



1. In a patient presenting with dysuria, use history and dipstick urinalysis to determine if the patient has an uncomplicated urinary tract infection.

So the history points we're looking for here are probably pretty familiar to you all. Patients with dysuria are typically female, and have an acute history of pain, frequency and urgency with urination. They will often have suprapubic pain and may or may not have gross hematuria. Remember to always ask about vaginal symptoms as well, and typically there will be none with an uncomplicated cystitis.

The history tells you so much about the probability of a UTI! If your patient has one of dysuria, frequency, urgency or suprapubic pain, the probability they have an uncomplicated UTI is 50%. If they have dysuria and frequency with no abnormal vaginal discharge or irritation, that goes up to 90%.

Remember also the symptoms can be subtle, especially for older women, who may experience chronic dysuria or incontinence with cystitis in the background. Here you'll want to keep an eye (and an ear) out for acute dysuria that has been present for less than one week, new or worsening urgency, new incontinence, new frequency, gross hematuria, or suprapubic tenderness!

Also watch out for fever, which we'll get to when we talk about more complicated infections, but it's important to note that fever, chills, rigors, systemic illness and flank pain are NOT the signs and symptoms of acute simple cystitis.

Cystitis often comes up in the differential when we think about delirium for patients but remember that falls and a change in mental status are not actually very reliable predictors of cystitis.

Let's talk about the physical exam and further testing. For a female patient in whom you suspect an acute simple cystitis, a physical exam and further testing are actually not needed per UTD. But palpating for suprapubic pain and costo-vertebral angle tenderness is never the wrong thing to do and can help determine if this is a simple vs complicated UTI.



In-office urine dip is a quick and simple test that can be useful, especially if the symptoms the patient describes are a bit unusual, if they're immunocompromised or have poorly controlled diabetes (UTD).

If you do a urine dip, culture and sensitivity isn't required. You're looking for positive leukocyte esterase, or 'leuks,' indicating pyuria, and positive nitrites, reflecting our old friend Enterobacteriaceae. If leuks or nitrites are positive, you have 75% sensitivity and 82% specificity for cystitis (UTD).

To drive it home, a good history for those key cystitis features is actually better than a positive urine dip. And a negative dip doesn't rule it out either.

One last thing to include is a pregnancy test if there is any chance the patient could be pregnant.

2 When a diagnosis of uncomplicated urinary tract infection is made, treat promptly without waiting for a culture result.

There is an excellent discussion on antibiotic therapy of uncomplicated cystitis back in the Antibiotics episode, which we will link to in the show notes.

The quick and dirty answer for this objective is to treat based on history, with or without a suggestive urinalysis, and our first-line treatment is nitrofurantoin.

Your other options are cephalexin, septrax or cipro.

If the patient is pregnant, avoid the quinolones, so take cipro off the list of alternatives, and remember to repeat urine cultures monthly for the rest of the pregnancy.



The patient should find their symptoms improve within 48 hrs. Another option for symptom management is phenazopyridine, which is a urinary analgesic, TID PRN for two days. Note, this should not be used chronically (UTD).

We're going to stick with uncomplicated cystitis for this objective, but if you'd like to review the treatment for pyelonephritis, again head back to the Antibiotics episode!

3 Consider non-urinary tract infection related etiologies of dysuria (e.g., prostatitis, vaginitis, sexually transmitted disease, chemical irritation) and look for them when appropriate.

Dysuria can be one of those “blinders on” topics. You're in clinic, chugging through your day, trying to keep on top of your charting and not forget to eat lunch, and you see the next patient is in for ?UTI. It's easy to start writing the script in your head before the patient has walked through the door.

That's so true. Let's take those blinders off and work our way through the differential. There's quite a bit of overlap in the list of possibilities provided in the objective, but broadly we're thinking about other infections, or chemical or mechanical irritation.

Prostatitis. Chronic prostatitis, also called chronic pelvic pain syndrome, is a syndrome in males that, you guessed it, is defined by chronic pain in the pelvic region. It often also includes some urologic symptoms and even sexual dysfunction including pain with ejaculation, premature ejaculation and erectile dysfunction. Patients with prostatitis may be tender on palpation of the prostate, perineum, pelvic floor, or pelvic side walls.

Vaginitis. This is where all the vaginal symptoms come into play. The history should include questions about new vaginal discharge or odor, vaginal itching and dyspareunia. If the answer to these questions is yes, it's time to start thinking about a vaginitis picture and the underlying causes like yeast infections, bacterial vaginosis and trichomoniasis.



Definitely, and even more so if those classic UTI symptoms of dysuria, frequency and urgency aren't apparent on history!

Speaking of trich, let's talk more broadly about **STIs**. Chlamydia and gonorrhea can both cause genitourinary infections in males and females, which can include symptoms of dysuria. Here we're looking for other STI symptoms like discharge and dyspareunia, and abdominal or pelvic pain and fever if PID is the underlying cause. If you suspect PID, do a speculum exam, looking for mucopurulent endocervical discharge, and a bimanual exam for cervical motion tenderness.

Urethritis can result from STIs including trich, candida, HSV and chemical irritants. It should be high on the differential for sexually active females with dysuria where the urinalysis shows pyuria without bacteriuria.

Last but not least on the differential is **chemical and mechanical irritation**. This can be due to contraceptive gels, perfumed or highly scented cleansers, and other products. Or from clothing or activities that irritate the area.

4 When assessing patients with dysuria, identify those at higher risk of complicated urinary tract infection (e.g., pregnancy, children, diabetes, urolithiasis).

This is one of those objectives where they kind of give away who we're looking for here. Let's run through the list.

1. Pregnant people.
Pregnancy increases a patient's risk for lower or upper urinary tract infections. This is due to the smooth muscle relaxation and urethral dilation that come along with pregnancy, coupled with the pressure from the uterus on the bladder and ureters. We're still looking at the same major pathogens, e coli and enterobacteriaceae. The SOGC does recommend screening all pregnant patients at some point in their pregnancies for asymptomatic bacteriuria and treating if needed (Canadian Task Force).



2. Children. UTIs are not uncommon in the pediatric population and can cause significant sequelae if not properly identified and managed. Keep it on your differential when you're faced with a young child with a fever, especially for uncircumcised male children under three months of age and all female children. The University of Pittsburgh has a nifty little online calculator for the probability of UTI in peds and we'll provide the link to that in the show notes.

<https://uticalc.pitt.edu>

3. People who have diabetes, particularly poorly controlled diabetes or those who take an SGLT2 inhibitor, are also at higher risk for cystitis. For patients with poorer glycemic control, the risk is related to impaired immune response, vascular insufficiency, sensory peripheral neuropathy and autonomic neuropathy, and higher levels of skin and mucosal colonization by things like staph aureus and candida. For those taking an SGLT2 inhibitor, it's really due to the increased urinary glucose.

Remember to test and treat diabetic patients with dysuria. Here's where a culture can be really useful too, because we're definitely moving beyond the classic e coli picture.

4. People who have renal stones are also at a higher risk for dysuria and cystitis. Always consider this in the background of managing stones.

5 In patients with recurrent dysuria, look for a specific underlying cause (e.g., post-coital urinary tract infection, atrophic vaginitis, retention).

A recurrent UTI is defined as two or more infections in six months, or three or more infections in one year (UTD and CUA). This isn't uncommon; studies show as high as 44% of the study population having a recurrence within one year.

Let's take a moment here to talk about recurrent, uncomplicated UTIs in women. The Canadian and American Urological Associations have a consensus guideline on this topic, with a nice breakdown of assessment and management, with consideration for antimicrobial stewardship. These guidelines are specifically for female patients, and



not intended for pregnant or immunocompromised patients, or UTIs associated with catheterization.

The biggest take home for initial assessment of recurrent UTIs is to include an abdominal and pelvic exam to assess for any functional or structural abnormalities. Be sure to get the culture and sensitivity, and to repeat this for each subsequent UTI. If the sample is suspect for contamination, it's time to obtain repeat urine studies, with consideration of obtaining a catheterized sample.

They advocate against cystoscopy or upper tract imaging, and also against any kind of routine surveillance testing or treatment of asymptomatic bacteriuria. Then it's all about your local antibiogram and using the first line treatments as appropriate. It is not necessary to perform a test of cure, but if the symptoms come back again, it's time to do another culture and sensitivity.

Another option is self-start therapy, the kicker here being to still obtain that culture before initiating therapy. This approach is patient-specific and requires shared decision making in the context of a thorough discussion of risks, benefits and alternatives.

Some specific causes for recurrent UTIs that we need to cover include post-coital UTIs, retention related and vaginal atrophy related.:

1. Post-coital UTIs can be related to intercourse itself, or the use of spermicide, either in conjunction with a diaphragm or condom. Counsel patients to void after intercourse and consider switching to another contraceptive method if they are using spermicide.
For recurrent UTIs associated with intercourse, the CUA recommends TMP-SMX 40/200 or 80/400, nitrofurantoin 50-100 mg or cephalexin 250mg as a single dose before or after intercourse.
2. Retention, be it intentional or unintentional, is another underlying cause for recurrence of a UTI. Counsel patients on liberal fluid intake with a daily target of 2-3L per day, and to avoid retaining urine whenever possible. Consider



further investigations if you're concerned about obstruction or high post-void residuals.

3. Vaginal atrophy is another risk factor and vaginal estrogen is recommended by the Canadian Urogological Association for postmenopausal patients who are experiecing recurrent UTIs, if there are no contraindications. Of course, always proceed with caution with any exogenous estrogen in a patient with increased risk for estrogen-dependent tumours.
Definitely not unreasonable to refer to ObGyn.

Another option for postmenopausal patients or any patient with high recurrence is prophylatic treatment. This has actually been found to be more effective than vaginal estrogen at preventing recurrence. Generally antibiotic prophylaxis is reserved for more refractory situations. It can be continuous or simply after intercourse as we mentioned.

For prophylaxis, studies comparing nitrofurantoin, fosfomycin and TMP-SMX found no difference in effectiveness, and they also found no benefit from rotating agents.

And that concludes our walk through the garden of dysuria. This has been The GenerEhlist 105 topics podcast, episode number ??? on Dysuria. Stay tuned for our next episode on ???

Thanks again for listening in, and as ever, reach out to us with any feedback and if you want to get involved with the project, we are always looking for awesome people to keep things going and to inject your creativity and awesomeness to make things even better.