

## Pelvic Inflammatory Disease (PID) CASE STUDY



### History: Jane Wheels

Jane Wheels is a 24-year-old married female who presents to her nurse practitioner reporting lower abdominal pain, cramping, slight fever, and dysuria of four days duration.

- 24-year-old G1P1, LMP two weeks ago (regular without dysmenorrhea).
- She uses oral contraceptives (for two years).
- She reports a gradual onset of symptoms of lower bilateral abdominal discomfort, dysuria (no gross hematuria), abdominal cramping, and a slight low-grade fever in the evenings for four days.

Discomfort has gradually worsened.

- Denies GI disturbances or constipation. Denies vaginal discharge. Took acetaminophen for fever (three doses).
- Jane states that she is happily married in a mutually monogamous relationship and plans another pregnancy in about six months. Husband does not use condoms. Reports that they engage in vaginal sexual intercourse approximately two times per week—no oral or rectal sex.
- Cooperative and good historian. Non-smoker, exercises regularly, no appetite changes, no travel outside the U.S., and no history of STDs. Reports occasional yeast infections. Douches regularly after menses and intercourse. Reports douching last this morning.

### Physical Exam

- Vital signs: blood pressure 104/72, pulse 84, temperature 38°C, weight 132 lbs.
- Neck, chest, breast, heart, and musculoskeletal exam within normal limits. No flank pain on percussion. No CVA tenderness.
- On abdominal exam the patient reports tenderness in the lower quadrants with light palpation. Several small inguinal nodes palpated bilaterally.
- Normal external genitalia without lesions or discharge.
- Speculum exam reveals minimal vaginal discharge with a small amount of visible cervical mucopus.
- Bimanual exam reveals uterine and adnexal tenderness, as well as pain with cervical motion. Uterus anterior, midline, smooth and not enlarged.

### 1. What should be included in the differential diagnosis?

Correct responses include the following:

- Urinary tract infection (UTI) – Dysuria and lower abdominal tenderness can be consistent with a UTI.
- Vaginitis – Ms. Wheels' history of douching this morning could account for the minimal vaginal discharge noted on exam, so vaginitis cannot be ruled out.

- Pelvic inflammatory disease (PID) – CDC’s minimal criteria for a presumptive diagnosis of PID (uterine or adnexal or cervical motion tenderness) have been met, and thus PID should be considered in this case.
- Pregnancy – Pregnancy or ectopic pregnancy should be ruled out in any woman of reproductive age with Ms. Wheels’ symptoms.

## 2. Which laboratory tests should be performed or ordered?

Correct responses include the following:

- Vaginal saline wet mount with pH – This would assist in diagnosing vaginitis, which may not be obvious given her douching history. Also, the presence of WBCs on saline microscopy increases the specificity of PID diagnosis, and the absence of WBCs on saline microscopy increases the likelihood that PID is not the correct diagnosis.
- Nucleic acid amplification test (NAAT) for gonorrhea – This would be appropriate given the presumptive diagnosis of PID.
- Urine analysis and culture – This would be appropriate given the history of dysuria and lower abdominal tenderness.
- Nucleic acid amplification test (NAAT) for chlamydia – A sensitive NAAT would be the first choice for diagnosing chlamydia.
- CBC with sedimentation rate and C-reactive protein – An elevated erythrocyte sedimentation rate and elevated C-reactive protein increases the specificity of PID diagnosis. However, these tests may not be indicated, may not be available, or may be too expensive.
- Pregnancy test – A sensitive pregnancy test to rule out ectopic pregnancy is necessary.

## Laboratory

Results of office diagnostics:

- Urine pregnancy test: negative
- Urine dip stick for nitrates: negative
- Vaginal saline wet mount: vaginal pH was 4.5. Microscopy showed WBCs >10 per HPF, no clue cells, no trichomonads, and the KOH wet mount was negative for budding yeast and hyphae.

## 3. What is the presumptive diagnosis?

This patient meets the minimum criteria for a presumptive diagnosis of PID. The presence of WBCs on the saline microscopy increases the specificity of that diagnosis. Minimum criteria, in the absence of a competing diagnosis, justify presumptive treatment.

## 4. How should this patient be managed?

As Ms. Wheels meets the minimum criteria for PID in the absence of a competing diagnosis, presumptive treatment is warranted. Given the clinical presentation of the patient, it is reasonable to consider oral/intramuscular outpatient treatment for PID and she should return for follow-up in 48–72 hours.

### 5. What is an appropriate CDC-recommended therapeutic regimen for Ms. Wheels?

Correct responses include the following:

- Ceftriaxone 250 mg Intramuscularly once, plus doxycycline 100 mg orally twice a day for 14 days, with or without metronidazole 500mg orally twice a day for 14 days
- Cefoxitin 2 g intramuscularly, plus probenecid 1 g orally, plus doxycycline 100 mg orally twice a day for 14 days, with or without metronidazole 500mg orally twice a day for 14 days
- Other parenteral third-generation cephalosporin (e.g. ceftizoxime or cefotaxime), plus doxycycline 100 mg twice a day for 14 days, with or without metronidazole 500 mg orally twice a day for 14 days

The chosen regimen should cover the polymicrobial nature of PID (gonorrhea, chlamydia, and anaerobes), as the etiologic agent is often unknown at the time of treatment initiation. The results of the cervical NAATs or cultures are not always predictive of the organisms implicated in upper genital tract disease. The organisms involved in bacterial vaginosis play a role in some cases of PID as well.



#### Partner Management

Sex partner: Joseph (spouse)  
First sexual exposure: 4 years ago  
Last sexual exposure: 1 week ago  
Frequency: 2 times per week (vaginal only)

### 6. How should Joseph be managed?

Joseph should be evaluated and treated for gonorrhea and chlamydia. Male sex partners of women with PID should be examined and treated if they had sexual contact with the patient during the 60 days preceding the onset of symptoms in the patient. If a patient's last sexual intercourse was >60 days before onset of symptoms or diagnosis, the patient's most recent partner should be treated. Partner evaluation and treatment are imperative because of the risk for reinfection and the strong likelihood of gonococcal or chlamydial infection in the sex partner.

Male partners of women who have PID caused by *C. trachomatis* and/or *N. gonorrhoeae* are often asymptomatic. Therefore, sex partners should be treated empirically with regimens effective against both of these infections, regardless of the apparent etiology of PID or pathogens isolated from the infected woman.

## **Follow-Up**

On follow-up three days later, Jane had improved clinically. The nucleic acid amplification test (NAAT) for gonorrhea was positive. The NAAT for chlamydia was negative.

Joseph came in with Jane at follow-up. He was asymptomatic but did admit to a "one-night stand" while traveling. He was treated. They were offered HIV testing which they accepted.

### **7. Who is responsible for reporting this case to the local health department?**

Laws and regulations in all states require that persons with gonorrhea or chlamydia be reported to public health authorities by clinicians, laboratories, or both. Check with your state or local health department for reporting requirements in your area.

### **8. What are appropriate prevention counseling recommendations for this patient?**

Correct responses include the following:

- A history of PID increases the risk for developing a future episode of PID.
- Patients should abstain from intercourse until therapy is completed and until they and their sex partners no longer have symptoms.
- Latex condoms, when used correctly and consistently, can reduce the risk of transmission of chlamydia and gonorrhea.
- Sexually-active women 25 years of age and younger should be screened annually for chlamydia.
- Douching increases the risk of PID because it contributes to vaginal flora changes, epithelial damage, and disruption of the cervical mucous barrier.
- Discuss individual risk reduction strategies, including monogamy with an uninfected partner and correct and consistent use of condoms.