



# A young man with dysuria and discharge

**Juliette Holland**, BSc (hons), MBBS, MSc, FRCPA, is Clinical Microbiologist, Mayne Health - Lavery Pathology, Sydney, New South Wales.

A previously fit and well 21 year old male college student presents with a three day history of dysuria. He declines a physical examination and a midstream urine (MSU) specimen is requested (Table 1).

**Table 1. Midstream urine test results**

Leucocytes:	>100 x 10 <sup>6</sup> /L
Erythrocytes:	0 x 10 <sup>6</sup> /L
Epithelial cells:	0 x 10 <sup>6</sup> /L
Ph:	6
Protein:	nil
Glucose:	nil
Blood:	nil
Culture:	no growth

## Question 1

How should this result be interpreted?

## Question 2

What further investigations should be performed?

## Question 3

What is the presumptive diagnosis?

## Question 4

What treatment should be initiated?

## Question 5

What further tests should be requested?

## Answers

### Answer 1

This patient has a sterile pyuria. There are many causes of a sterile pyuria including:

- treated or partially treated UTI — bacteria is no longer viable but there is still a residual white cell response
- the presence of fastidious organisms or those that would not grow on routine culture for example *Mycobacteria tuberculosis*
- noninfectious causes of bladder inflammation. These include instrumentation, catheterisation, chemical irritants, stones and tumour
- urethritis.

In the absence of a history supporting one of the other causes, urethritis is most likely in a young, sexually active man. At follow up examination, a small amount of urethral discharge is noted.

### Answer 2

A smear of the urethral discharge should be made (secretions are collected onto a plain swab, which is rolled onto a glass slide and allowed to air dry). The results are listed in Table 2. A swab for bacterial culture and a swab for *Chlamydia trachomatis* detection should also be collected. Many laboratories are now able to detect *Chlamydia trachomatis* and *Neisseria gonorrhoeae* by polymerase chain reaction (PCR) on genital swabs and first void urine specimens.

### Answer 3

Gonococcal (*Neisseria gonorrhoeae*) urethritis. This presumptive diagnosis can be made on the basis of the Gram stain results from a male urethral swab. The normal genital flora of females contains a mixture of Gram positive and Gram negative bacteria and a presumptive

**Table 2. Urethral discharge test results**

Gram stain:	moderate leucocytes moderate Gram negative diplococci
Culture:	to follow

diagnosis is difficult on the basis of a Gram stain alone.

### Answer 4

Susceptibility patterns vary across Australia and worldwide, however, approximately one-quarter of all gonococci in Australia are resistant to penicillin (and amoxicillin) and this should not be used as empiric treatment.<sup>1</sup> Approximately 10% of isolates are also resistant to ciprofloxacin. No significant resistance has

## n A young man with dysuria and discharge

been reported to injectable third generation cephalosporins such as ceftriaxone and this is the drug of choice (250 mg intramuscularly as a single dose). Oral ciprofloxacin (500 mg as a single dose) can be used but treatment may need to be modified once susceptibility results are known.

Because of the potential for coexisting chlamydia infection the addition of antibiotics such as azithromycin or doxycycline targeting this organism is also recommended.<sup>2</sup>

Testing and treatment of sexual partner(s) should also be initiated.

### Answer 5

Gonorrhoea infection is associated with an increased likelihood of having other sexually transmitted diseases. Screening for hepatitis B virus, HIV and syphilis should be performed on a serum sample.

### The use of polymerase chain reaction (PCR) in detecting genital tract infections

Polymerase chain reaction amplifies and enables detection of the DNA of an organism and facilitates detection of difficult or slow to cultivate organisms such as *Chlamydia trachomatis*. It may also be of value in detecting 'fragile' organisms such as *Neisseria gonorrhoeae* particularly if the specimen needs to be transported over long distances or for long periods of time.

Polymerase chain reaction testing can usually be performed on genital swabs and first void urine (FVU) samples. The same specimen can be used for the simultaneous detection of both organisms.

The ability to perform PCR on FVU has increased patient acceptance of this testing and facilitated its use as a screening tool. The use of an FVU specimen is of similar sensitivity to the use of a genital swab for the detection of chlamydia and gonorrhoea.

Although PCR is highly sensitive and specific for the detection of genital *N. gonorrhoeae* infections it is not recommended for the detection of oropharyngeal *N. gonorrhoeae*. This is because the normal commensal nonpathogenic *Neisseria* species present in the throat can cause cross-reactions and hence false positive results. Furthermore, PCR cannot predict antibiotic sensitivities, therefore susceptibility testing from a bacterial culture of *N. gonorrhoeae* remains important.

### References

1. Australian Gonococcal Surveillance Program. Annual report of the Australian Gonococcal Surveillance Program 1999. *Commun Dis Intell* 2000; 24:113-117.
2. Therapeutic Guidelines: Antibiotic. Version 11, 2000.

AFP