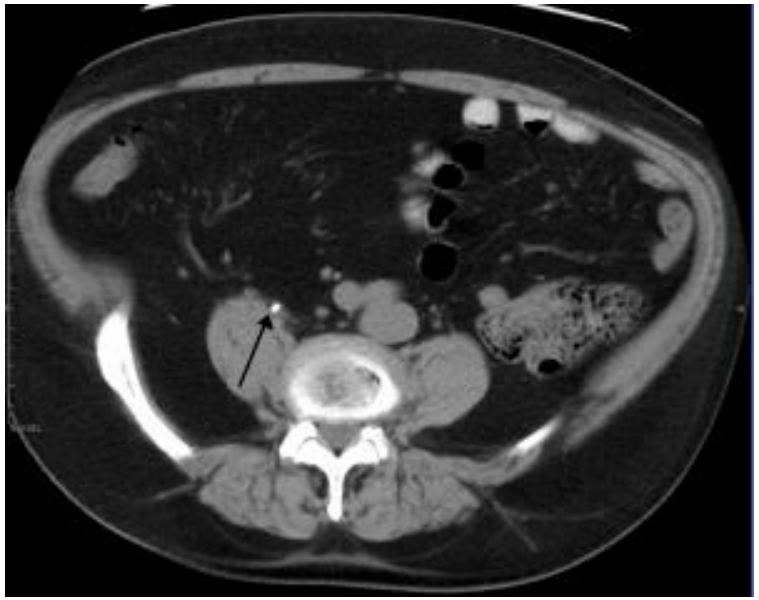
Imaging



*Ultrasound with distal ureteral stone and dilated proximal ureter



CT with R ureteral stone

Labs

*indicates the test was likely not indicated with this clinical presentation

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Assessment

- Chileshe is a 41yoM with no significant PMH who presents today with acute R flank pain consistent with renal colic from a simple renal stone. Although he is in pain this is not an emergency and can be managed in the outpatient setting.
- 70-80% of stones are calcium which have a 30-40% chance of recurrence
- If stone is <5mm there is a 68% chance of spontaneous passage, 5-10mm: 47%. 95% of all stones up to 4mm pass within 40 days.

- Differential includes: UTI, pyelonephritis, interstitial cystitis, peritonitis, appendicitis, cholecystitis, lower back pain.

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Plan

- Pain management with NSAIDs
- Because he is in the acute and symptomatic stage can order a CBC, BMP, uric acid, Ca+ (ionized or total with albumin), UA with microscopy/culture and stone composition on first stone
- Low dose CT (BMI<30) w/o contrast is imaging of choice and should be ordered immediately if there is fever, solitary kidney or diagnostic doubt
- Can offer alpha blocker like tamsulosin if distal ureteral stone 5-10mm for 4-6 weeks
- Refer for ureteral stone removal if low likelihood of passage, persistent pain despite adequate management, persistent obstruction or renal insufficiency
- Prevent with increased fruits/vegetables and fluid intake to >2L/day, limit dietary sodium, avoid excess vitamin supplementation. Limit non-dairy animal protein. Decreasing dietary calcium is not recommended.
- Consider thiazides, potassium citrate or allopurinol for calcium stones if conservative prevention methods fail

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Kidney Stone Summary

Stones are asymptomatic unless there is partial, intermittent or complete obstruction

10.6% of men and 7.1% of women

Risk factors:

- Low fluid intake, high ambient temperature, excess dietary meat/oxalate/sodium, limited fruits/veg, high or low calcium intake
- History of stone, anatomic abnormalities

Stone composition:

- Calcium (oxalate or phosphate): 70-80%, recurrence 30-40%
- Struvite (Magnesium ammonium phosphate): 5-15%. Associated with proteus mirabilis infections

Classified by size: size ≤ 5mm 68% spontaneous passage, >5 to ≤ 10mm (47%), >10 to ≤ 20mm, >20mm

Refer:

- Signs of obstruction with infection, large stone, uncontrolled pain, renal insufficiency, low likelihood of passage

Alpha blockers: Tamsulosin 0.4-0.8mg/day, alfuzosin ER 10mg daily, doxazosin 1mg daily (titrate)

Prevention: increase fluids, fruits, vegetables. Decrease sodium, oxalate, animal protein, supplements

Calcium: do not recommend limiting dietary calcium

If conservative prevention fails for Ca stones can use thiazides, potassium citrate or allopurinol

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Genitourinary Case 4

Chief Concern | Histories | PE | Assessment | Plan

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Chief Concern

Toanga is a 56yoF with a PMH of DM, HTN, seasonal allergies and obesity who presents for urinary leakage

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Histories

HPI: She leaks urine about 3-5 times during the day and has to get out of bed to urinate once at night. She gets a sudden urge to go and at times cannot make it to the toilet in time. She also notices some leakage with laughing hard, coughing or sneezing. She feels empty when she goes, does not have hesitancy, straining or dribbling. Denies persistent bladder/urethral pain, dysuria, hematuria, recurrent UTIs, constant leakage or voiding difficulties.

PMH: DM, HTN, obesity, seasonal allergies

PSH: hysterectomy

FH: no early heart disease or cancers

Social: Is originally from Lusaka. Lives with her husband, 3 children and 5 grandchildren. Enjoys cooking and caring for her grandchildren. Denies smoking, drugs and alcohol.

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Physical Exam

GEN: 56yo female appearing stated age. Not in acute distress. Pleasant and conversive.

GI: abdomen soft, non-tender, non-distended. Bowel sounds present. No hepatosplenomegaly. No CVA tenderness. No suprapubic tenderness or fullness.

NEURO: Strength 5/5 diffusely. Sensation intact. Reflexes 2+ diffusely.

GU: deferred (not indicated based on history)

Labs

Imaging

Procedures

Seed Global Health

Labs

*FBC	
WBC	7.5
Hgb	13
Hct	36
Plt	220

*RFTs/LFTs	
Na	138
K	4.6
Bicarb	25
Cl	101
BUN	11
Cr	96
Glucose	8.2
Ca	9.5
T bili	10
AST	35
ALT	32
Alk Phos	95

Urine	
LE	Negative
Blood	Negative
Nit	Negative
Protein	Negative
Glucose	Negative
*Alb/Cr	<5
*UPT	Negative

*Other	
A1c	7.7
Chol	4.8
LDL	3.4
HDL	1.1
Trigs	2.1
FOBT	Negative

Imaging

Procedures

*indicates the test was likely not indicated with this clinical presentation

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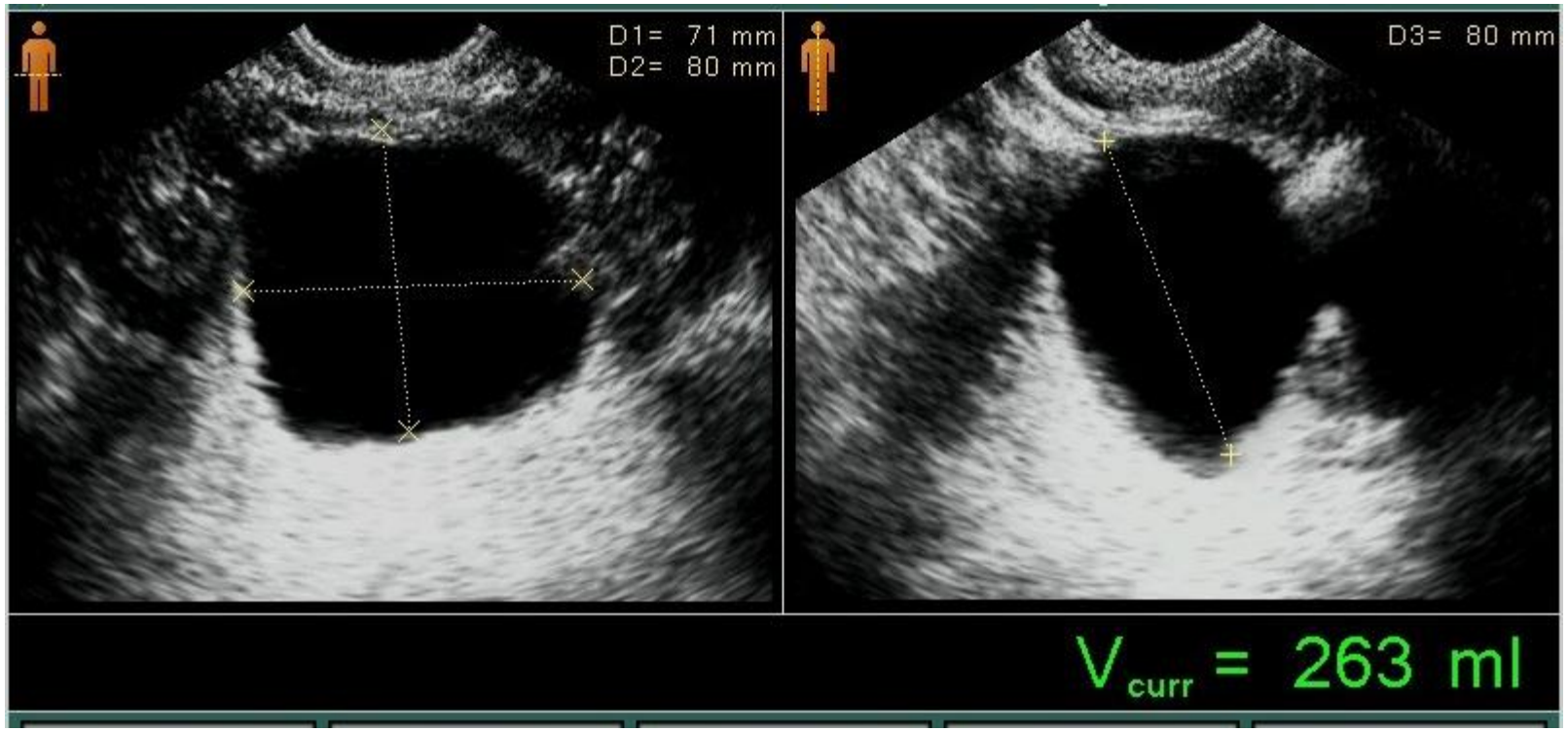
Imaging



*Bladder U/S for pre and post void residual

*indicates the test was likely not indicated with this clinical presentation

Labs Procedures

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Procedures

*normal cystoscopy

*indicates the test was likely not indicated with this clinical presentation

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Assessment

Toanga is a 56yoF with a PMH of DM, HTN, obesity and allergies who presents with a history consistent for mix stress and urge incontinence.
She has a number of risk factors including anti-hypertension medications, diabetes, anti-histamine use and obesity.

Goal is to increase her QOL and decrease episodes of incontinence.

Differential includes: fistula, UTI, vaginitis, overactive bladder, functional incontinence, mediation induced, interstitial cystitis, STI, excessive sweating

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Plan

- Uncomplicated incontinence can be managed by primary care.
- Both types of incontinence will benefit from lifestyle and behavioral interventions including weight loss, incontinence pads/devices, pelvic floor exercises
- If she were to develop cognitive impairment as she ages prompted voiding may help
- If she were drinking an unusually high amount of fluids that should be addressed
- STRESS: supervised pelvic floor training for ≥3 months.
  - If pelvic training fails surgical options are sling, colposuspension, urethral injection of bulking agents
  - Medications are not indicated although if surgery is not indicated can use duloxetine.
- URGE: reduce caffeine, bladder training, consider a bladder relaxant antimuscarinic
  - i.e. Oxybutynin or tolterodine, A.E. xerostomia, constipation, headache. Use ER version if needed
    - Avoid antimuscarinics in people with dementia or high risk for developing dementia
  - Intravaginal estrogen can be used if postmenopausal with vulvovaginal atrophy. Avoid oral/transdermal
- Refer if hematuria present (>50yo), recurrent/persistent UTI with hematuria (>40yo), suspected malignant mass arising from the urinary tract

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Urinary Incontinence Summary

Urinary incontinence is involuntary loss of urine

- STRESS: associated with physical effort, coughing or sneezing
- URGE: leakage accompanied/immediately preceded by sudden desire to urinate

44-57% of middle-aged women, 75% of older women

Risk factors:

- Female, older age, vaginal delivery, obesity, DM, HRT, medications, family history

Comprehensive pelvic exam should not routinely be performed. Perform to:

- Detect a pelvic mass that would change management, detect other abnormalities, i.e. severe pelvic organ prolapse, atrophic vaginitis

LABS: UA (culture if infection present)

Imaging: Ultrasound to measure post void residual if history suggestive of:

- voiding dysfunction, recurrent UTI or complicated incontinence

Urodynamic testing should not be routinely performed

Cystoscopy is not part of the initial evaluation of incontinence

Refer: hematuria (>50yo), hematuria with recurrent UTI (>40yo), suspicion for malignancy