HealthPathways Melbourne

Putting knowledge into practice

CASE STUDY 32:

Suspected acute cystitis

Bethany, 36, presents to her GP with a two-day history of incomplete bladder emptying, stinging on urination and increased urinary frequency.

For the past three weeks there has been some intermittent right flank tenderness, without any suggestion of fever, malaise, rigors or night sweats.

Bethany had assumed that this was the result of her restarting competitive tennis within the past six weeks.

When her urinary symptoms emerged, she wasted no time in making an appointment to see her GP. Her history included recurrent UTIs four to five years ago, which were triggered by intercourse.

Up until now, the UTIs had been well-managed with double-voiding and prophylactic trimethoprim 150mg taken within two hours of sexual activity. She is in a stable relationship with one male partner for the past eight years.

Her only regular medication is the oral combined contraceptive pill, which she restarted three years ago after giving birth to her first-born son. Her periods are consistently regular with light bleeding for three days and no intermenstrual or breakthrough bleeding.

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She reports strict compliance with her contraceptive pill and last had a menstrual bleed two weeks ago. She denies any unusual discharge, pelvic pain or vaginal odour.

The GP suspects an isolated episode of acute cystitis and accesses the HealthPathways Melbourne UTI in Women pathway to support assessment and management.

The GP arranges a mid-stream urine microscopy, culture and sensitivities (abbreviated to *urine MCS*), and reviews the latest management guidelines, noting they were updated in early 2025.

Bethany is started on empiric treatment with nitrofurantoin 100mg every six hours for five days.

Manage according to the nature of the infection:

- Acute cystitis ^

1. If the patient is clinically very unwell, arrange referral to the emergency department for IV antibiotics.
2. Treat UTI according to the patient's age and risk factors.

    - Patients aged < 65 years, mild symptoms, and not immunocompromised ^

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    - Consider a trial of non-antibiotic therapy first as most patients will improve within 1 week and the risk of complications is low.
    - Recommend NSAIDs for symptom relief.
    - Consider providing a delayed script for antibiotics with advice to start antibiotics if symptoms do not start improving after 3 days, or

In line with her previous experiences, Bethany expected symptoms to improve within 48 hours of commencing antibiotic therapy. However, this did not happen.

Before she has a chance to contact the clinic and book a review appointment, she receives a call from her GP, who tells her that a recently received pathology report shows that the bacterial strain infecting her is resistant to the antibiotic. She needs to now change to a course of trimethoprim-sulfamethoxazole.

After completing the new course, all symptoms resolve, except the intermittent flank pain. The GP had advised repeating a urine MCS once her symptoms had cleared, which Bethany elected to forego due to poor timing and needing to travel interstate for work for a week.

5. If urine culture grows an organism associated with stone formation such as *Proteus*, *Klebsiella*, or *Pseudomonas*, consider arranging repeat MSU after appropriate therapy to ensure clearance.

Three weeks later she presents again with an almost identical history. The GP initiates the exact same management, but also requests a CT kidneys, ureters and bladder (KUB).

This is because Bethany's initial urine MCS was positive for Proteus mirabilis and the GP recalls reading something on HealthPathways Melbourne highlighting that such UTIs place patients at higher risk of developing renal calculi.

The CT KUB confirms a non-obstructing renal calculus within the right kidney – thus explain the flank pain. The GP consults the Non-Acute Urology Referral pathway, and subsequently refers Bethany to her closest urology clinic for assessment.

- CT kidneys, ureters, and bladder (KUB) if:
    - renal stones are suspected, or being followed up.
    - urine culture shows *Proteus*, *Klebsiella*, or *Pseudomonas* infections, as these are associated with a high risk of stones.

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