

Sex Differences in Sexually Transmitted Infections

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Case Overview

Gonorrhea and chlamydia, two extremely prevalent sexually transmitted illnesses (STIs), have important differences in presenting symptoms and complications between women and men. Notably, when compared with men, women with sexually transmitted illness are less likely to have symptoms of disease and more likely to develop complications. Additionally, if women do have symptoms, these may be nonspecific or similar to the presenting symptoms of other disease processes such as urinary tract infections (UTIs). The patient in this case, SS, interpreted the constellation of her irregular vaginal bleeding and non-specific symptoms as possible pregnancy, and her chlamydial infection was complicated by pelvic inflammatory disease (PID).

Chief Complaint

Vaginal bleeding; I took a pregnancy test at home and it was negative

HPI

SS, a previously healthy 19 year-old female, presented to the emergency department (ED) with irregular bleeding for over one month. Her last normal menstrual period was two months prior to presentation. The intermittent vaginal bleeding is described as "lighter" than her typical menstrual period, and was noted to have started after having sexual intercourse. She denies dyspareunia. Pertinent positives included low back pain, fatigue, increased vaginal discharge, and mild abdominal pain initially that has since resolved completely. There are no fevers or dysuria. Based on her symptoms, SS believed that she was pregnant so checked multiple home pregnancy tests, all of which were negative. Two days prior to presentation, she visited another hospital, where a third urine pregnancy test was obtained that was reportedly negative.

Medical History: None

Surgical History: None

Social History: Denied use of alcohol, tobacco, and illicit drugs.

Sexual History: Sexually active with one new male partner for the past two months. She reported using condoms for birth control about fifty percent of the time.

Medications: None

Vital Signs

- BP 113/70
- HR 67
- RR 14
- Oxygen 99% on RA
- Temperature 97.6

Physical Exam

On exam, SS was alert and in no acute distress. Her abdominal exam was significant for mild abdominal tenderness in the suprapubic area and the right lower quadrant. The pelvic exam revealed a friable, erythematous cervix and moderate amount of malodorous vaginal discharge. A bimanual exam elucidated moderate cervical motion tenderness and right adnexal tenderness. The rest of her exam was unremarkable.

ED Course

Upon admission, SS had a negative pregnancy test, a normal complete blood count and chemistry panel, and a negative rapid HIV test. Urine samples were sent for gonorrhea and chlamydia, which were pending at the time of discharge. Following her pelvic exam, she was given ceftriaxone and doxycycline for presumed pelvic inflammatory disease based on her presentation and physical exam. She was discharged with a two-week course of doxycycline and instructed to have her partner tested and treated.

Pertinent Labs

- UA: 3+ LE, nitrite negative, 30 WBC, <1 RBC, many squamous cells
- UCG: negative
- Urine gonorrhea: negative
- Urine chlamydia: positive
- Screen for bacterial vaginosis/ trichomonas: positive for gardenella, negative for trichomonas, negative for candida
- Rapid HIV: negative

Follow-up: SS's chlamydia test returned positive the next day

Discussion

The incidence of reported chlamydial infections each year in the United States is over one million, while the incidence of reported gonorrheal infections is over 700,000.^{1,2,3} Internationally, the prevalence is also high; in one large cross-sectional study of adolescents in Norway, the prevalence of chlamydia was over four percent.⁴ In addition, the prevalence of both chlamydia and gonorrhea is higher in women compared to men. In women, prevalence of both diseases is highest between ages fifteen and nineteen, while in men the highest prevalence is between the ages of twenty and twenty-four.^{1,2,3,4,5,6}

There are clear sex specific differences in the presentation of gonorrheal and chlamydial infections. Women are more likely to either be asymptomatic or have non-specific symptoms. For gonorrhea, between 50% and 95% of women are asymptomatic compared to approximately 10% of men.^{2,6} Cervicitis is the most common presentation of gonorrhea and chlamydia in women with symptoms including vaginal discharge, dysuria, and irregular menstrual bleeding.^{2,6} In women, it may also be difficult to distinguish between symptoms of UTIs and STIs.^{7,8} Quantification of this problem has been limited. In one small study of women with only urinary

symptoms 17% of women had positive tests for STI (gonorrhea, chlamydia, or trichomoniasis). In the same study, 50% of the STIs were not diagnosed during the actual ER visit.⁸ Further studies have shown that symptoms of dysuria cannot reliably distinguish UTIs from STIs. In women with dysuria, nitrites may predict UTIs while history of STIs and multiple sexual partners may predict STIs.⁷

For men, symptoms include those of urethritis, epididymitis, or even prostatitis and specifically will have urethral discharge and/or a sensation of dysuria.^{2,6} Furthermore, symptoms of dysuria and urethral discharge have been found to be more predictive of infection in men compared to vaginal discharge in women.⁴

More women develop complications from both gonorrhea and chlamydia compared to men. Complications in women include PID, ectopic pregnancy, infertility, and fetal transmission.^{1,2,4} The most common complication is PID; 10 to 20% of women with gonorrheal or chlamydial cervicitis will develop PID within two menstrual cycles. Once PID develops, symptoms may be non-specific and include irregular vaginal bleeding, nausea, and abdominal pain making delayed diagnoses more likely.^{6,9} Some sources report that half of women who have had PID at least three times have problems with infertility.² Furthermore, studies have found an association between chlamydial infection and cervical cancer, even after adjusting for HPV status.^{4,10} Finally, there is early data to suggest some association between chlamydia and ovarian cancer.¹¹

Men also develop complications from gonorrheal and chlamydial infections, though these complications occur less frequently compared to women.^{1,2,4,6,9} For example, between one and four percent of men with nongonococcal infection of the urethra (primarily chlamydial) may go on to develop Reiter's syndrome, a constellation of disease manifestations that include iritis, dermatitis, and arthritis.^{2,12} Men may also develop persistent pain in the penis or perineum as well as symptoms of chronic prostatitis.¹

Conclusion

In both gonorrheal and chlamydial infections, women are more likely to remain asymptomatic and more likely to develop complications. The higher rates of asymptomatic infections as well as higher rates of complications have led to CDC recommendations for annual screening of sexually active women under age twenty-five, while corresponding recommendations for men apply to high-risk groups only.¹ Our case of SS, a 19 year-old female with non-specific symptoms of irregular vaginal bleeding and ultimately diagnosed with PID, illustrates the gender specific presentation of sexually transmitted illnesses.

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