# The Diagnosis and Management of Chlamydial Cervicitis: A Test of Cure

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The laboratory diagnosis of female genital chlamydial infections is a difficult area for family physicians, many of whom now realize the disastrous effect on family life that an untreated infection can have. Accuracy in diagnosis is essential: the implications of a false-positive or false-negative test are immense, as the condition is sexually transmitted and can cause permanent damage to health and fertility. This situation requires the highest skills of the family physician, namely, the ability to apply an understanding of clinical epidemiology to the care of the individual and her family, combined with rigorous attention to the underlying ethical issues.

Family physicians are often inhibited in discussing sexual matters with their patients. In the UK we frequently assume that if a patient thinks she might have a sexually transmitted disease, she will attend a genitourinary medicine clinic. In fact, women often bring their unspoken fears to the family physician. They may present in family planning or well-woman sessions, frequently with no genital symptoms, and request a cervical (Papanicolaou) smear. Physicians in these settings commonly collude with this behavior and avoid discussing sexual lifestyle or anxieties.[1,2] The patient may leave the consultation after being told her examination is normal, falsely reassured that she does not have a genital infection.

Numerous studies have stressed the nonspecific nature of the symptoms and signs associated with chlamydial infection and the large number of silent infections that are found later during the investigation of chronic pelvic pain or infertility.[3] There are some indicators of high risk that have been reported in both American and European studies.[4,5] These women are younger, with a recent change of sexual partner (who may himself have urethral symptoms), use the combined oral contraceptive pill, and are of nonwhite race. Genital symptoms are unhelpful, although the woman may complain of increased discharge. Clinical examination may reveal a cervix that bleeds on contact and the presence of a mucopurulent discharge. In a recent wide-ranging review Millar,[6] however, reminds us that most of the studies of female chlamydial infections have been carried out in inner-city clinic populations or student health facilities. A stereotyped and stigmatizing picture of the woman likely to harbor *Chlamydia trachomatis* may have arisen as a result, which may in turn lead to underdiagnosis in other populations with different socioeconomic characteristics.

The increasing incidence of chlamydial infection in women has resulted from a combination of the nonspecific or silent nature of the disease, the changing sexual behavior of men and women, and the lack of widely available diagnostic tests. A culture, generally considered the most sensitive and specific test, is expensive and time consuming and requires laboratory expertise. Culture methods may be insensitive if the specimens are of poor quality or the transport arrangements inadequate. Nonculture methods rely on antigen detection, and there are two general approaches. The direct immunofluorescence test (DIF test) uses fluorescein-conjugated monoclonal antibodies to detect chlamydial elementary bodies in a smear prepared from an endocervical specimen. Stamm[7] has reviewed the performance of the DIF test in 15 studies in intermediate prevalence populations: the median sensitivity was 77% (range 61% to 96%) and the median specificity was 97% (range 94% to 99%). The sensitivity of the test, largely determined by the skill of the technician in staining and examining the specimen, is usually high in research settings. This method is the only one that allows direct evaluation of the quality of the clinical specimen. The alternative approach relies on the detection of chlamydial antigen eluted from an endocervical swab and measured by enzyme-linked immunosorbent assay methods (ELISA test). In 12 studies in an intermediate preva-

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lence population, the test had a median sensitivity of 85% (range 60% to 96%) and a median specificity of 97% (range 93% to 98%).[7]

All physicians attempting to diagnose chlamydial cervicitis, or to screen for the condition in healthy women, must have a fundamental understanding of the concept of sensitivity and specificity of a diagnostic test and appreciate that as the prevalence of the infection falls, the predictive value of a positive test will also fall, although the predictive value of a negative test will rise.[8] The implications for the family physician are immediate: it is essential to have an idea of the prevalence of genital chlamydial infections in the practice population and to request from the laboratory the local sensitivity and specificity of the diagnostic test they use if they are using antigen detection methods. The prevalence of chlamydia among asymptomatic women seen in family practice is likely to be low (7% for example), and a test with a specificity of 93% used in such a group would yield 50% false-positive results. A negative test result would, however, be reliable.

The family physician must exercise extreme care in using chlamydia antigen detection tests. The first priority is to listen to the patient and encourage her to express her anxieties and problems. A frank and sensitive discussion of her sexual behavior and any difficulties in her relationships that may point to risky behavior on the part of her current or recent sexual partner(s) will build trust and enable the physician to estimate whether she is likely to belong to a higher or lower prevalence population. If the physician and patient together agree that there is a possibility of a chlamydial infection and the patient is prepared for a positive test result, then it is reasonable to use an ELISA or DIF test. If, however, the patient does not believe that a positive result is possible, the physician should explain that a negative result is reliable but that a positive result indicates only an increased chance of infection that must be confirmed by culture. It is irresponsible practice to use a DIF or ELISA test for chlamydia diagnosis or screening unless these uncertainties have been fully explored with the patient first.

The results of tests for any sexually transmitted disease should be discussed in the context of prevention, health promotion, and enhancing the patient's self-esteem and autonomy: giving information but also listening carefully to the meaning of a positive test for that particular patient. If this is achieved, then the patient will have a good understanding of the effects of an untreated infection and will be more likely to comply with therapy, to avoid intercourse with infected partners, and to ensure that partners receive treatment, if needed. All women with genital chlamydial infections should be followed up, and many, realizing the potentially disastrous effects of chronic disease, will request a test of cure. For those who can confirm that they have complied with advice, and given that resistance to antibiotics is not currently a problem, a normal clinical examination may well suffice. This course of action is only safe within an excellent physician-patient relationship where one can be certain that the patient has really understood the nature of the infection. This means that the physician has the skills to talk openly about sexuality and personal and family relationships, and knows the patient well enough to judge her level of maturity and self-esteem, both important factors in determining her attitude to reinfection. Has she been able to discuss it with her sexual partner(s)? If she has not had a new partner, does she blame her husband? Has the diagnosis caused family tensions and recriminations? As family physicians we may find that we are also the physician for the sexual partner, and if we are confident of our ability to diagnose male urethritis, we can test for and treat the infection, always remembering the increased likelihood of other infections such as gonorrhoea. In the UK we usually recommend that the partner attend a sexually transmitted disease clinic for diagnosis and treatment if he is not a patient of the practice.

This issue of the Journal contains a study[9] that examines the performance of an ELISA test for chlamydia as a test of cure and attempts to answer the important question: when do chlamydial antigen tests become negative after initiation of treatment for chlamydial cervicitis? The authors conclude that the ELISA test can safely be used for test of cure in chlamydial cervicitis. It is essential to remember two things about this conclusion: first, that the diagnosis was confirmed by culture, thereby avoiding the possibility of false-positive tests before and after antibiotic therapy; second, that in treating these women, they are converted into a very low prevalence population where, as we have already seen, the predictive value of a positive test is much lower. In this study all of the women were negative by 6 days after treatment, and as the predictive value of a negative test is extremely high, the women could be considered cured. It is inevitable, however, that as larger series are reported, there will be women who are still positive for chlamydia at follow-up, where, after discussion with the patient, the only way to differentiate between a true-positive and false-positive will be to perform a culture.

There are several situations in which a test of cure for chlamydial cervicitis is necessary. Any woman about to undergo an abortion, or to have an intrauterine contraceptive device inserted, or to give birth must be free of the infection.[10–12] The problem in these situations remains that of deciding whether the woman is in a higher risk group and should be tested initially. In general, the decision to test for a chlamydial infection and the interpretation of the result, including the result of a test of cure, is determined and informed by the nature of the physician-

patient relationship. We must share our reservations about the performance of the antigen detection methods and the occasional insensitivity of culture with the patient, and must ensure that we create an opportunity within the consultation for an open discussion of the likelihood of a sexually transmitted infection. Both patient and physician should be prepared for the results of any tests undertaken so that we do not add to the burden of distress that this unpleasant infection already causes.

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